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WATER BILLING SYSTEM APPLICATION

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KISORO TOWN WATER & SEWERAGE AUTHORITY

HACK soft® Systems

Water Billing System Application

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About the Developer



Ntambi Mousah is a technologist and founder of HACKsoft® Systems (<http://www.hacksoftsystems.com>), an ICT company that specializes in Customized Software development, hands-on training in the world in ICT.

Ntambi Mousah speaks regularly at international conferences and has developed and co- developed numerous systems about .NET, Java, PHP, XML, and wireless technologies, including ASP.NET 2.0 and Visual Basic 2005/08. He is also the co- developer for SMAG (School Management System). Find out about the latest systems and softwares by HACKsoft® Systems at (<http://www.hacksoftsystems.com>).

About the Technical Reviewer

Mugabi Robert is a senior consultant and a senior analyst/developer using Microsoft technologies. He works for HACKsoft® Systems (<http://www.hacksoftsystems.com>) in its Ugandan branch. He is a Microsoft Certified Solution Developer for .NET, a Microsoft Certified Application Developer for .NET, and a Microsoft Certified Professional, as well as a prolific author and technical reviewer. Over the past two years he has developed systems for many organisations.

Acknowledgments

Although the “Acknowledgments” section of a book is always placed at the front, it is always the last thing a developer writes; and after spending several months working on the system together with different groups of people, most names are not even mentioned (or at least mentioned in passing). Yet, without the collective efforts of these people, the book would never have been possible.

This system is no exception.

Now that this system is done, I can finally look forward to seeing it on the computers of Town Councils and Districts.

I want to take this opportunity to thank myself, Ntambi Mousah, for my guidance and valuable suggestions for making this system a better software. Mugabi Robert, the technical reviewer for this system, also deserves special mention because he painstakingly tested every module in this system and made several good suggestions for improving the quality of the code. Thank you, Mugabi Robert. And this system would never be possible without the great patience of its project manager, Nyiraneza Dorothy. Dorothy was extremely patient with me while I was juggling developing this system and working on my other projects. For this, I am very grateful, Dorothy! To the production crew, Birungi Jackson, Rugundana Barbra —thanks for the great job of polishing my work!

I also want to thank Kisoro Town Council for financing this project. And I want to express my gratitude to Birungi Jackson and Rugundana Barbra for their help in getting me started with his system. They have been very patient in guiding a software-idiot (that’s me) and for this I am very grateful to them! Last but not least, I want to thank the chief Programmer of HACKsoft® System, Mutawe Ronald. Ronald has always been very open to my new system ideas, and his support has provided me with the avenues to try new project ideas. For this, I am indebted and very grateful to you, Robert.

Finally, thank you for accepting this system and I hope you have a great time with the various modules developed in this system.

Acronyms

Acronym	Meaning
KITC	Kisoro Town Council
KITWASO	Kisoro Town Water and Sewerage Authority
SWUWS	South Western Umbrella Water Sanitation
IS	Information System
BASIC	Beginners All purpose Symbolic Interchange Code
DBMS	Database Management Systems
DML	Data Manipulation Language
LAN	Local Area Network
OLEDB	Object Linking Embedded Database
GUI	Graphical User Interface
ID	Identification
MS	Microsoft
ODBC	Object Database Connectivity
PC	Personal Computer
RAM	Random Access Memory
RDBMS	Relational Database Management Systems
SQL	Structured Query Language
UML	Unified Modelling Language
VB	Visual Basic
VB.NET	Visual Basic .Net framework

1.0 Introduction

1.1 Background

The document gives an account of the activities and procedures involved in using the water billing system that processes water bills and invoices for Kisoro Town Water and Sewerage Authority in Kisoro District – Uganda.

To become a customer to the KITOWASO water supply scheme, customer details are filled in the customer register upon payment of connection fee then a meter number and an account number are given to the client.

Billing is done at the end of every month, previous records in billing and payment are searched manually by a minimum of three officers from the customer, billing and payment registers to compute the bill successfully and an invoice is filled in the invoice book then dispatched to the customer by the field clerks.

Payments are effected by the customer from the town council water offices or via the bank. Either way the customer's payment is later recorded in the payment registry and a receipt is issued using a receipt book.

1.2 Scope

The system processes bills, payments, reports, manage customer details, inventory/Stock records, human resource details and payroll information.

The data that is input in the system such as [meter readings] and [customer details] is not being collected by the system but by the KITOWASO field clerks.

1.3 Significance and Justification

- The system helps KITOWASO in services such as:
- Computerized storage of customer details, payment, billing records, stock records, human resource details and payroll information.
- Quick retrieval of customer, billing and payment records.
- Minimized computational errors.
- Real time response to customer queries.
- Efficient and reliable retrieval of customer transaction history.

- Automated generation of management reports for the water board.
- Timely provision of invoices and receipts to customers.
- Employee morale boosting.

2.0 System Analysis

Collected data was analyzed to understand the system and user requirements. Functional and non-functional requirements were then identified and requirement specifications established.

2.1 Requirements Definition

Billing software that:-

- Is efficient in storing and retrieving data accordingly when necessary and reports can be generated effectively and automatically as outputs. Showing performance using curves on collection, billing, volume of water sold, outstanding arrears, VAT billed and collected.
- Prints out the History, meter reading and payment status can be input, processes and then outputted in form of a bill documents for each customer on demand.
- The database is coded, tested, designed and implemented in SQL Database Management System (DBMS) using a Database server 2005
 - Net worked, two different data can be entered at the same time with different people.
- Has security with two options of user names requiring passwords to log on to the system and each user has a limited access according to user responsibility to the system and company. Store any adjustments done on a bill.
- Be scalable to any number of customers that is designed in Microsoft Visual Basic 2005 which provides much functionality.
- Contains the stored module that helps the water Board monitor and have it in the system.
- Has a payroll module managed through the computer.
- Has a human resource details that is qualifications, experience which most of the operators hide and are not open to this request when asked.

- The Company staff (those that have installed the software) are at hand for any help sought by users in case of any problem within the guarantee period of one year.

2.1.1 User Requirements

The System:

- Captures, processes, stores and keeps track of customer, payment and billing details.
- Implements restricted and authorized access.
- Monitors daily user transactions.
- Keeps track of customer transaction history.
- Generates monthly financial details/reports.
- Supports normal and administrative users.
- Is available at any time of the day.
- Is very fast during the processing stages.
- Is upgradeable in future.
- Gives room to edit a billed invoice.
- Is fast enough so that the searched results are got in a reasonably small time interval.
- Is user friendly and maintainable by persons of average computer skills, with no knowledge on the software used.
- Has the capacity to handle the scheme's expansion without need to redesign.

2.1.2 Functional Requirements

- To capture, store and retrieve customer details.
- To process, store and keep track of customer bills.
- To process, store and keep track of Payments.
- To store, retrieve, keep track and update meter states. That is Running or Disconnected.
- To produce Invoices and Receipts upon billing and payment respectively.
- System should perform administrative tasks such as editing an Invoice and monitoring user's daily transactions.
- Should register and keep track of Customer's complaints.

- Should store, retrieve and update customer's transaction history
- To process general financial details on a monthly basis.

These financial details are:

- Total Amount collected from monthly bills
- Total Amount collected from New connections
- Total Amount from Kiosks
- Total Amount billed
- Total Number of New connections
- Total Number of Disconnections
- Total Number of Connections
- Total Debt
- Total Credit
- Total Stocked items

2.1.3 Non-Functional Requirements

- Support two types of users that is; Administrator and Normal users.
- Restrict access to the system by password protection.
- Backup procedures are implemented.
- Process very fast and release real time results
- System should be available at any time of the day.
- Allow user access restriction through a username and password.
- Be fast enough to satisfy the users.
- User interfaces is simple and intuitive as possible.
- User interfaces provides data validation against user input.

2.1.4 Software Development Tools

- Microsoft SQL Sever 2005 for the database
- Microsoft Visio 2007 as a software modelling tool
- Microsoft Visual Basic.NET in (Microsoft Visual Studio 2008) for creating the front-end and GUI for the user
- Data Report (in Visual Basic.NET) and crystal reports basic 2008 for creating system reports

2.1.5 Software and Hardware Requirements

2.1.5.1 Staff's Computer (Client)

- Windows NT, 2000 professional, XP Operating System
- At least 128 MB RAM
- At least 600 MHZ
- At least 10GB HDD
- Microsoft Office

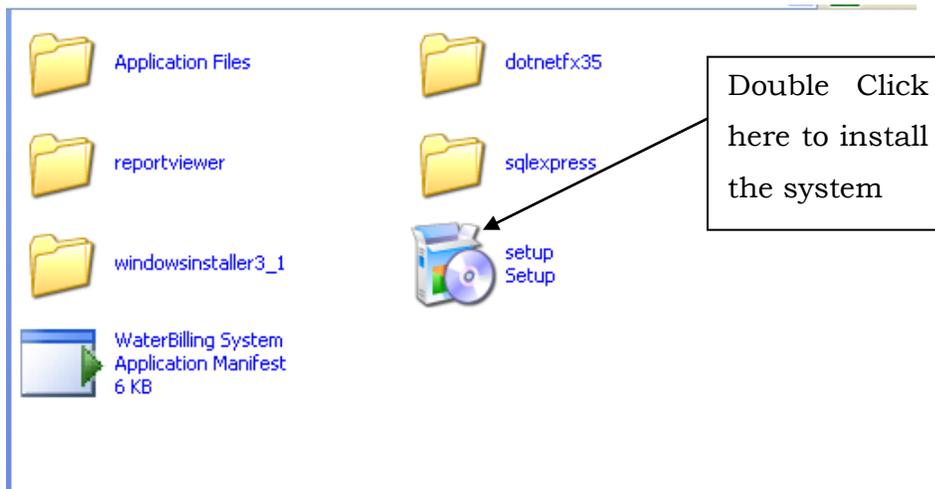
2.1.5.2 Database Server (Server)

- Windows NT, 2000 professional, XP Operating System or Advance Server
- At least 512MB RAM
- At least 1.5GHZ processor
- At least 80GB HDD
- Microsoft SQL Server 2005
- Microsoft Office

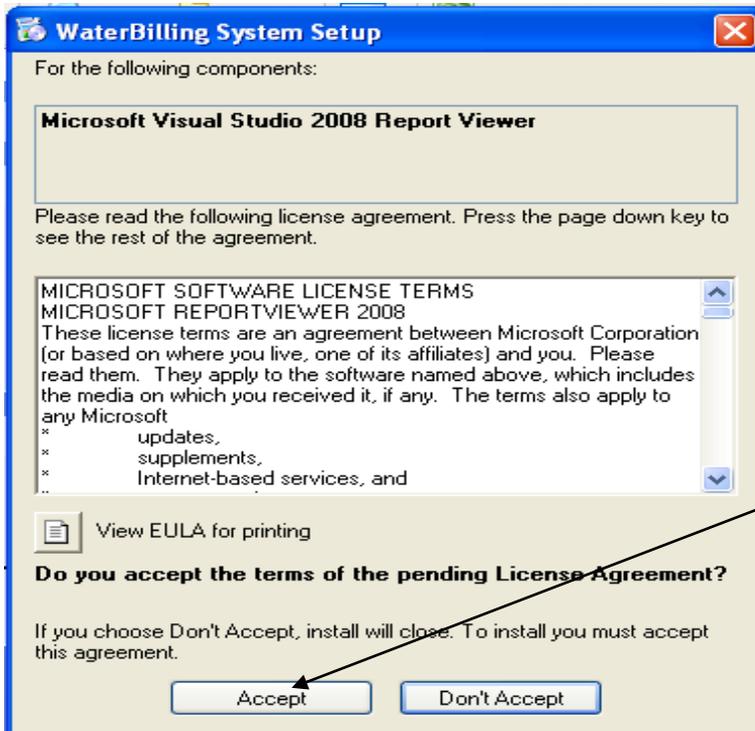
3.0 System Installation

3.1 Server Installation

Open the folder for Server and Copy the folder WaterBilling System to “D: /” then open the setup folder and install the application using the available setup named “setup”.



The following window will be displayed.

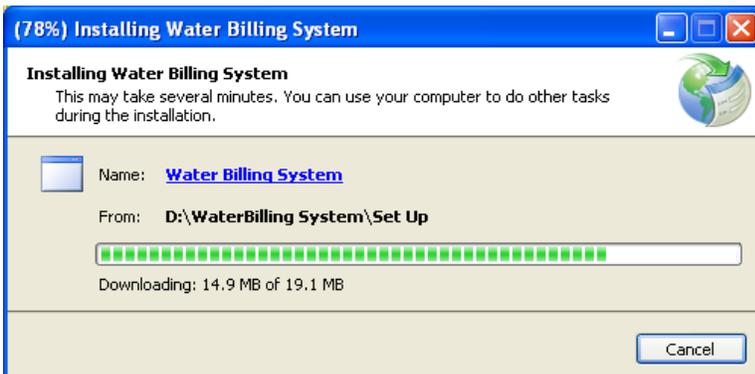


Click on Accept for all the drivers to be installed.



Click on Install to continue with the installations otherwise click "Don't Install" to cancel

Click here for more information about the installation procedures of the system



3.2 Client Installation

Open the folder for Client and Copy the folder WaterBilling System to “D: /” then open the setup folder and install the application using the available setup named “setup”.

Follow the installation procedures for the server computer to install the client system.

3.3 Server Configuration

Open the folder for Installer & Mngt Studio

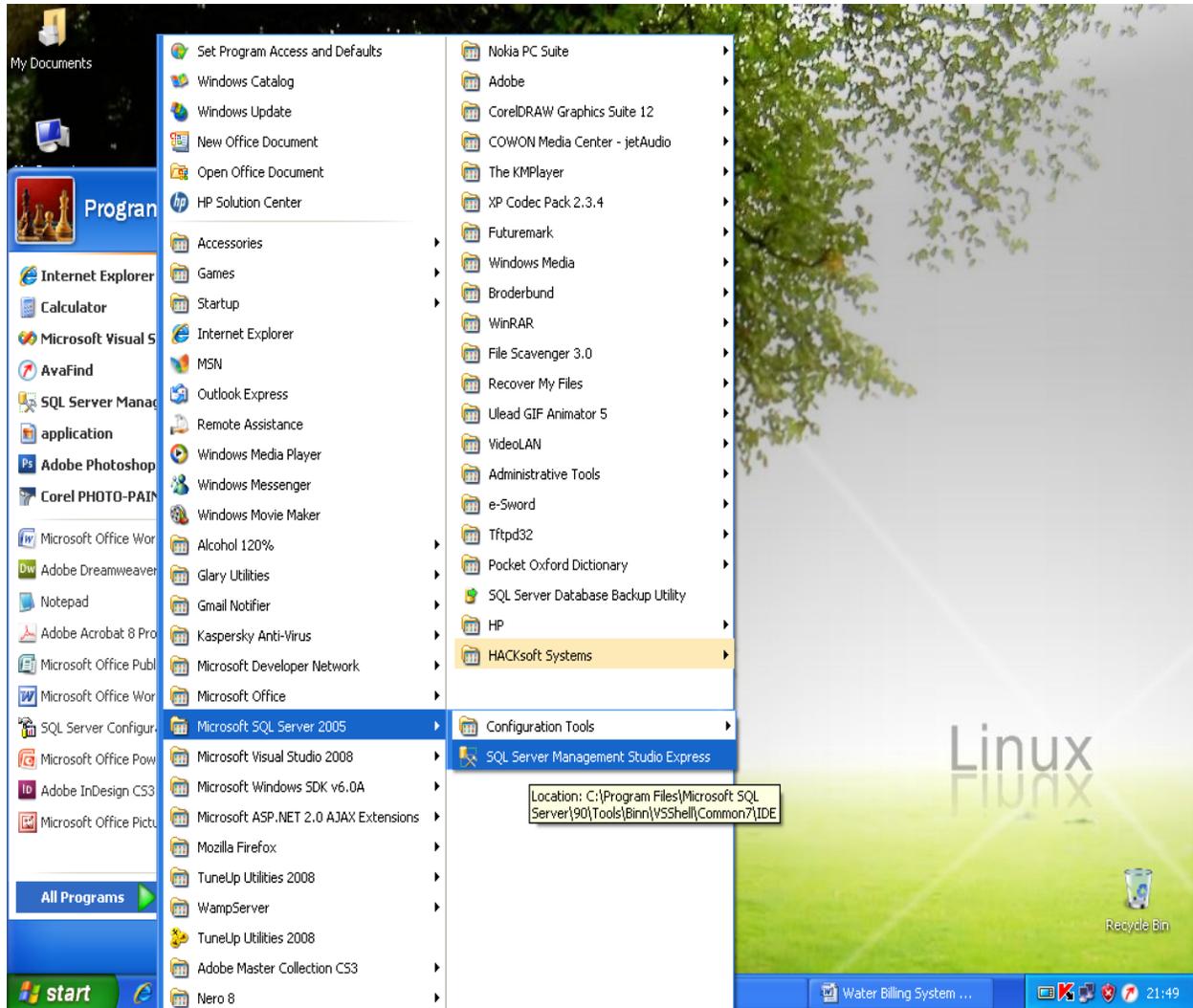


The following Microsoft SQL Server Management Studio window will be displayed.

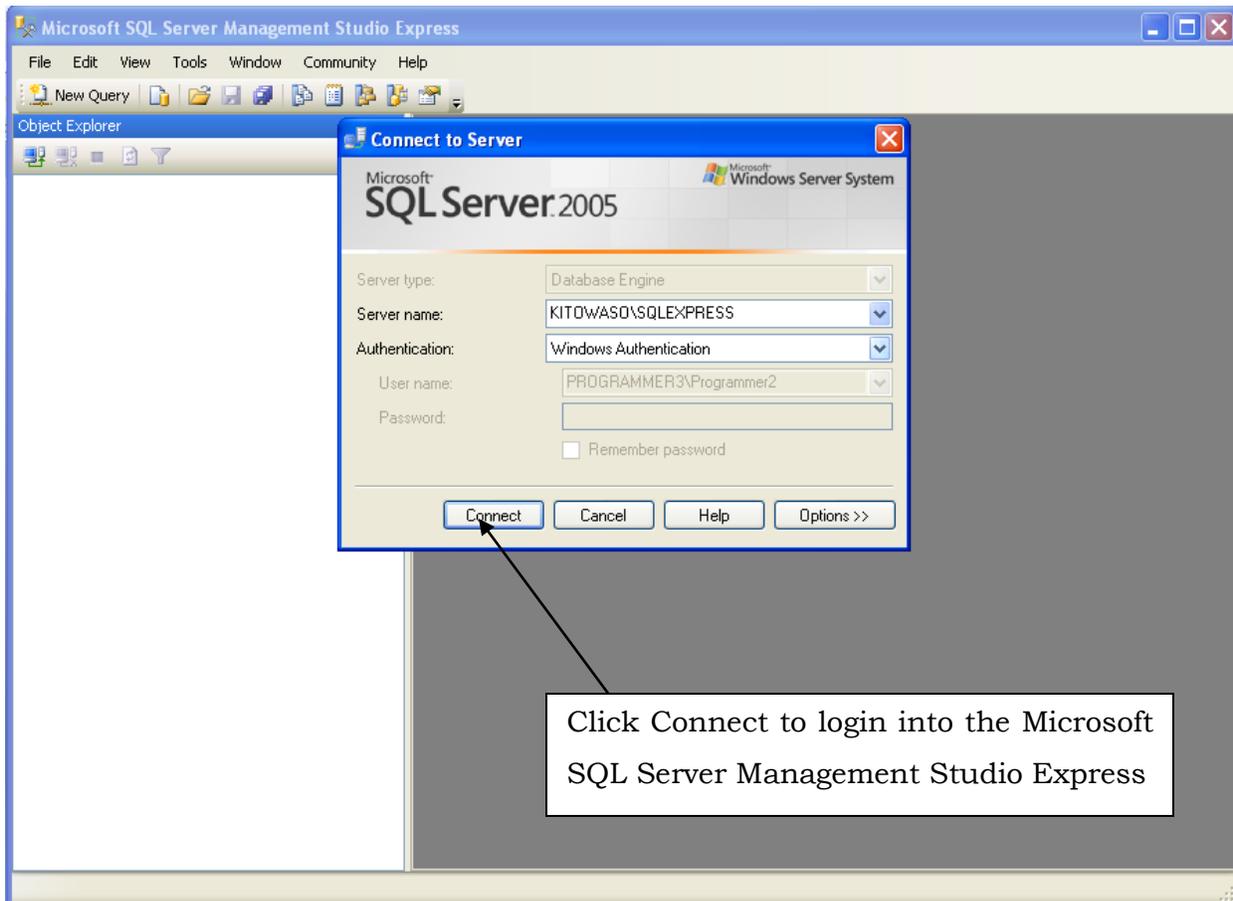


Click Next and continue to install the Microsoft SQL Server Management Studio.

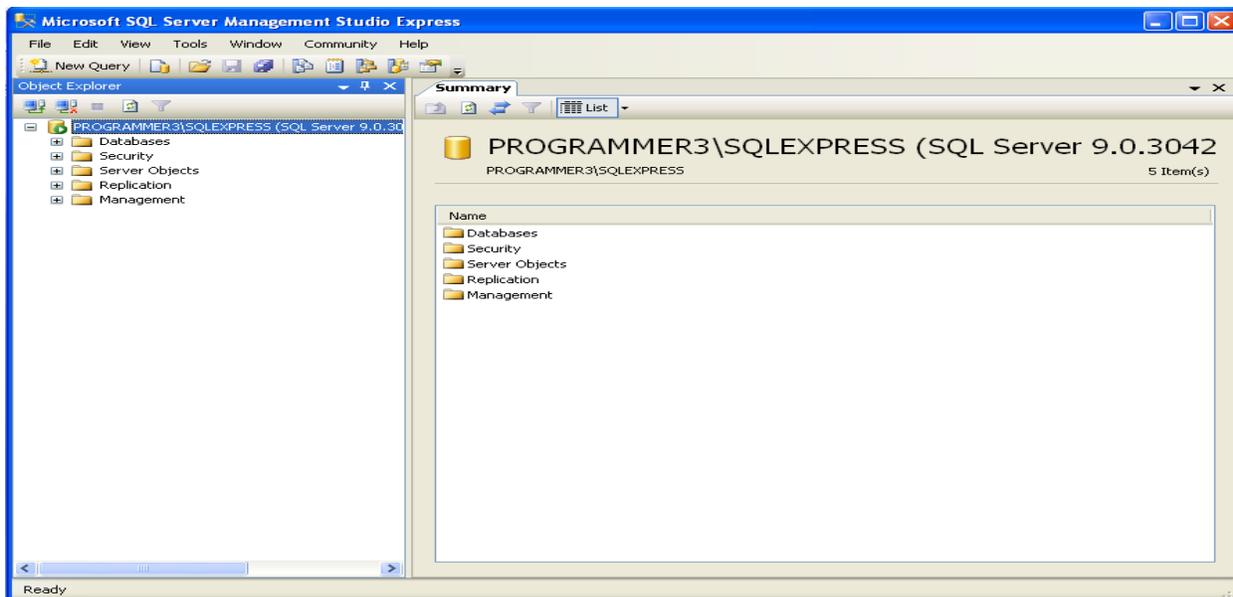
After installing Microsoft SQL Server Management Studio, Click start, All Programs, Microsoft SQL Server 2005 and then SQL Server Management Studio Express as shown below.

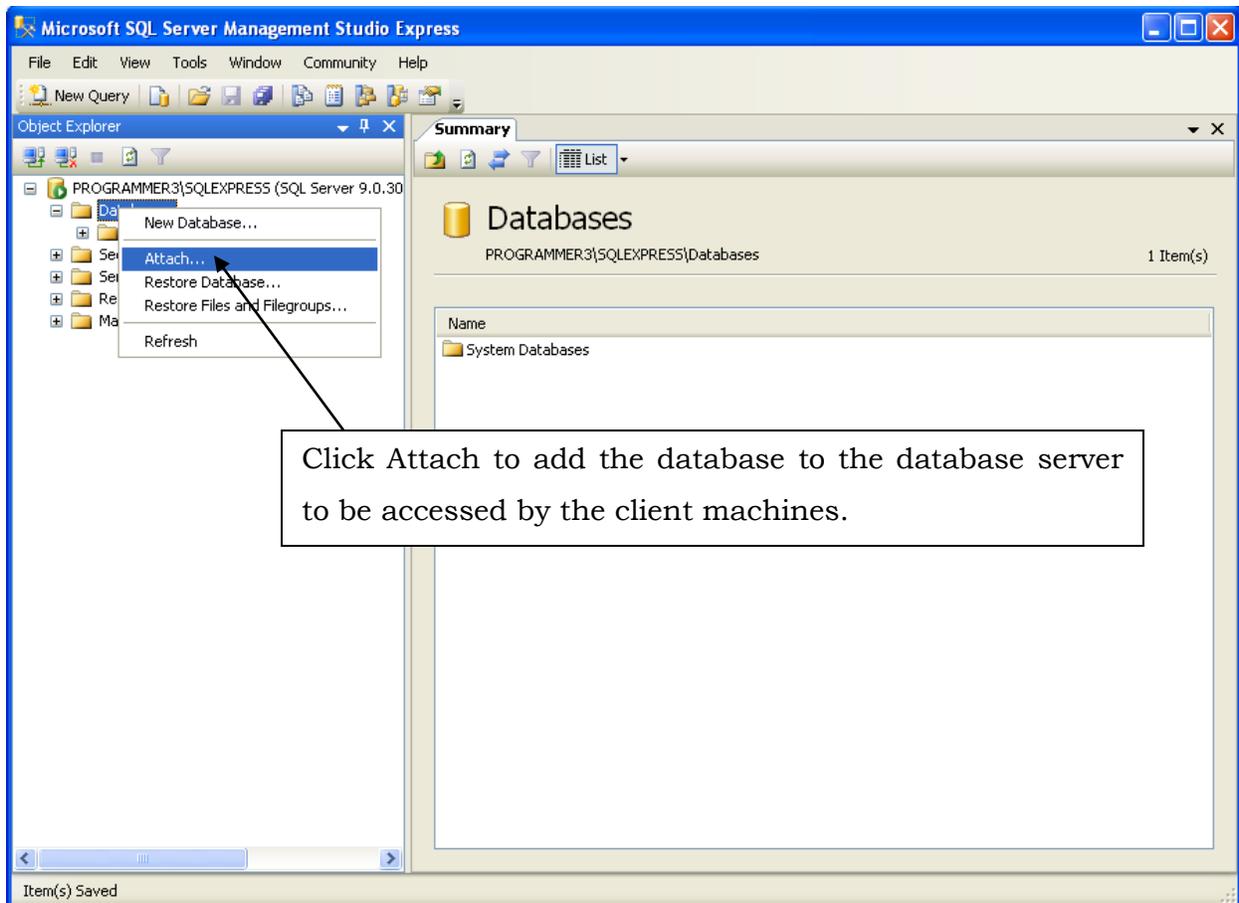


The following SQL Server Management Studio Express window will be displayed.

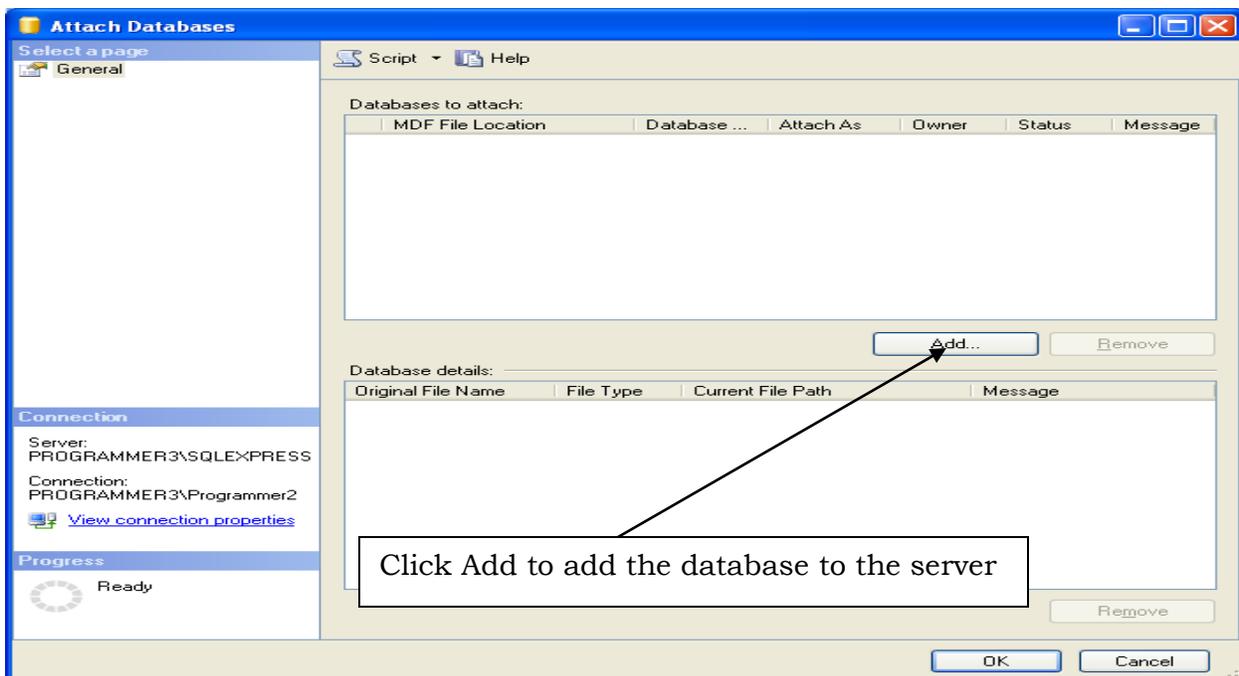


The following SQL Server Management Studio Express window will be displayed.

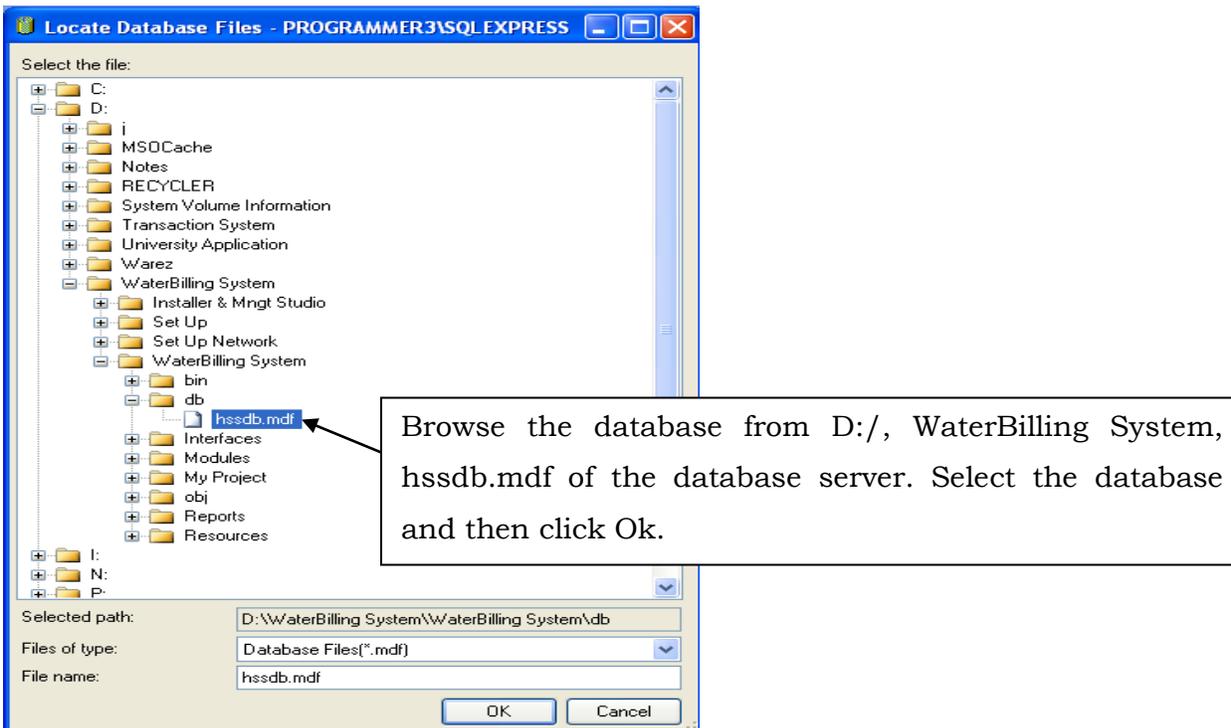
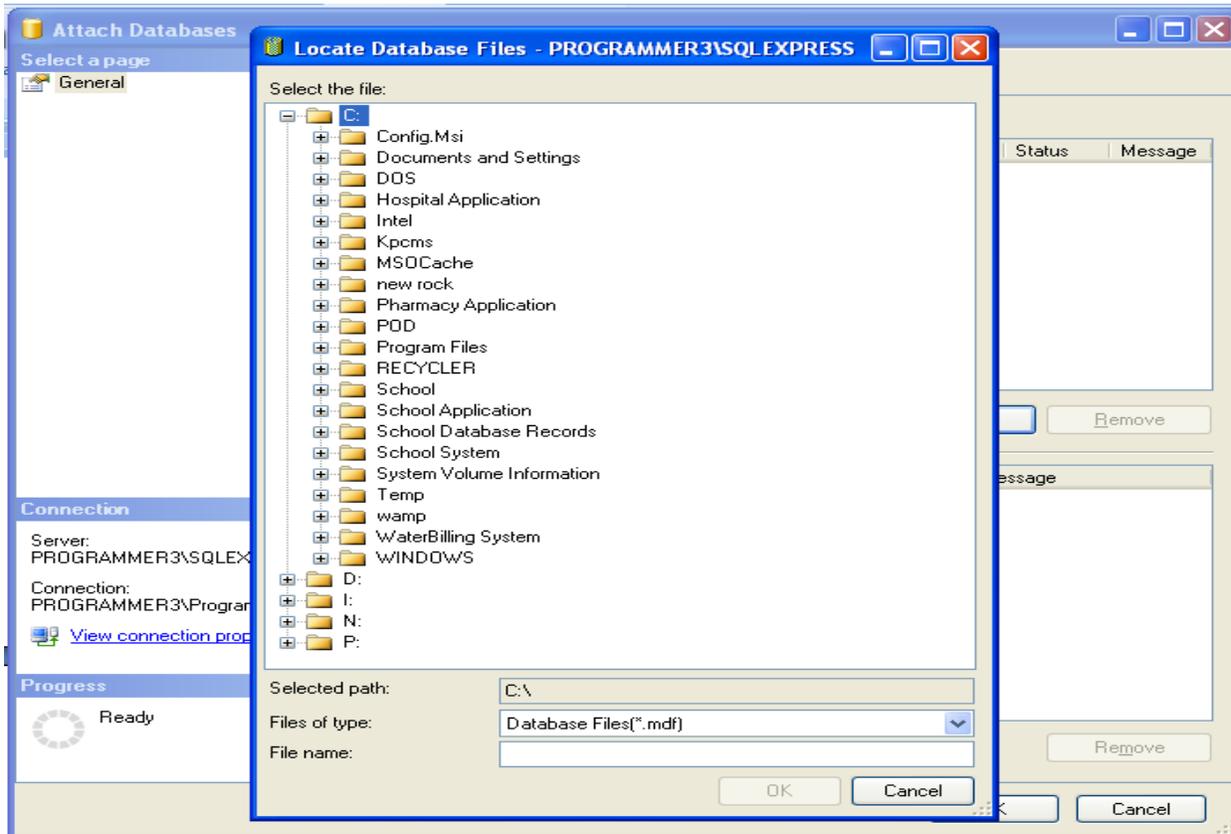




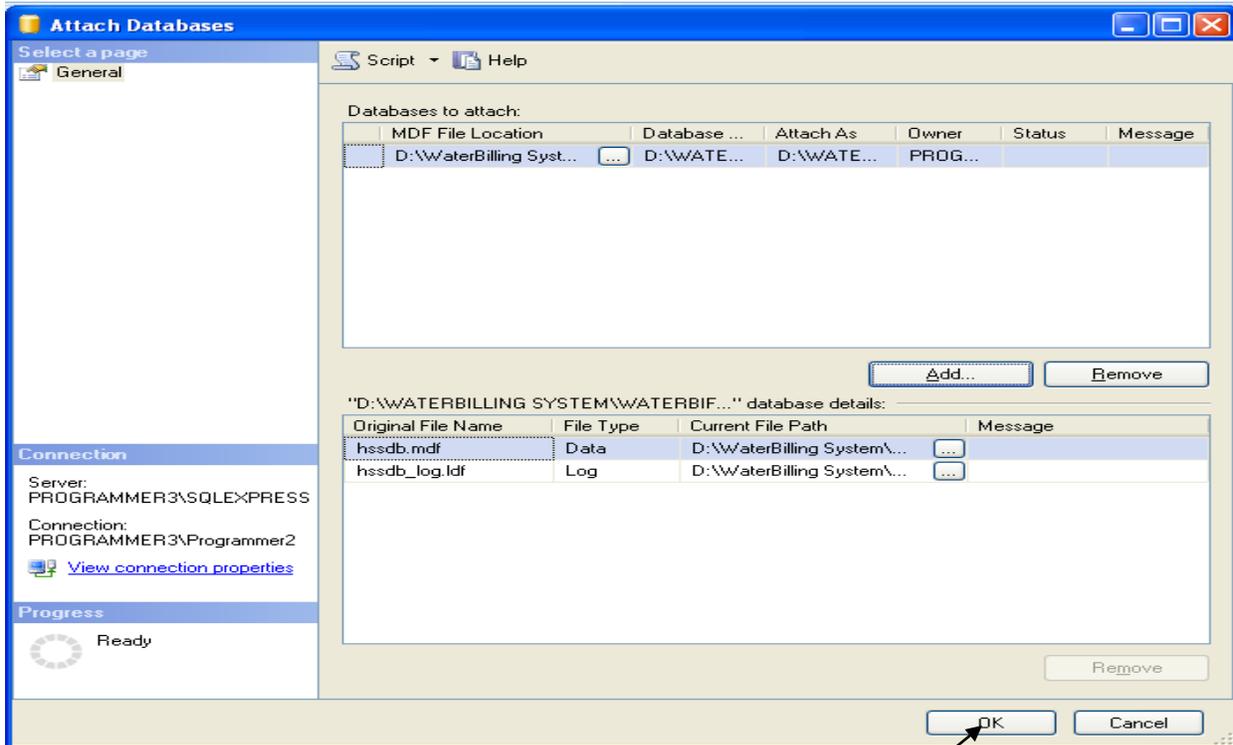
The following Attach Databases window will be displayed.



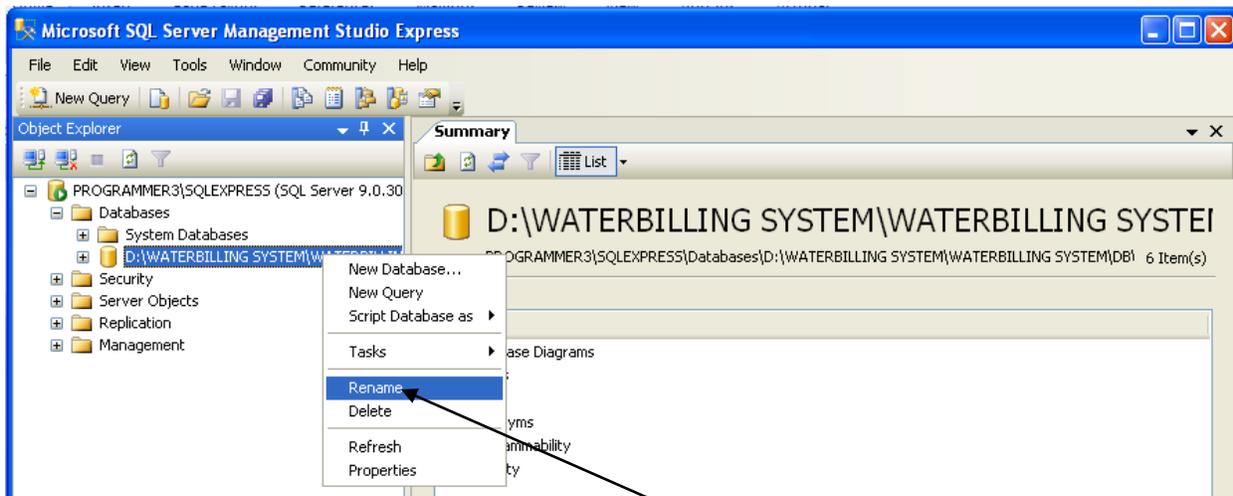
The following window will be displayed.



The following window will be displayed.



Click Ok to add the database to the server

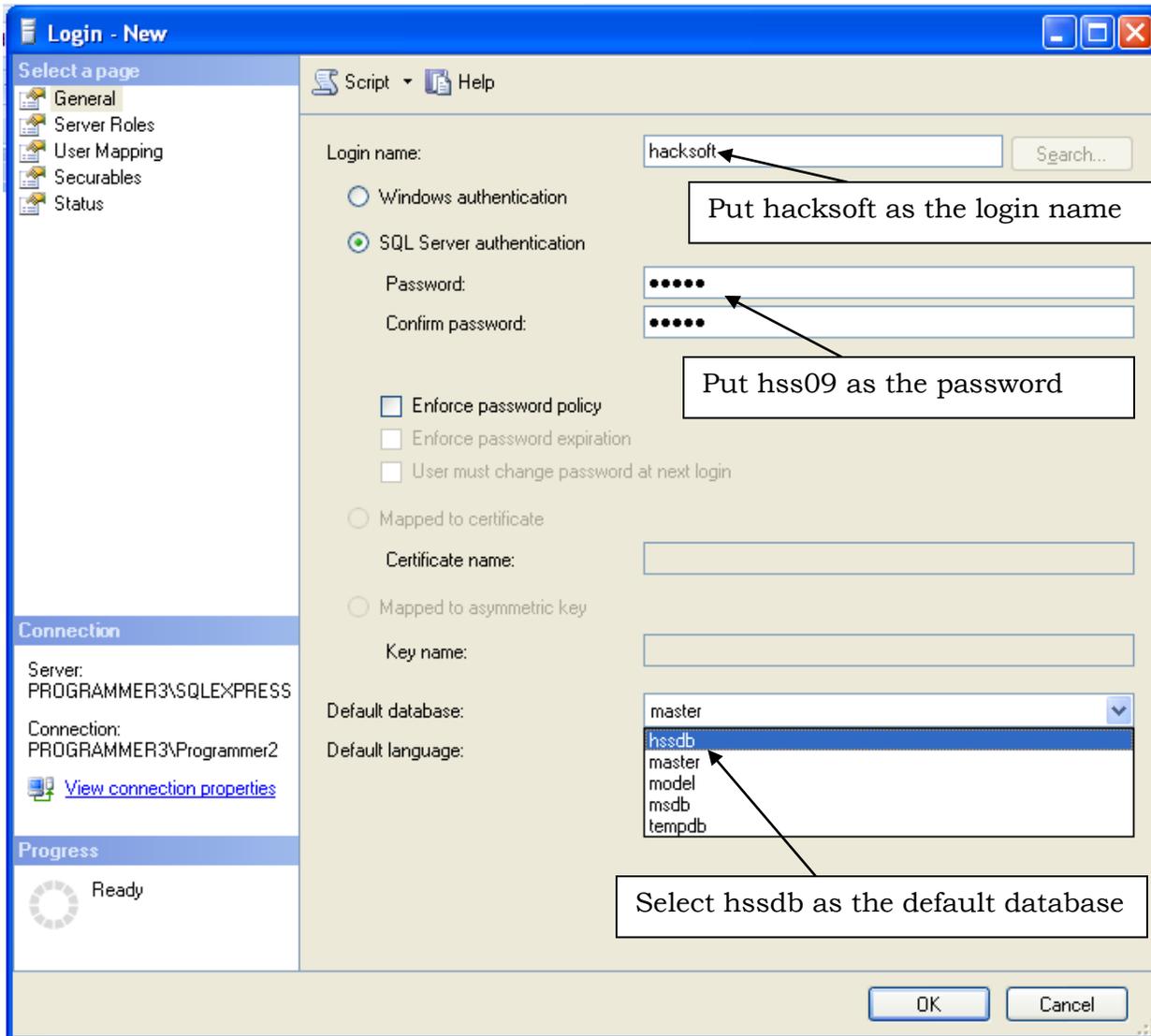


Right Click the Attached database and rename it with, "hssdb"

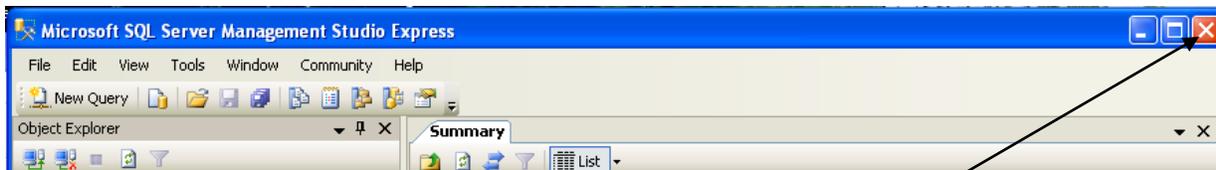




The following Login – New window will be displayed.

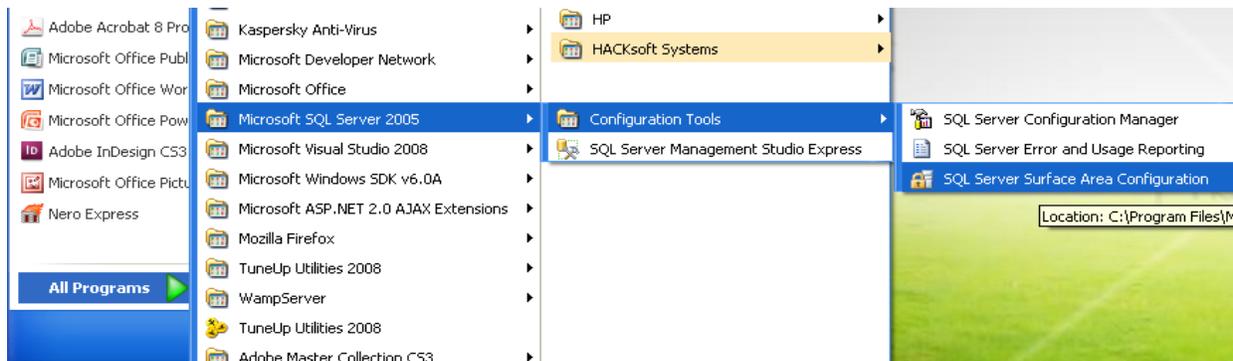


Click Ok to save the settings and exiting the Login – New window.



Click on the close button to close the window

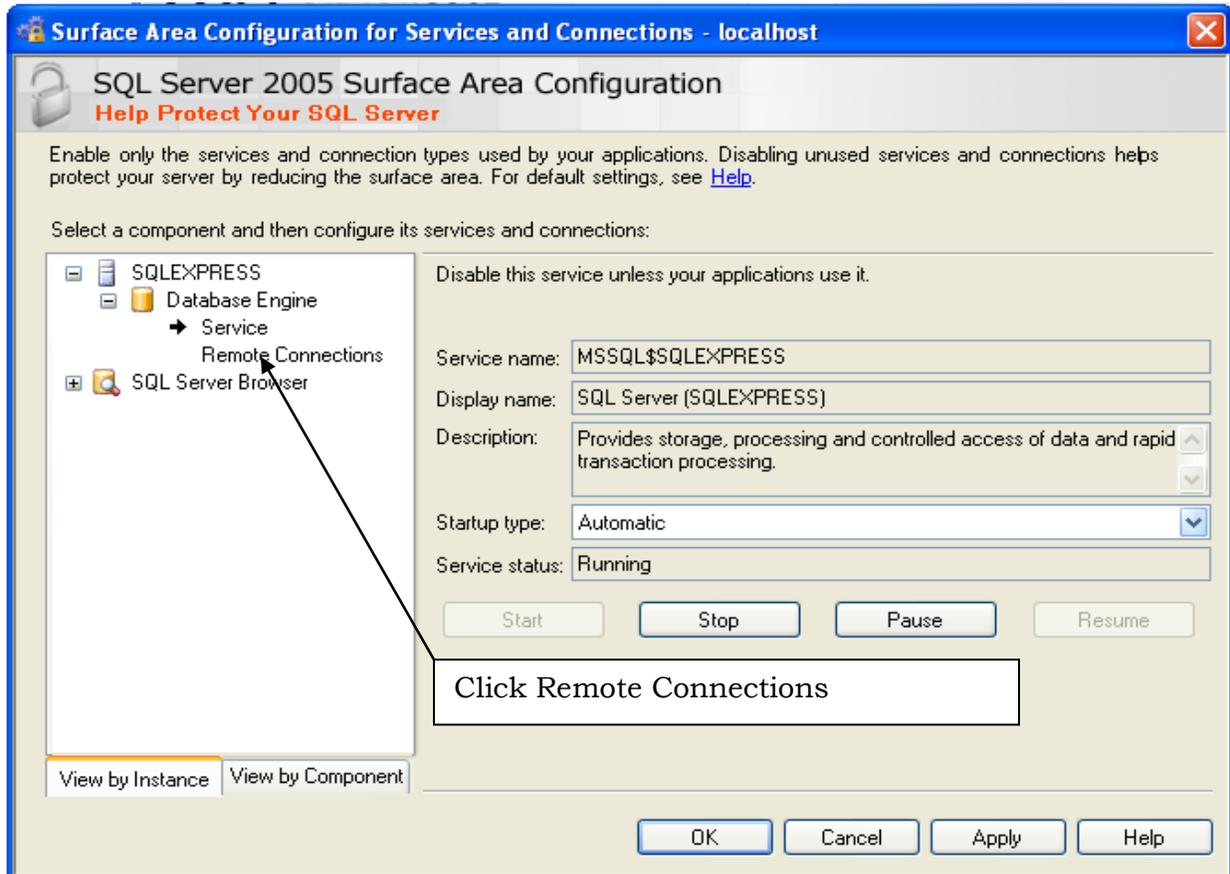
Click start, All Programs, Microsoft SQL Server 2005 and then SQL Server Surface Area Configuration to configure the database server as shown below.



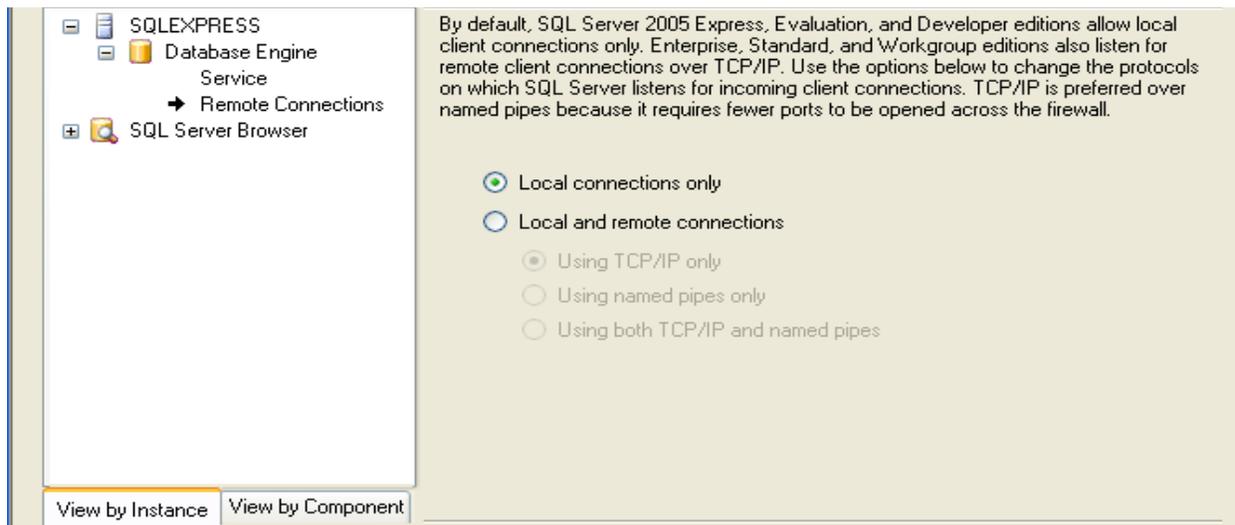
The following Server Surface Area Configuration window will be displayed.



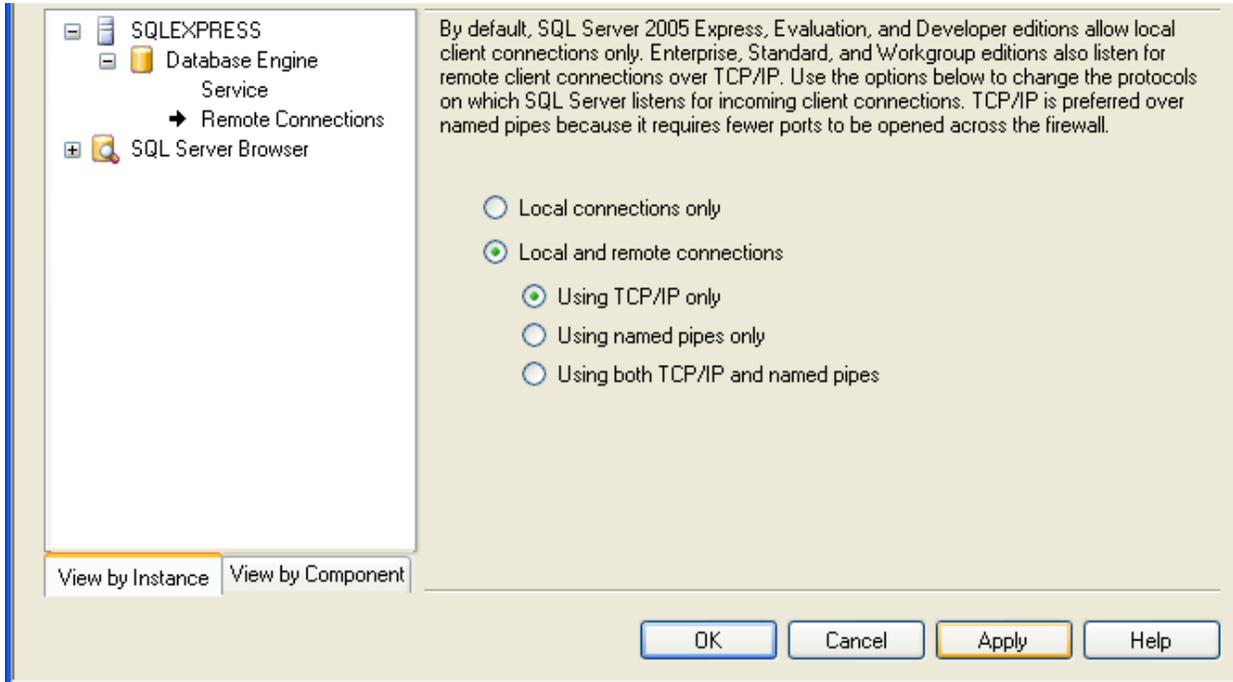
Click Surface Area Configuration for services and connections and a window below will be displayed.



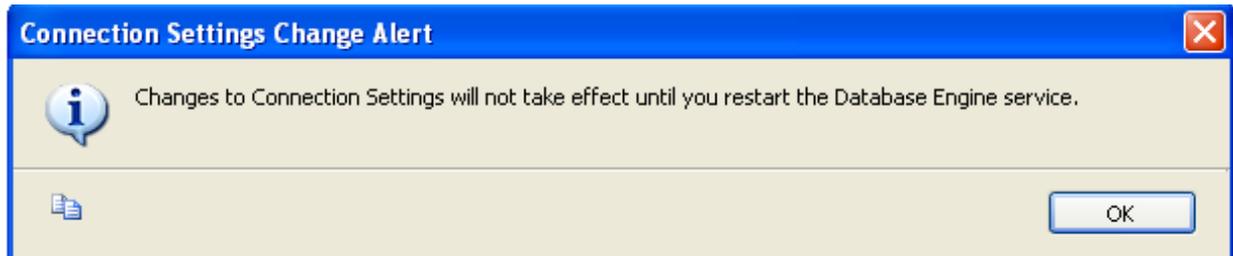
Click Remote Connections under SQLEXPRESS – Database Engine and a window below will be displayed.



Click the option for Local and remote connections to allow client machine to connect to the database server computer and a window below will be displayed.



Click Apply to save the changes made and a dialog window below will be displayed.



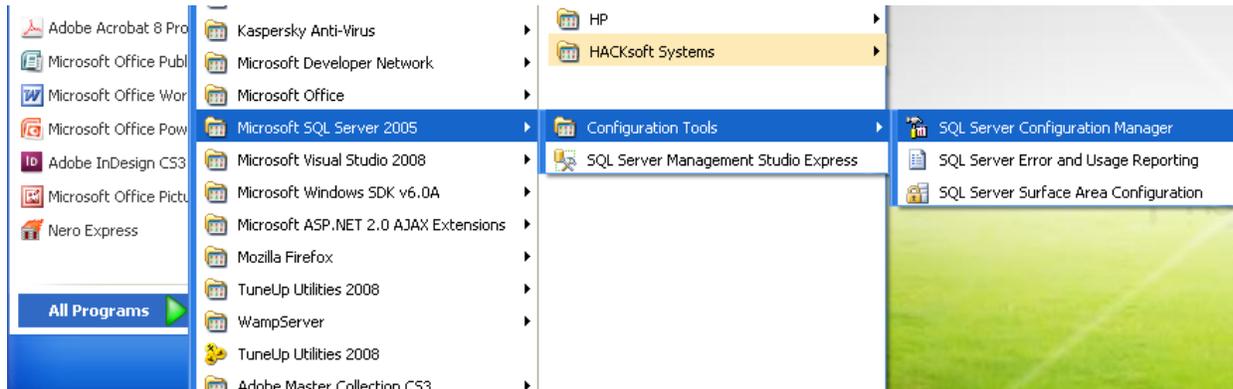
Click Ok.

Click Ok to close the Surface Area Configuration for services and connections window.

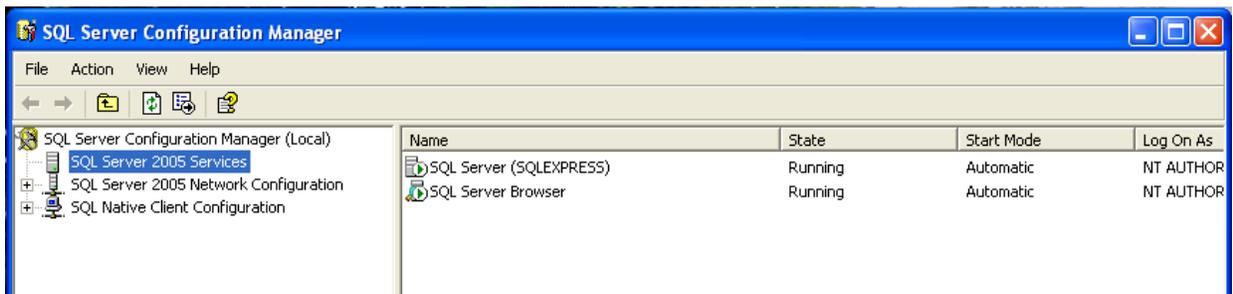


Click on the close button to close the window

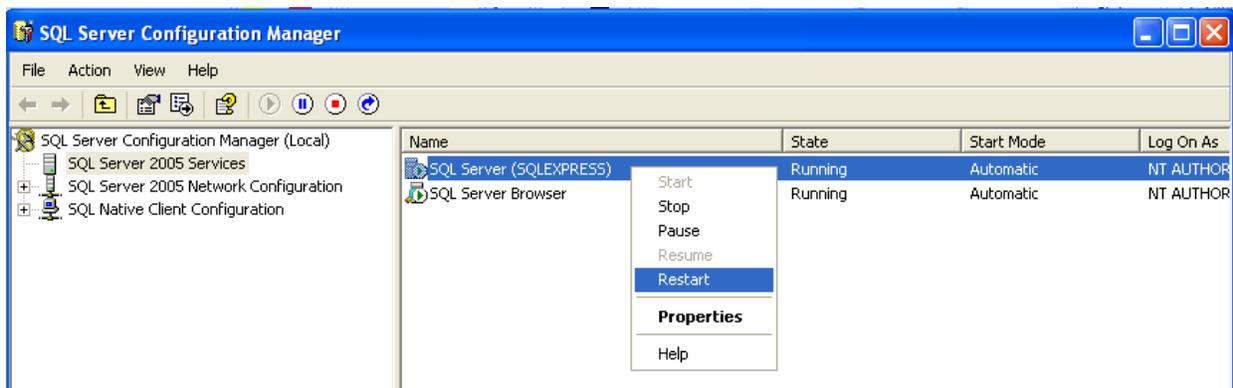
Click start, All Programs, Microsoft SQL Server 2005 and then SQL Server Configuration Manager as shown below.



The dialog window below will be displayed.

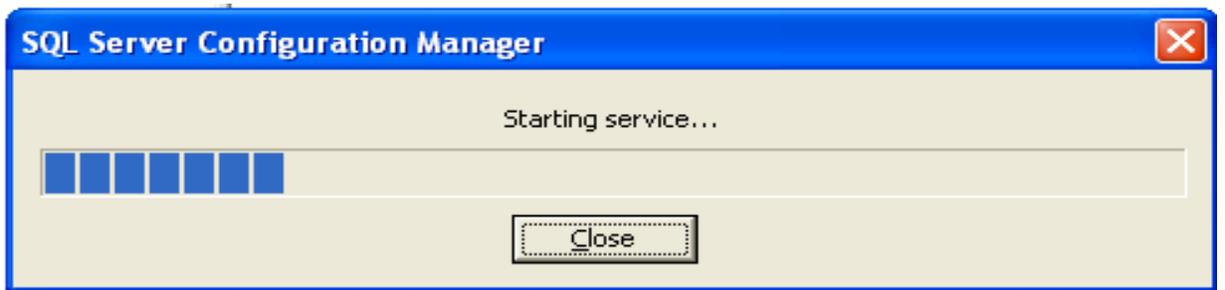
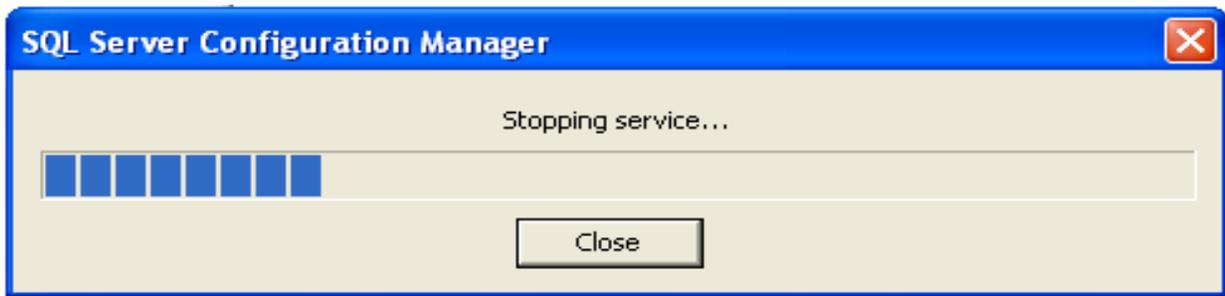


Right Click SQL Server (SQLEXPRESS) as shown below.



Click Restart to restart the SQL Server (SQLEXPRESS) service.

The dialog windows below will be displayed one after the other as shown below.



Wait until the dialog window disappears.

Click on the close button to close the SQL Server Configuration Manager window as shown below.



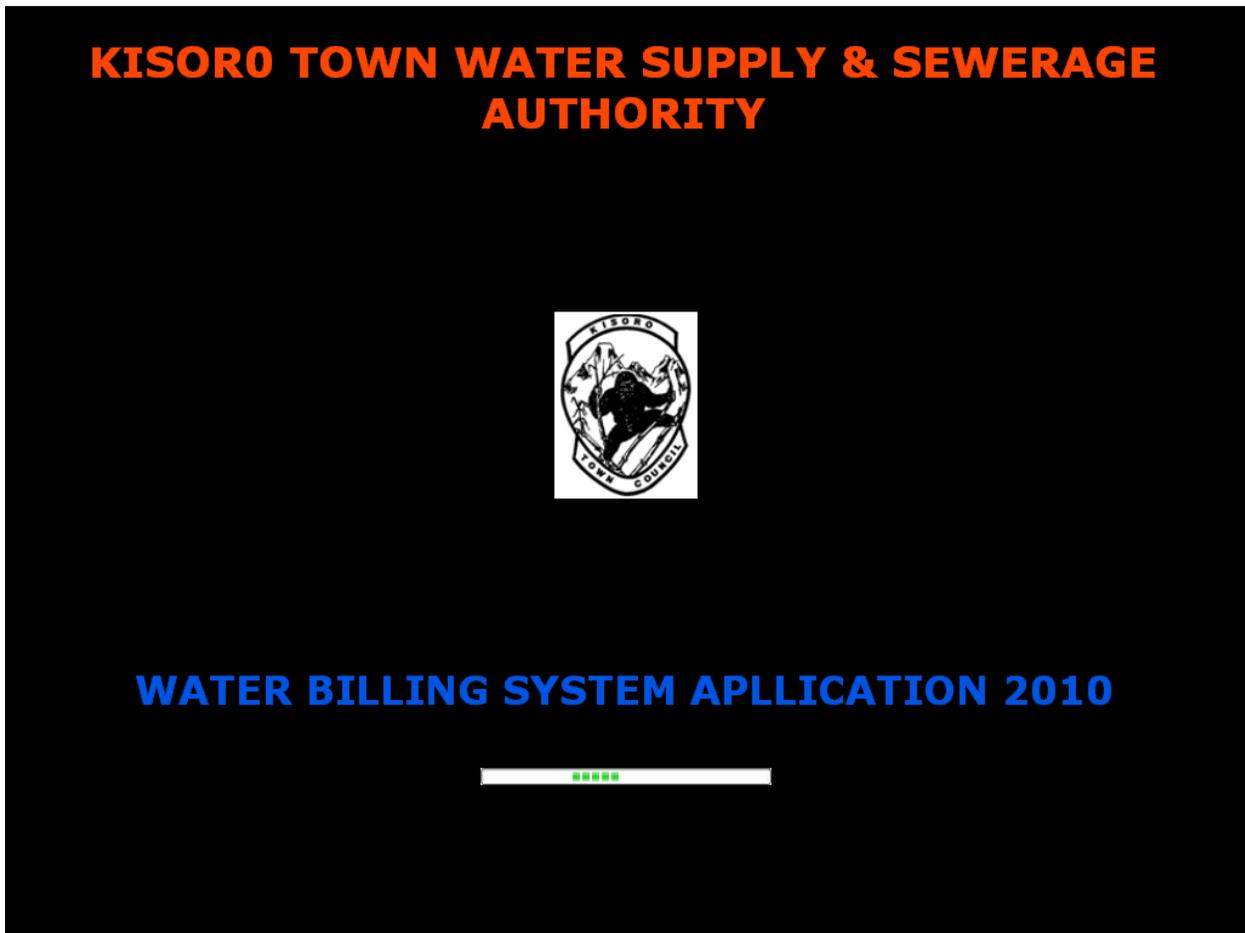
Click on the close button to close the window

4.0 Opening/Running of the System

4.1 System Login

Click start, All Programs, HACKsoft Systems and then WaterBilling System to run the installed system.

The Introduction form below welcomes you to the application.



The login form below is displayed on top of the introduction form.

A Windows-style dialog box titled "Login" with a close button (X) in the top right corner. The dialog has a light beige background and a decorative graphic on the left side consisting of three interlocking loops in green, orange, and blue. It contains two text input fields: "User name" with the text "hss" entered, and "Password" with ten asterisks "*****" entered. At the bottom, there are two buttons: "Ok" with a green checkmark icon and "Cancel" with a red X icon.

This login form is used for security of the system. The user is required to enter the username and the password. The security levels and user rights are implemented at this form depending on the type of user logging into the system.

The login form is used to check for the availability of the database server. If the server is not available the following dialog window will be displayed.



The Main Document Interface (MDI) form below will be displayed.



The above form is the main switchboard. It acts as an MDI form onto which other forms display on. It is an interface to all the other forms.

The Main Document Interface (MDI) provides the navigation and different links to particular sections of the system to the user. All system processes like adding new records, updating existing records, analysis and reports are accessed from the MDI form.

4.2 Overview of the special System screen elements

Title bar

The title bar displays the system/application name and the current year plus the close button.



Closes the window or program

Menu bar

The system has a number of different menus with various program commands. Clicking a menu name reveals a pull down menu with a list of related commands.

Tool bar

The tool bar contains frequently used commands with in and out side the application that can be accessed simply by clicking. For example, you can use your mouse to open note pad by clicking on the icon for note pad.

The tool bar also contains the user name of the staff member who has logged into the system after the frequently used commands plus the current system time and date of the computer.

Logo Tasks

This section of the system contains the company logo. It can be hidden and shown by clicking on the right corner buttons accordingly.

Display Area

This is the section of the system where the other forms of the system are displayed when prompted by the system users.

Database Tasks

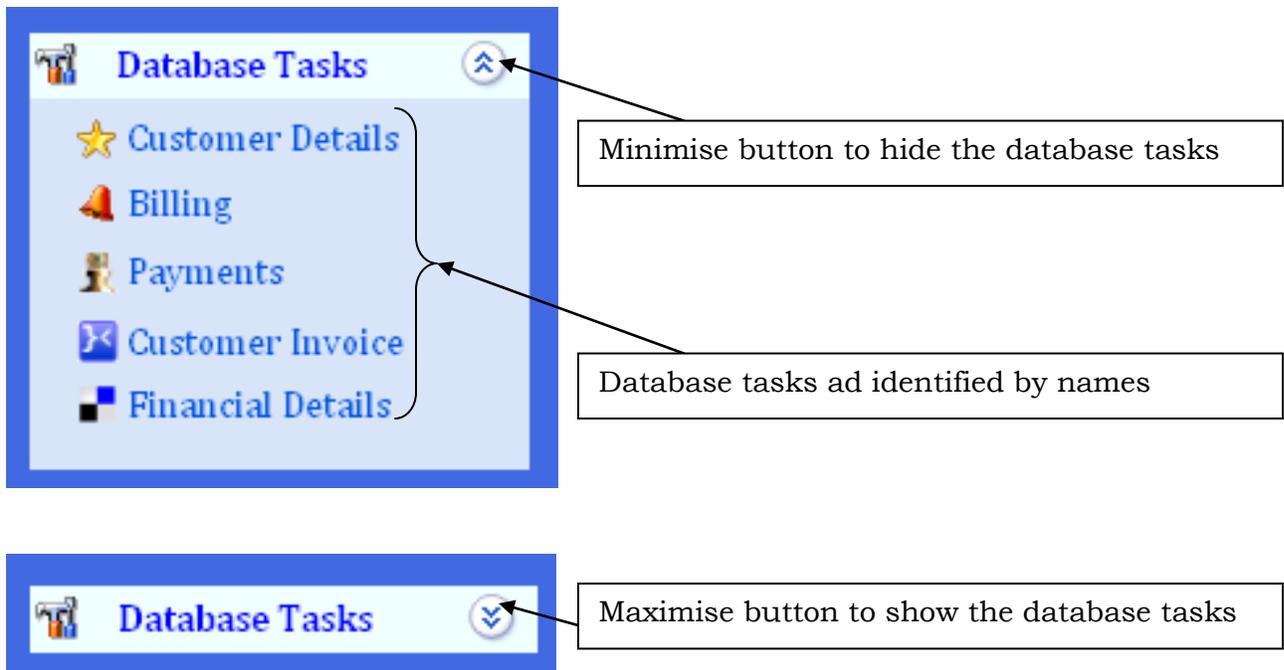
The system has a number of different database tasks with various program commands. Clicking a task name reveals a pull down menu with a list of related commands.

Task bar

This section of the system contains the developer details i.e. the company motto, the name of the Company, Copyright year plus rights reserved and the phone contacts of the developer for emergency technical support and inquires.

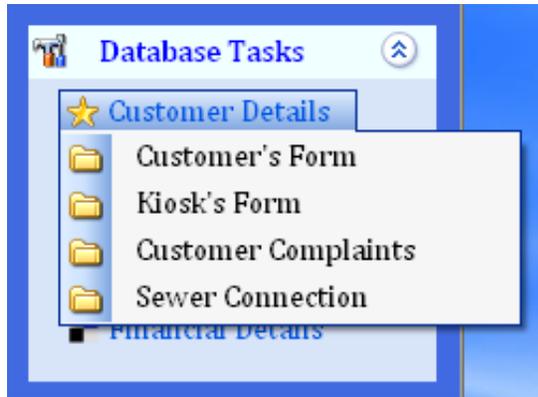
4.3 Database Tasks

The database tasks menu displays the database tasks by names as shown in the figure below.



4.3.1 Customer Details

The customer details can be displayed by pull down menu on clicking on the customer details command as shown in the figure below.



Customer details includes; Customer's Form (Customer Management Form), Kiosk's Form (Kiosk Management Form), Customer Complaints (Customer Complaints Form) and Sewer Connection (Customer Sewer Connection Form).

4.3.1.1 Customer Management Form

The customer management form below is used to capture customer details and display them when required.

This form acts as a customer entry point into the system. Customer details are entered here. These details include; Customer Name, Customer Number, Meter Number, Record Date, Sub-County, Location, Plot Number and Basis of Charge.

The customer number is assigned automatically by the computer, so there's no need to follow up the last customer number.

The Sub-County, Ward/Parish and Location can be selected from the existing by clicking on the drop down menu corresponding to the title name or can be typed by the user if it does not exist in the system.

The Basis of strictly and can only be selected form the existing options in the drop down menu.

Customer Managemnet Form

Customer Name: Customer Number:

Meter Number: Record Date:

Sub-County: Ward/Parish:

Location: Road:

Plot Number: Basis of Charge:

Customer's Records

Index	Customer's Name	Customer Number	Meter Number	Connection
1	Kwizera Alex.1	1	FA00409000676	10/20/200
2	Harerimana Boniface	2	222309	10/20/200
3	Kabami Nteziyaremye (Microcare)	3	0409000677	10/20/200
4	Panda (UML)	4	223096	10/20/200
5	Nteziryayo Abdul	5	04100071	10/20/200
6	Segawa. Buruhani.1	6	0703186	10/20/200
7	The Manager (Bufumbira Hotel)	7	FB011909-04	10/20/200
8	Hitimana Lukanika(Dr)	8	3692058	10/20/200
9	Hareba Benon.1	9	0409000679	10/20/200
10	Ahamed Fayida (Park View house)	10	025931-05	10/20/200
11	Seguya Didas	11		10/1/2009
12	Mugabo John.1	12	223598	10/20/200
13	Naana Richard	13	FA024813-05	10/20/200
14	Kisoro Mosque	14	134622	10/1/2009
15	Mugabo Salim	15	0703380	10/1/2009
16	Kwizera Herberts Home	16	9112081	10/20/200
17	Nsenga Gerald	17	03131	10/20/200
18	Niyonzima Ivan	18	3691838	10/1/2009
19	Uwimana Francis.1-(Home)	19	3693354	11/7/2009
20	Buqiqi Muhammad -home	20	3692060	10/1/2009

The record date is selected form the drop down date menu as shown in the figure below.

Customer Managemnet Form

Customer Name: Customer Number:

Meter Number: Record Date:

Sub-County: Ward/Parish:

Location: Road:

Plot Number: Basis of Charge:

Customer's Records

Index	Customer's Name	Customer Number	M
1	Kwizera Alex.1	1	FA
2	Harerimana Boniface	2	22
3	Kabami Nteziyaremye (Microcare)	3	0409000677

Mon	Tue	Wed	Thu	Fri	Sat	Sun
25	26	27	28	29	30	31
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
1	2	3	4	5	6	7
Today: 09/02/2010						

FORM OPERATIONS

Add New: - In this operation, a new customer is entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.



Edit: - Before you carry out the edit, select the customer whose details you want to edit from the list view, and then press edit. If you don't select a record the following error message is displayed.



If you select a record then the system will then process the customer information and prepare the form for editing as shown by the Edit Customer Management Records form below.

Edit: - Initiate this operation if you would like to make changes to existing records. Records are loaded into a Data grid view where you can edit them directly. Find the record that you want to edit and carry out the operations as you would wish i.e. **Save** changes made, **Delete** entire record, or **Previous** if you would wish to exit without saving changes.



Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.3.1.3 Customer Complaints

This form captures complaints as forwarded by the Customers. This interface also gives you control over the complaints, managing the read messages (complaints), and the unread. Complaint details that are captured include: - Customer Name, Complaint Date, and Complaint.

Customer Complaints Form

Customer Name: **Abex Washing Bay** Complaint Date: **Tue - 23/Feb/2010**

Complaint: **Broken Pipes**

New Complaint Records

Index	Customer Name	Complaint Date	Complaint

Select All Select None Mark As Read

Old Complaint Records

Index	Customer Name	Complaint Date	Complaint

Select All Select None Mark As Unread

Add New Edit Refresh Close

FORM OPERATIONS

Complaint Management

To mark as read: - the upper list view shows the complaints that have not yet been read. To mark as read, select the check box adjacent to the complaint, and then press Mark As Read.

To select all complaints, press Select all below the list view.

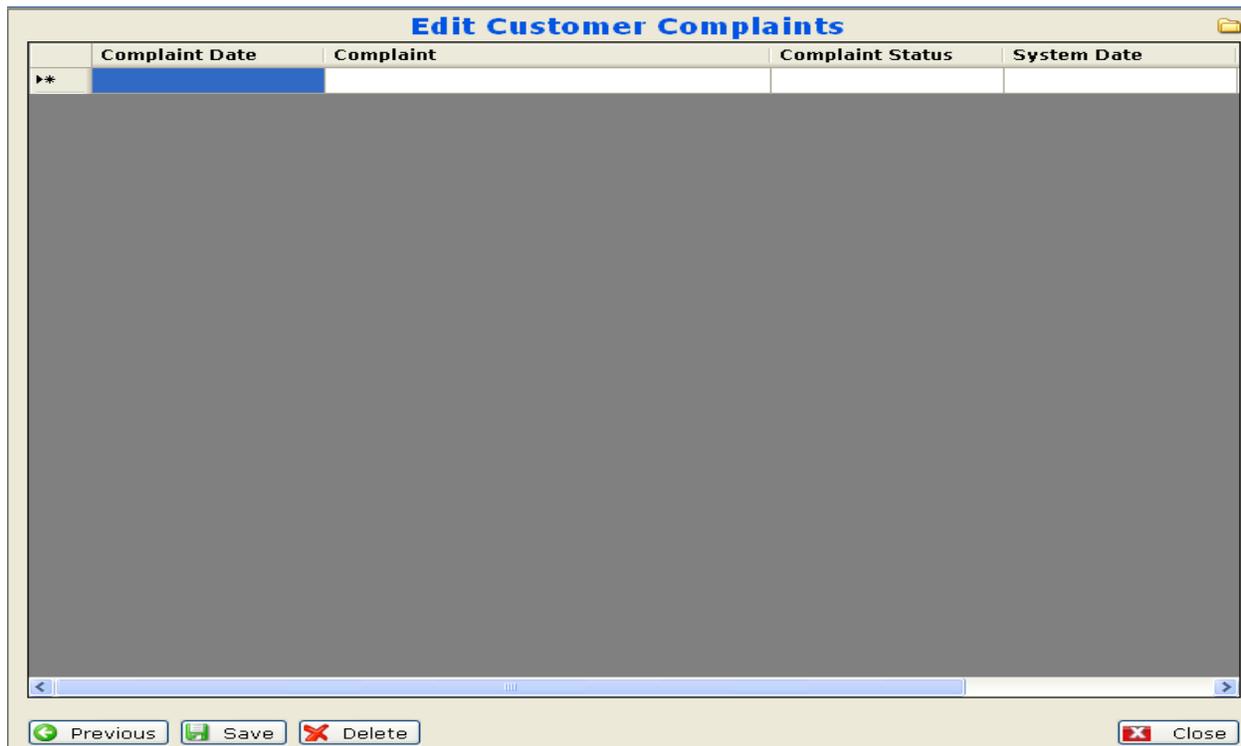
To mark as Unread: - The lower list view shows the complaints that have already been read. To mark as unread, select the check box adjacent to the complaint, and then press Mark As Unread.

To select all complaints, press Select all below the list view.

Add New: - In this operation, a new customer is entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.



Edit: - Initiate this operation if you would like to make changes to existing records. Records are loaded into a Data grid view where you can edit them directly. Find the record that you want to edit and carry out the operations as you wish i.e. **Save** changes made, **Delete** entire record, or **Previous** if you wish to exit without saving changes.



Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.3.1.4 Sewer Connection

This form updates the sewer connection status of the customers. Customers that are connected to the sewer line are recorded in the sewer status as connected while those that are not connected to the sewer line are recorded in the sewer status as Not Connected by default. All new customers are recorded in the sewer status as Not Connected by default. The Customer sewer status form can be shown below.

Customer Sewer Connection Form

Customer Number: Customer Name:

Sewer Status: Connection Date:

Service Fee:

Customer's Records

Index	Customer's Name	Customer Number	Sewer Connection Status	Sewer Coni
1	Kwizera Alex.1	1	Connected	10/1/2009
2	Harerimana Boniface	2	Connected	10/1/2009
3	Kabami Nteziyaremye (Microc...	3	Connected	10/1/2009
4	Panda (UML)	4	Connected	10/1/2009
5	Nteziryayo Abdul	5	Connected	10/1/2009
6	Segawa. Buruhani.1	6	Connected	10/1/2009
7	The Manager (Bufumbira Hotel)	7	Connected	10/1/2009
8	Hitimana Lukanika(Dr)	8	Connected	10/1/2009
9	Hareba Benon.1	9	Connected	10/1/2009
10	Ahamed Fayida (Park View ho...	10	Connected	10/1/2009
11	Seguya Didas	11	Connected	10/1/2009
12	Mugabo John.1	12	Connected	10/1/2009
13	Naana Richard	13	Connected	10/1/2009
14	Kisoro Mosque	14	Connected	10/1/2009
15	Mugabo Salim	15	Connected	10/1/2009
16	Kwizera Herberts Home	16	Connected	10/1/2009
17	Nsenga Gerald	17	Connected	10/1/2009
18	Niyonzima Ivan	18	Connected	10/1/2009
19	Uwimana Francis.1-(Home)	19	Connected	10/1/2009
20	Bugigi Muhammad -home	20	Connected	10/1/2009
21	Mbishibishi John	21	Connected	10/1/2009
22	Rucakatsi Mahuuku Stanley.1	22	Connected	10/1/2009
23	Uwimana Francis-2	23	Connected	10/1/2009
24	Nqirabakunzi Emmanuel	24	Connected	10/1/2009

FORM OPERATIONS

Update Record: - In this operation, the customer sewer connection status is recorded and updated in the system.

Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

This form acts as a customer billing point into the system. Customers are billed from here.

The customer number is selected from the drop down list or can be typed by the user as required. After selecting the customer number and you click on Compute, all the customer billing records are displayed in the listview, the customer name, Meter number, Location, previous reading and balance brought forward, as shown in the figure above. If the customer number is not known then the customer record can be selected by the customer name.

The reading date and the billing date are selected by the user of the system.

As you type or input the current reading, the Service fee, Sewerage charges, Bill amount, Vat amount and Total amount are generated by the system automatically as shown in the figure below.

Customer's Billing Form

Customer No.: <input type="text" value="4"/>	Customer Name: <input type="text" value="Panda (UML)"/>
Reading Date: <input type="text" value="Sun - 31/Jan /2010"/>	Meter Number: <input type="text" value="223096"/>
Billing Date: <input type="text" value="Mon - 01/Feb /2010"/>	Location: <input type="text" value="Kisoro hill /Kisoro- Kabale"/>
Current Reading: <input type="text" value="678900"/>	Previous Reading: <input type="text" value="624271"/>
Service Fee: <input type="text" value="0"/>	Bl Brought Forward: <input type="text" value="31109.89"/>
Bill Amount: <input type="text" value="81943.5"/>	Sewerage Charges: <input type="text" value="0"/>
Vat Amount: <input type="text" value="14749.83"/>	Total Amount: <input type="text" value="127803.22"/>

Customer's Billing Records

Index	Customer Number	Customer Name	Location
1	4	Panda (UML)	Kisoro hill /Kisoro- Kabale r
2	4	Panda (UML)	Kisoro hill /Kisoro- Kabale r
3	4	Panda (UML)	Kisoro hill /Kisoro- Kabale r
4	4	Panda (UML)	Kisoro hill /Kisoro- Kabale r

FORM OPERATIONS

Add New: - In this operation, a new customer bill is generated and entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.

This form acts as a Kiosk billing point into the system. Kiosks are billed from here.

The Kiosk number is selected from the drop down list or can be typed by the user as required. After selecting the Kiosk number and you click on Compute, all the Kiosk billing records are displayed in the listview, the Meter number, Location, previous reading and balance brought forward, as shown in the figure above. If the customer number is not known then the customer record can be selected by the customer name.

The reading date and the billing date are selected by the user of the system.

As you type or input the current reading, the Bill amount and Total amount are generated by the system automatically as shown in the figure below.

Index	Kiosk Number	Meter Number	Current Reading	Previous Reading	Reading Date
1	1	124586	666		31/12/

FORM OPERATIONS

Add New: - In this operation, a new Kiosk bill is generated and entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.



Edit: - Initiate this operation if you would like to make changes to existing records. Records are loaded into a Data grid view where you can edit them directly. Find the record that you want to edit and carry out the operations as you wish i.e. **Save** changes made, **Delete** entire record, or **Previous** if you wish to exit without saving changes.



A set of buttons, Edit Buttons, appears at the bottom of the list view as shown in the figure above.

Carry out the operations as you would wish i.e. **Save** changes made, **Delete** entire record, or **Previous** if you would wish to exit without saving changes.

Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.3.2.3 Customer Bills Analysis

The Customer Bills Analysis form below is used to analyse customer billing details by year, month and display them when required.

Customer Billing Records Analysis

Year:
Month:

Customers Without Bills

Index	Customer Number	Customer's Name	Meter Number	Connection
1	11	Seguya Didas		10/1/2009
2	14	Kisoro Mosque	134622	10/1/2009
3	27	The Manager, Shell (U) Ltd	132952	10/1/2009
4	43	FH KITOWASO		10/1/2009
5	61	Kisoro Hosptal		10/1/2009
6	142	Kafirica		10/1/2009
7	149	Mbonigaba Laurence	3693316	10/28/2009
8	168	Ntezimana James	04100086	11/21/2009
9	180	Washing Bay		10/1/2009
10	214	Mpamyabigwi Davis		10/1/2009
11	219	Warid Telkom		10/1/2009
12	275	Capt Habymugisha Adam	0701315	10/1/2009
13	279	D.O.M. Seseme Deaf Project	0703312	10/1/2009
14	298	Kanyabukungu stand post / Nyakaba...		10/1/2009

Customer's Billing Records

Index	Customer Number	Customer Name	Location
1	355	Ngabirano Michael	Kisoro -Kabale road
2	393	Rumazimisi James	Chahi-Chanika road
3	1101	Mwunyaneza Emmanuel	Nyakabaya
4	1087	Harelimana Richard	Nyarurama
5	767	Duhimbaze Gad	Rutare
6	472	Rutare CDC	Rutare
7	681	Ntabanganya James	Nyakabaya
8	395	Murumbura Febiano	Rutare Village
9	1123	Ntamuhereza Dominic(Er)3	Nyarurama

The upper listview with capture records for customers without bills as specified by the year and month criteria while the lower listview captures records for customers with bills.

The records for customers without bills can be printed out by clicking on the Print Preview button. When you click on the Print Preview button the figure below is shown.

Customer Billing Records Analysis

KISORO TOWN WATER & SEWERAGE AUTHORITY
P.O BOX 100, KISORO
CUSTOMERS WITHOUT BILLS

Customer Number	Customer Name	Meter Number	Basis Of Charge	Location	Meter Status
11	Seguya Didas			Kisoro-Kabale road	
14	Kisoro Mosque	134622	Institutional/Go vt	Kisoro Hill Village	
27	The Manager, Shell (U) Ltd	132952		Kivegeri road	
43	FH KITOWASO			Kisoro-Bunagana road	
61	Kisoro Hosptal			Bunagana road	
142	Kafrica			Nyarusiza road	
149	Mbonigaba Laurence	3693316	Domestic	Gasasira road	
168	Ntezimana James	04100086		Chanika road	
180	Washing Bay			Main Village	
214	Mpamyabigwi Davis			Kivegeri road /Chahi	
219	Warid Telcom			Kisoro hill	
275	Capt Habymugisha Adam	0701315		Karumena Village/Mutolere road	

Previous

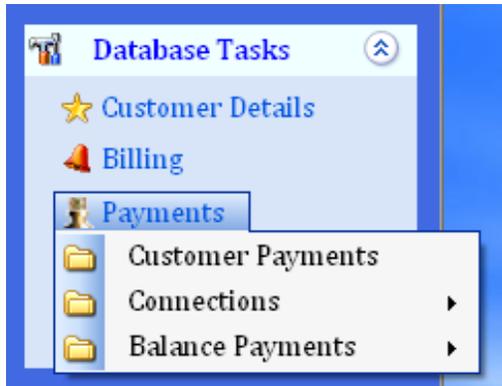
Click here to print the records shown otherwise click Previous to exit without printing and go back the previous form.

Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

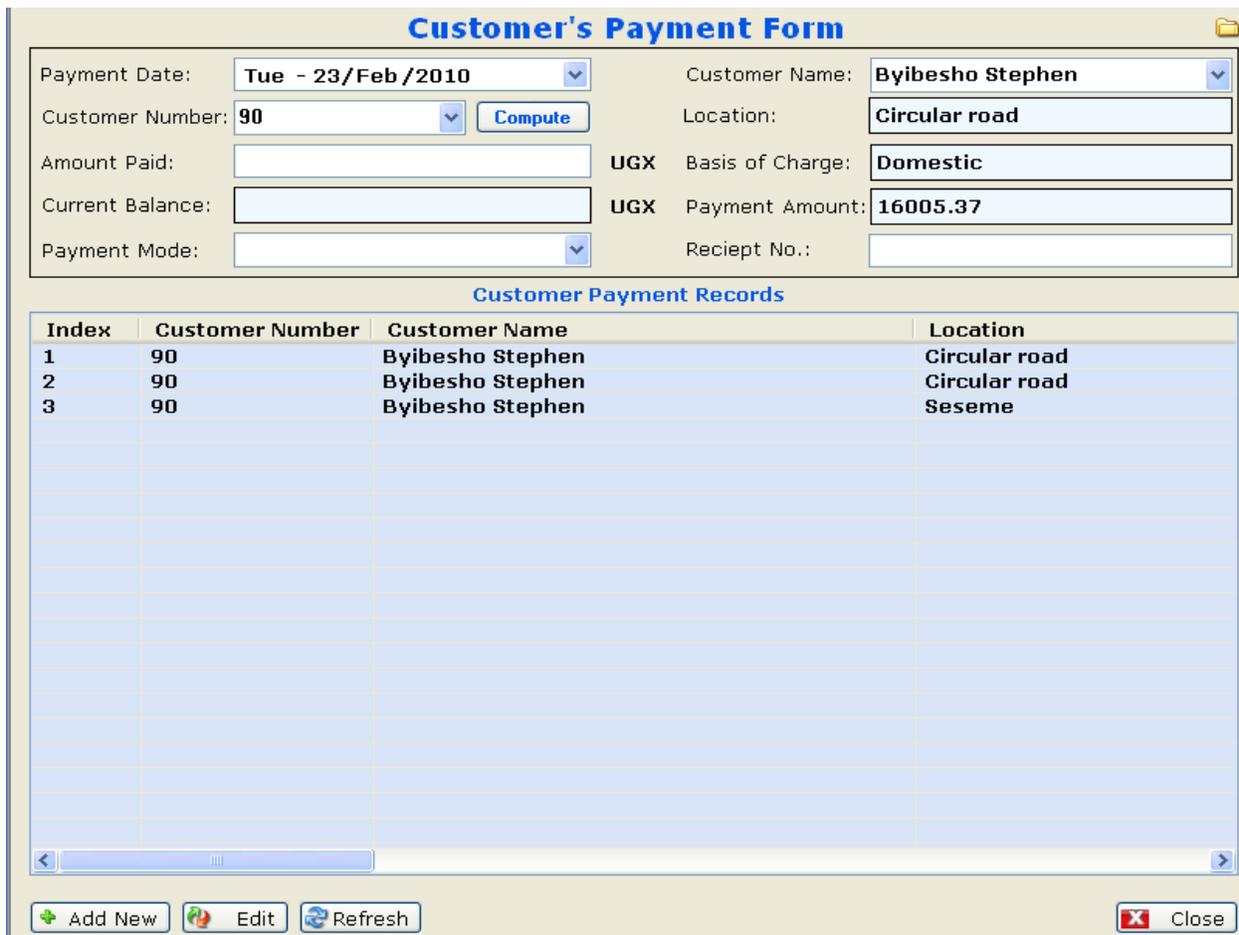
4.3.3 Payments

The customer payment information can be displayed by pull down menu on clicking on Payments command as shown in the figure below.



4.3.3.1 Customer Payments

The customer's payment form below is used to capture customer's payment details and display them when required.



The image shows a software window titled 'Customer's Payment Form'. It contains several input fields and a table. The input fields are: Payment Date (Tue - 23/Feb/2010), Customer Name (Byibesho Stephen), Customer Number (90), Location (Circular road), Amount Paid (empty), UGX Basis of Charge (Domestic), Current Balance (empty), UGX Payment Amount (16005.37), Payment Mode (empty), and Receipt No. (empty). Below the input fields is a table titled 'Customer Payment Records' with columns: Index, Customer Number, Customer Name, and Location. The table contains three rows of data.

Index	Customer Number	Customer Name	Location
1	90	Byibesho Stephen	Circular road
2	90	Byibesho Stephen	Circular road
3	90	Byibesho Stephen	Seseme

This form acts as a customer's payment point into the system. Customer bills are paid from here.

The payment date is selected by the user as by the date on which the customer made his payment at the cash office.

The customer record can be selected by the customer number from the drop down list alongside the customer number label. After selecting the customer number and you click on Compute, all the customer payment records are displayed in the listview, the customer name, Location, Basis of Charge and payment amount, as shown in the figure above. If the customer number is not known then the customer record can be selected by the customer name.

As you type or input the amount paid by the customer, the Current Balance is calculated by the system automatically as shown in the figure below.

The payment mode is selected as it was done by the customer and the respective receipt number is entered by the user.

Customer's Payment Form

Payment Date: <input type="text" value="Tue - 23/Feb/2010"/>	Customer Name: <input type="text" value="Byibesho Stephen"/>
Customer Number: <input type="text" value="90"/> <input type="button" value="Compute"/>	Location: <input type="text" value="Circular road"/>
Amount Paid: <input type="text" value="16000"/> UGX	Basis of Charge: <input type="text" value="Domestic"/>
Current Balance: <input type="text" value="5.37000000000008"/> UGX	Payment Amount: <input type="text" value="16005.37"/>
Payment Mode: <input type="text" value="Cash"/>	Receipt No.: <input type="text" value="316754"/>

Customer Payment Records

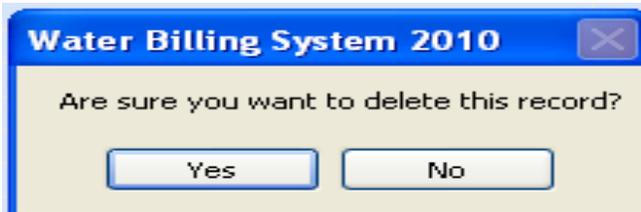
Index	Customer Number	Customer Name	Location
1	90	Byibesho Stephen	Circular road
2	90	Byibesho Stephen	Circular road
3	90	Byibesho Stephen	Seseme

FORM OPERATIONS

Add New: - In this operation, a new customer payment record is generated and entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.

Carry out the operations as you would wish i.e. **Save** changes made, **Delete** entire record, or **Previous** if you would wish to exit without saving changes.

If you try to delete a record then the following message will be displayed. Click Yes if you want to delete the selected record otherwise Click No.

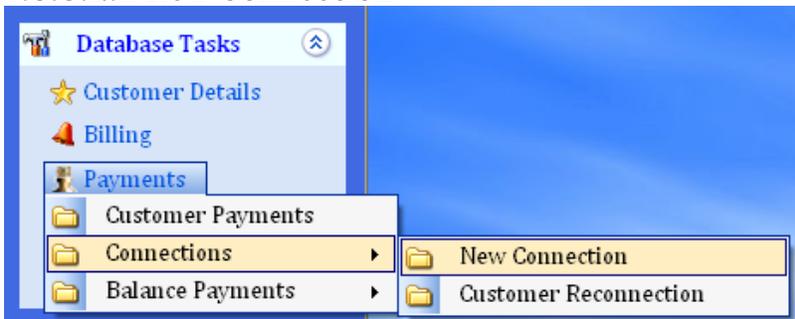


Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.3.3.2 Connections

4.3.3.2.1 New Connection



The New Connection form below is used to capture customer's new connection payment details and display them when required.

This form acts as a customer's new connection payment point into the system. Customers that are newly connected to the water system, their payments are recorded from here to the system.

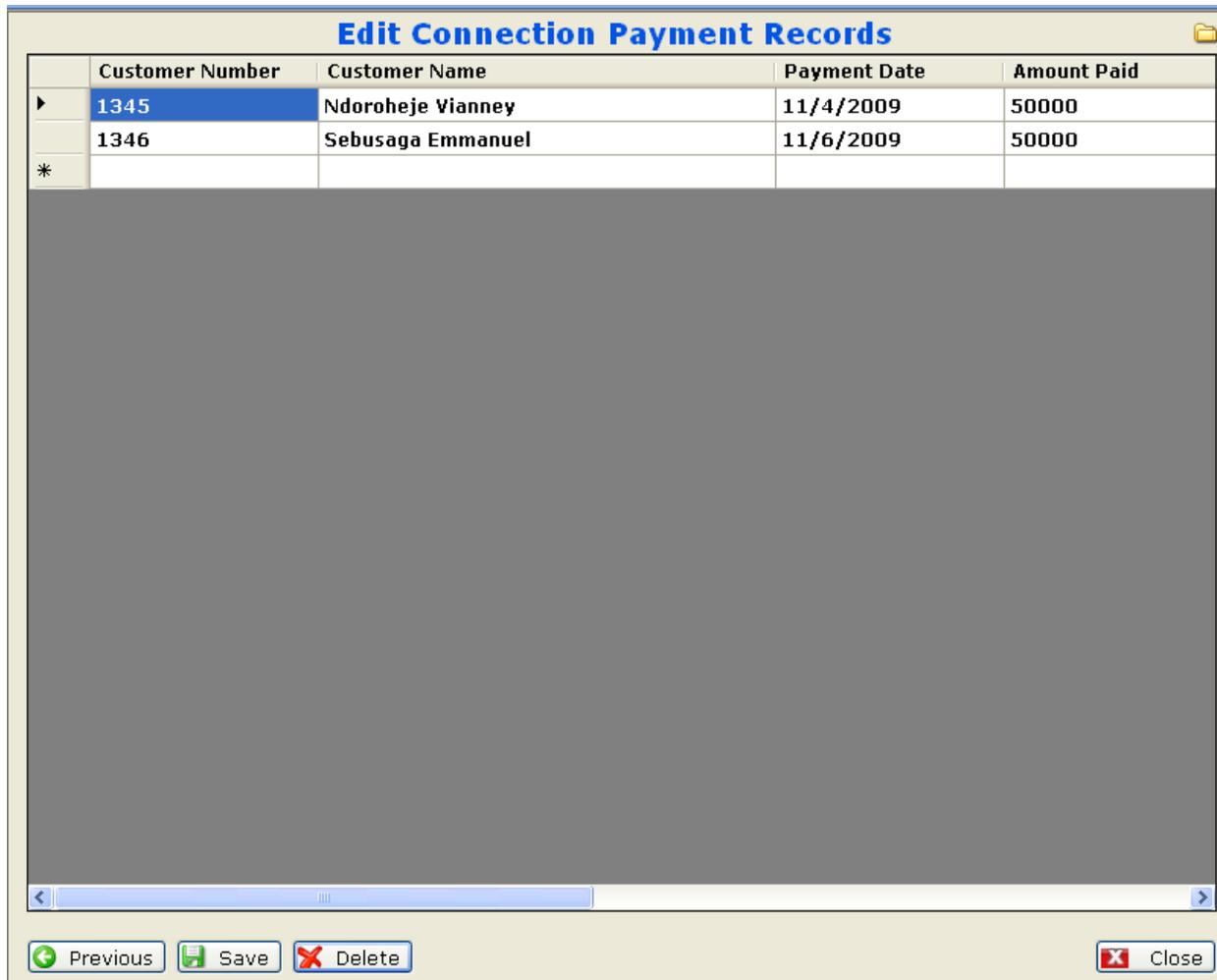
The payment date is selected by the user as by the date on which the customer made his payment at the cash office.

FORM OPERATIONS

Add New: - In this operation, a new connection payment record is generated and entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.



Edit: - Click Edit to change or delete any customer payment record and the following Edit Connection Payment Records form will be displayed. Select the customer whose details you want to edit from the Datagrid view.



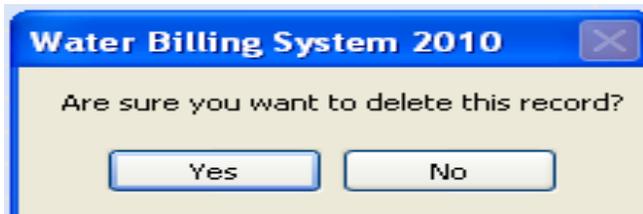
The screenshot shows a window titled "Edit Connection Payment Records" with a folder icon in the top right corner. Below the title bar is a data grid with the following columns: Customer Number, Customer Name, Payment Date, and Amount Paid. The first row is selected and highlighted in blue. Below the grid is a large gray area, likely a form for editing the selected record. At the bottom of the window are four buttons: "Previous" (with a left arrow), "Save" (with a floppy disk icon), "Delete" (with a red X icon), and "Close" (with a red X icon).

	Customer Number	Customer Name	Payment Date	Amount Paid
▶	1345	Ndoroheje Vianney	11/4/2009	50000
	1346	Sebusaga Emmanuel	11/6/2009	50000
*				

A set of buttons, Edit Buttons, appears at the bottom of the list view as shown in the figure above.

Carry out the operations as you would wish i.e. **Save** changes made, **Delete** entire record, or **Previous** if you would wish to exit without saving changes.

If you try to delete a record then the following message will be displayed. Click Yes if you want to delete the selected record otherwise Click No.



Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.3.3.2.2 Customer Reconnection



The Customer Reconnection form below is used to capture customer's new connection payment details and display them when required.

This form acts as a customer's reconnection payment point into the system. Customers that are reconnected to the water system, their payments are recorded from here to the system.

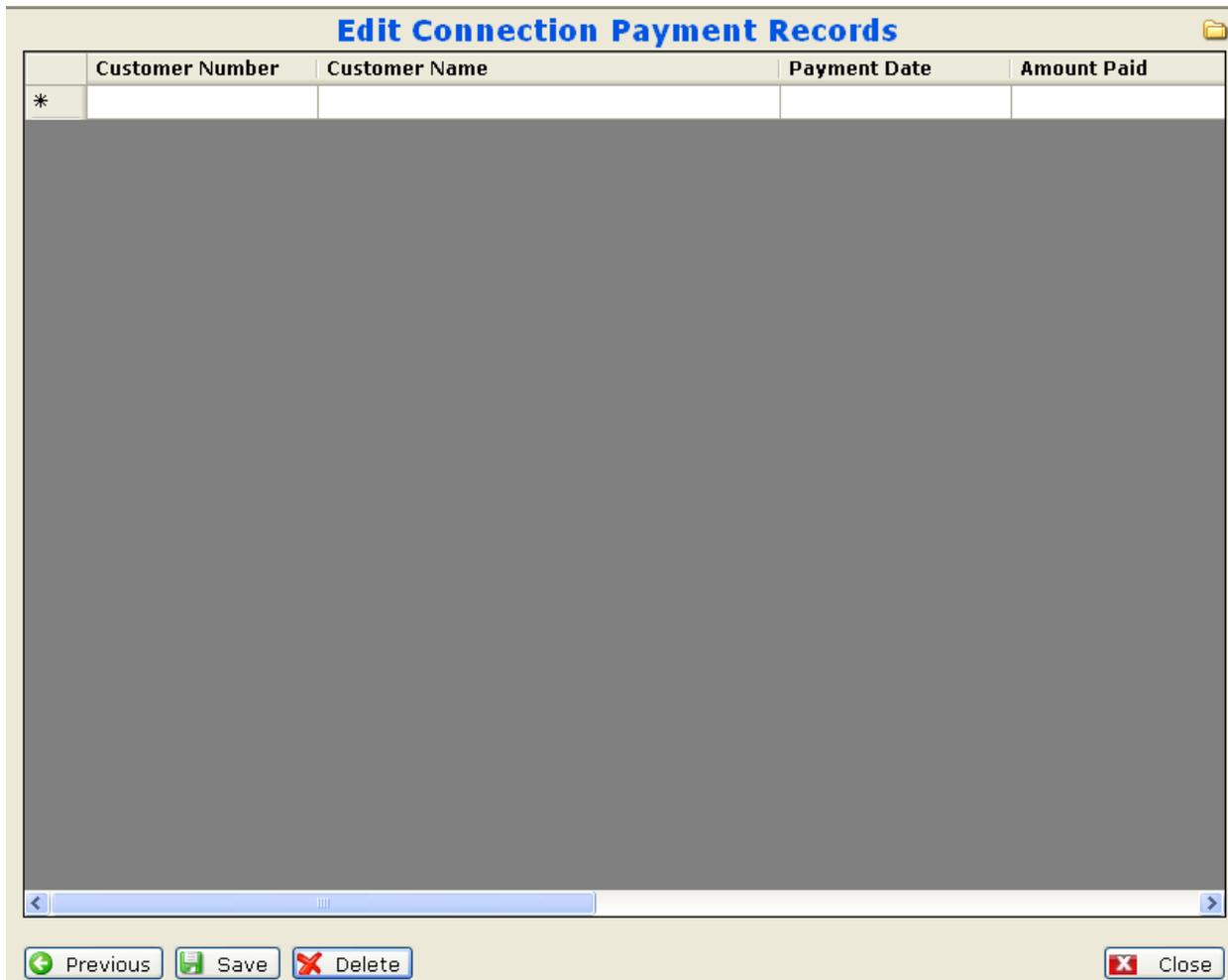
The payment date is selected by the user as by the date on which the customer made his payment at the cash office.

FORM OPERATIONS

Add New: - In this operation, a reconnection payment record is generated and entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.



Edit: - Click Edit to change or delete any customer reconnection payment record and the following Edit Connection Payment Records form will be displayed. Select the customer whose details you want to edit from the Datagrid view.

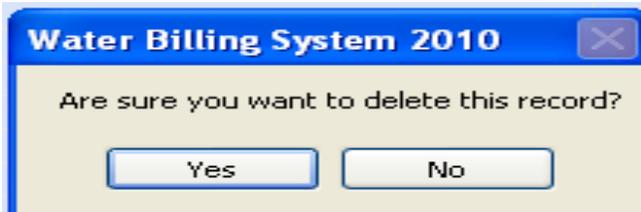


The screenshot shows a window titled "Edit Connection Payment Records" with a folder icon in the top right corner. The window contains a datagrid with the following columns: "Customer Number", "Customer Name", "Payment Date", and "Amount Paid". The first row of the datagrid has an asterisk (*) in the first column. Below the datagrid is a horizontal scrollbar. At the bottom of the window, there are four buttons: "Previous" (with a left arrow icon), "Save" (with a floppy disk icon), "Delete" (with a red X icon), and "Close" (with a red X icon).

A set of buttons, Edit Buttons, appears at the bottom of the list view as shown in the figure above.

Carry out the operations as you would wish i.e. **Save** changes made, **Delete** entire record, or **Previous** if you would wish to exit without saving changes.

If you try to delete a record then the following message will be displayed. Click Yes if you want to delete the selected record otherwise Click No.

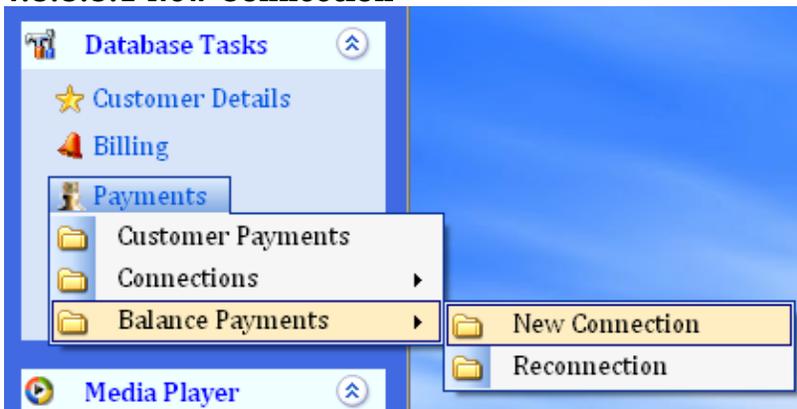


Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.3.3.3 Balance Payments

4.3.3.3.1 New Connection



The New Connection Balance Payment form below is used to capture customer's new connection balance payment details and display them when required.

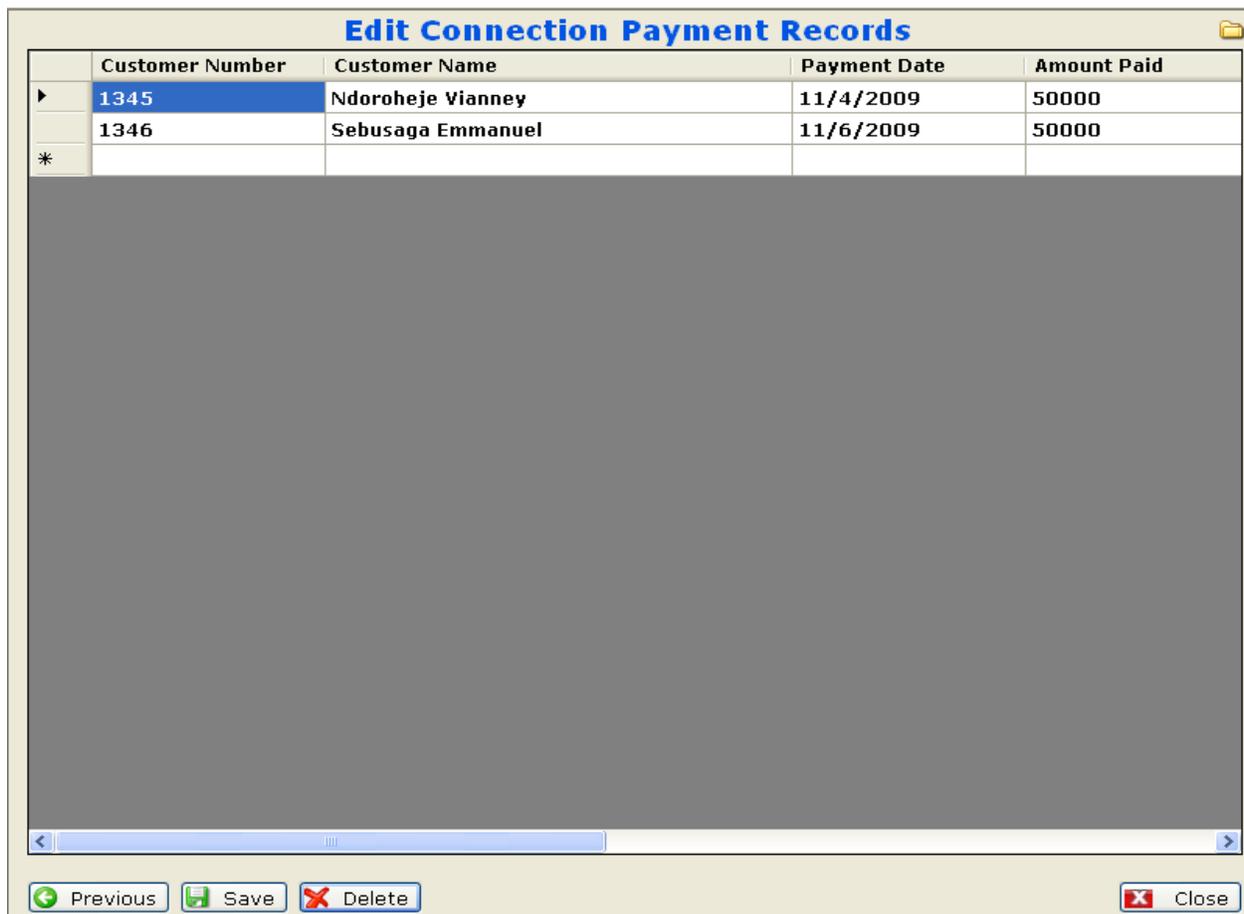
This form acts as a customer's new connection balance payment point into the system. Customers that are newly connected to the water system, their balance payments are recorded from here to the system.

FORM OPERATIONS

Add New: - In this operation, a new connection balance payment record is generated and entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.



Edit: - Click Edit to change or delete any customer balance payment record and the following Edit Connection Payment Records form will be displayed. Select the customer whose details you want to edit from the Datagrid view.



The screenshot shows a window titled "Edit Connection Payment Records" with a folder icon in the top right corner. It features a table with the following data:

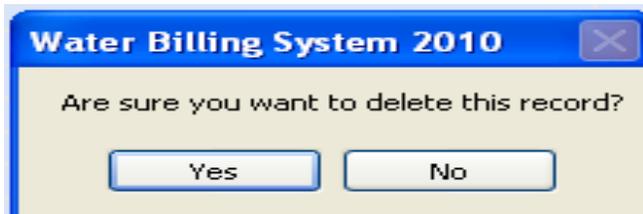
	Customer Number	Customer Name	Payment Date	Amount Paid
▶	1345	Ndroheje Vianney	11/4/2009	50000
	1346	Sebusaga Emmanuel	11/6/2009	50000
*				

Below the table is a horizontal scrollbar. At the bottom of the window are four buttons: "Previous" (with a left arrow), "Save" (with a floppy disk icon), "Delete" (with a red X icon), and "Close" (with a red X icon).

A set of buttons, Edit Buttons, appears at the bottom of the list view as shown in the figure above.

Carry out the operations as you would wish i.e. **Save** changes made, **Delete** entire record, or **Previous** if you would wish to exit without saving changes.

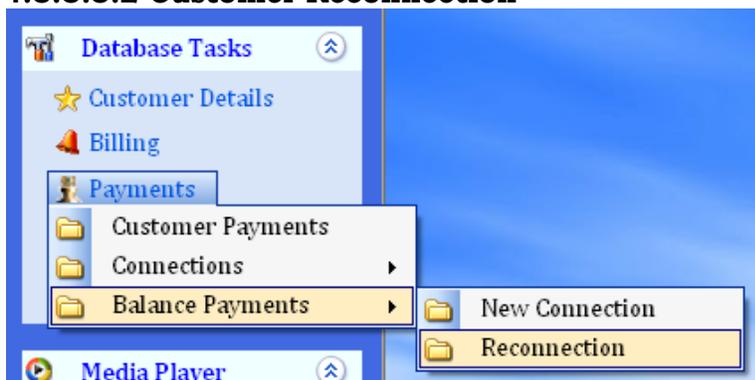
If you try to delete a record then the following message will be displayed. Click Yes if you want to delete the selected record otherwise Click No.



Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.3.3.3.2 Customer Reconnection



The Customer Reconnection Balance Payment form below is used to capture customer's reconnection balance payment details and display them when required.

This form acts as a customer's reconnection balance payment point into the system. Customers that are reconnected to the water system, their balance payments are recorded from here to the system.

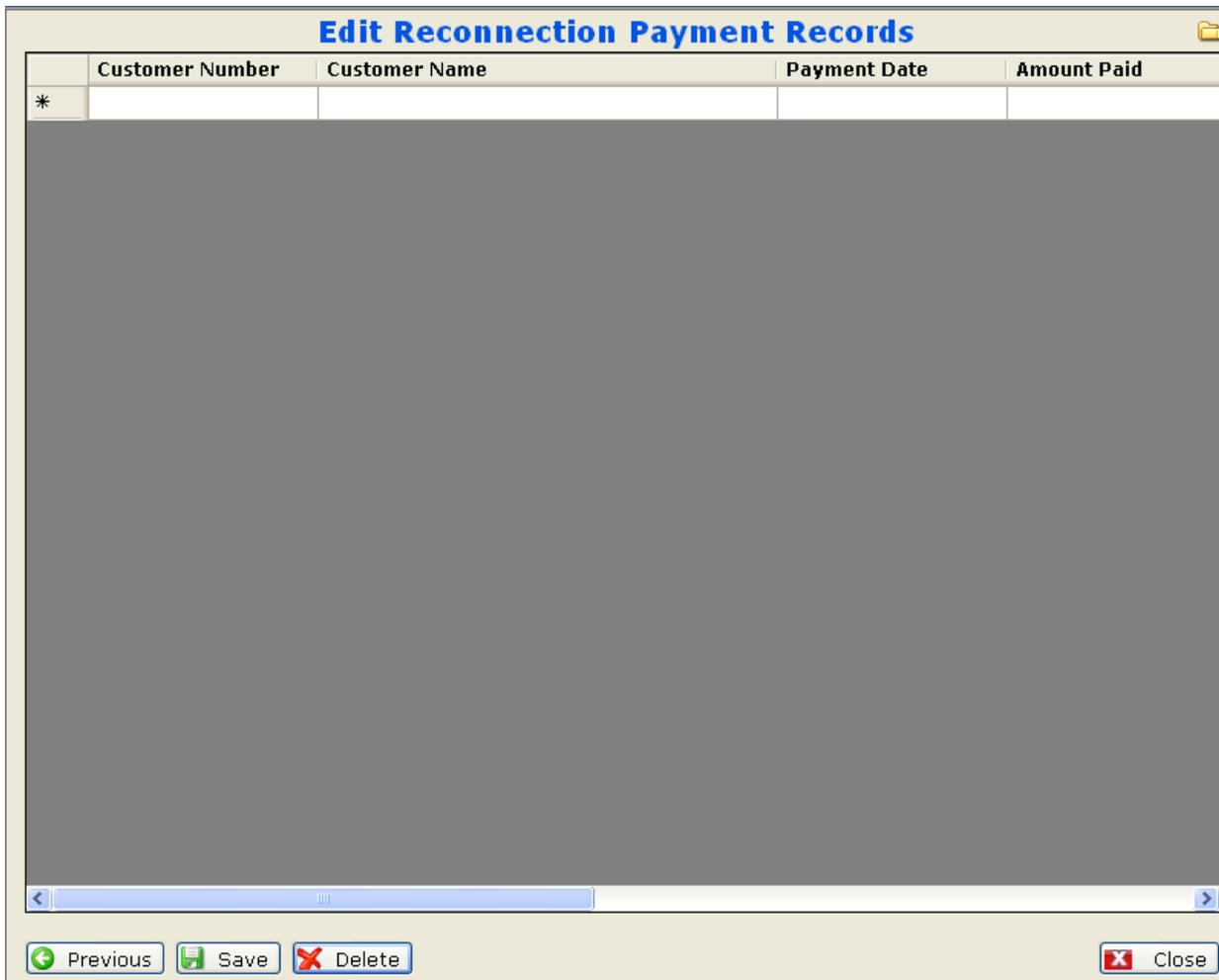
The payment date is selected by the user as by the date on which the customer made his payment at the cash office.

FORM OPERATIONS

Add New: - In this operation, a reconnection balance payment record is generated and entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.



Edit: - Click Edit to change or delete any customer reconnection balance payment record and the following Edit Connection Payment Records form will be displayed. Select the customer whose details you want to edit from the Datagrid view.

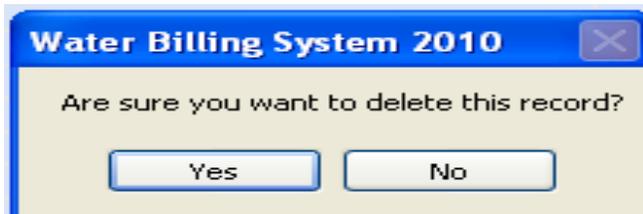


The screenshot shows a window titled "Edit Reconnection Payment Records" with a folder icon in the top right corner. Below the title bar is a datagrid with four columns: "Customer Number", "Customer Name", "Payment Date", and "Amount Paid". The first row of the datagrid contains an asterisk (*) in the first column. The rest of the datagrid is shaded gray. At the bottom of the window, there is a horizontal scrollbar and a control bar with four buttons: "Previous" (with a left arrow), "Save" (with a floppy disk icon), "Delete" (with a red X icon), and "Close" (with a red X icon).

A set of buttons, Edit Buttons, appears at the bottom of the list view as shown in the figure above.

Carry out the operations as you would wish i.e. **Save** changes made, **Delete** entire record, or **Previous** if you would wish to exit without saving changes.

If you try to delete a record then the following message will be displayed. Click Yes if you want to delete the selected record otherwise Click No.



Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.3.3.4 Customer Invoice

The screenshot shows the 'Customer Invoice Processing' application window. At the top, there are filters for Year (2009), Month (December), Customer Name, and Location. A 'Compute' button is next to the Customer Number field. Below the filters is a table titled 'Customer's Billing Records' with columns for Index, Customer Number, Customer Name, and Location. The table contains 25 rows of data. At the bottom of the window, there are buttons for 'Select All', 'Select None', 'Refresh', 'Print Preview', and 'Close'.

Index	Customer Number	Customer Name	Location
<input type="checkbox"/>	1	Kwizera Alex.1	Kisoro-Kabale road
<input type="checkbox"/>	2	Harerimana Boniface	Kisoro-Kabale road
<input type="checkbox"/>	3	Kabami Nteziyaremye (Microcare)	Kisoro-Kabale road
<input type="checkbox"/>	4	Panda (UML)	Kisoro hill /Kisoro- Kabale
<input type="checkbox"/>	5	Nteziyayo Abdul	Kisoro-Kabale road
<input type="checkbox"/>	6	Segawa. Buruhani.1	Kisoro-Kabale road
<input type="checkbox"/>	7	The Manager (Bufumbira Hotel)	Kisoro-Kabale road
<input type="checkbox"/>	8	Hitimana Lukanika(Dr)	Kisoro-Kabale road
<input type="checkbox"/>	9	Hareba Benon.1	Kisoro-Kabale road
<input type="checkbox"/>	10	Ahamed Fayida (Park View house)	Kisoro-Kabale road
<input type="checkbox"/>	11	Mugabo John.1	Kisoro Hill Village
<input type="checkbox"/>	12	Naana Richard	Kisoro Hill Village
<input type="checkbox"/>	13	Mugabo Salim	Kisoro Hill Village
<input type="checkbox"/>	14	Kwizera Herberts Home	Kisoro Hill Village
<input type="checkbox"/>	15	Nsenga Gerald	Chuhu road
<input type="checkbox"/>	16	Niyonzima Ivan	Kisoro Hill Village
<input type="checkbox"/>	17	Uwimana Francis.1-(Home)	Kisoro Hill Village
<input type="checkbox"/>	18	Bugigi Muhammad -home	Kisoro Hill Village
<input type="checkbox"/>	19	Mbishibishi John	Kisoro Hill Village
<input type="checkbox"/>	20	Rucakatsi Mahuuku Stanley.1	Kisoro Hill Village
<input type="checkbox"/>	21	Uwimana Francis-2	Kisoro Hill Village
<input type="checkbox"/>	22	Ngirabakunzi Emmanuel	Kisoro Hill Village
<input type="checkbox"/>	23	Mulengezi Moses	Kisoro Hill Village
<input type="checkbox"/>	24	The Manager, KIBA	Kisoro-Kabale road
<input type="checkbox"/>	25	The Manager, Stanbic bank	Kisoro-Kabale road

The Customer Invoice Processing form above is used to print customer bills and display them when required.

The customer bills are sorted by Year, Month, Location, Customer Name and Customer Number by selecting form the dropdown list as required by the system user.

The Customer bills to be printed are selected by checking the check boxes at the beginning of the customer billing record as shown in the figure below.

The screenshot shows a web application window titled "Customer Invoice Processing". At the top, there are several input fields: "Year" set to "2009", "Month" set to "December", "Customer Name" (empty), "Location" (empty), and "Customer Number" (empty). A "Compute" button is located to the right of the "Customer Number" field. Below these fields is a section titled "Customer's Billing Records" containing a table with the following data:

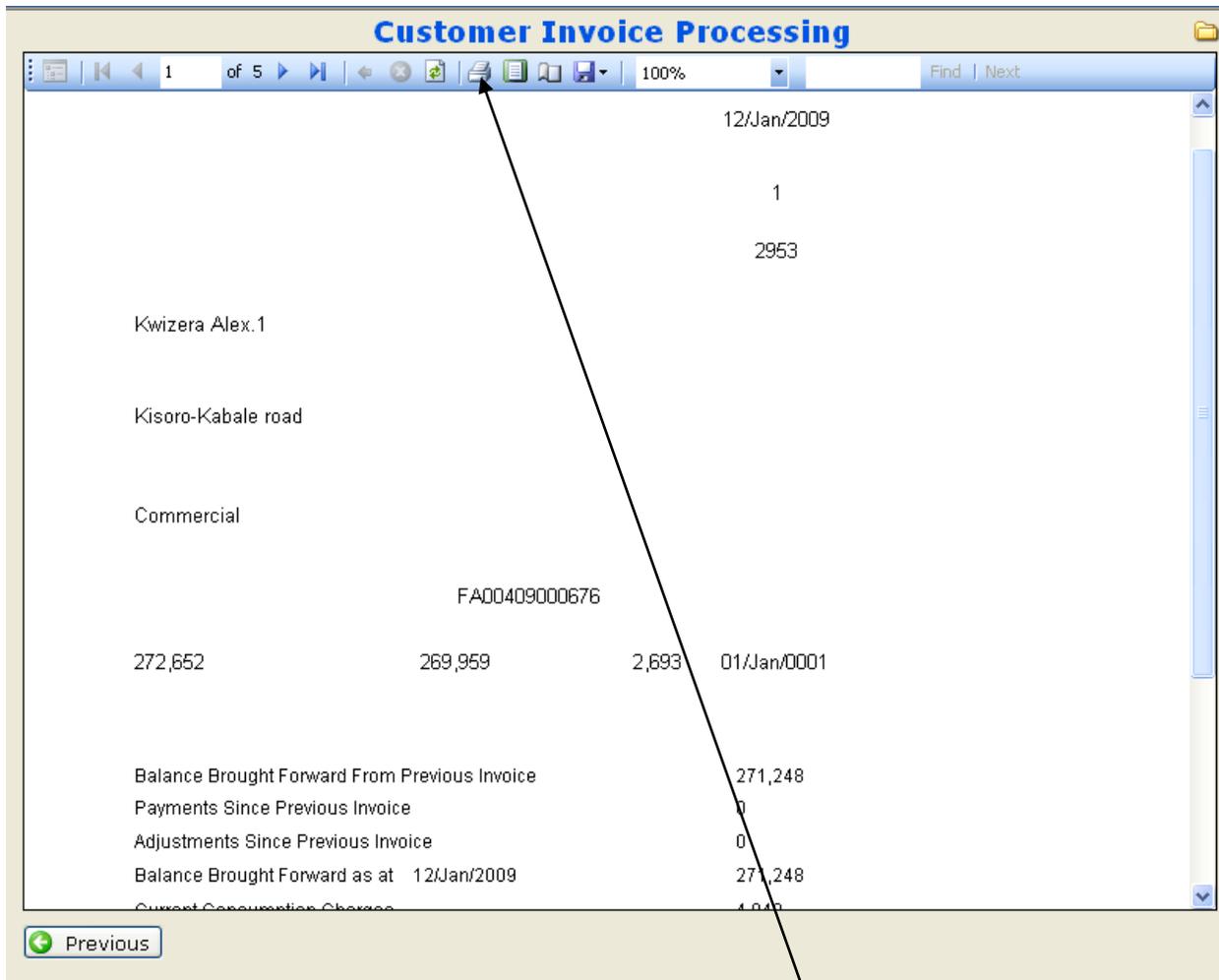
Index	Customer Number	Customer Name	Location
<input checked="" type="checkbox"/> 1	1	Kwizera Alex.1	Kisoro-Kabale road
<input checked="" type="checkbox"/> 2	2	Harerimana Boniface	Kisoro-Kabale road
<input checked="" type="checkbox"/> 3	3	Kabami Nteziyaremye (Microcare)	Kisoro-Kabale road
<input checked="" type="checkbox"/> 4	4	Panda (UML)	Kisoro hill /Kisoro- Kabale
<input checked="" type="checkbox"/> 5	5	Nteziryayo Abdul	Kisoro-Kabale road
<input type="checkbox"/> 6	6	Segawa. Buruhani.1	Kisoro-Kabale road
<input type="checkbox"/> 7	7	The Manager (Bufumbira Hotel)	Kisoro-Kabale road
<input type="checkbox"/> 8	8	Hitimana Lukanika(Dr)	Kisoro-Kabale road
<input type="checkbox"/> 9	9	Hareba Benon.1	Kisoro-Kabale road
<input type="checkbox"/> 10	10	Ahamed Fayida (Park View house)	Kisoro-Kabale road

To select all the records to be printed, Click Select All otherwise Click Select None or select the require records one by one.

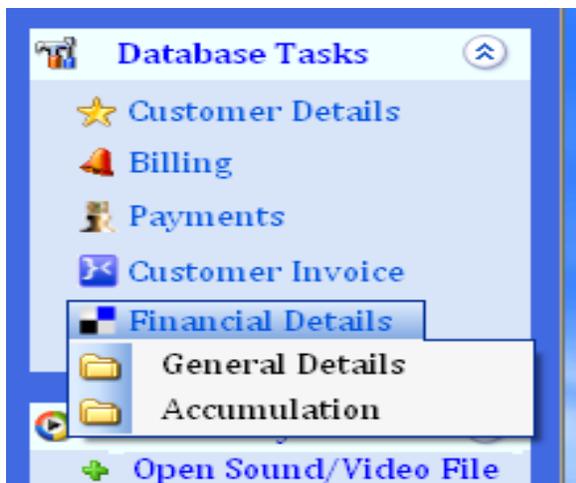
When the selection of the required records is done, Click Print Preview. This will result to the display of the form below. Insert the invoice papers in the printer to enable printing of the customer bills.

Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.



4.3.4 Financial details



The Financial details can be displayed by pull down menu on clicking on the customer details command as shown in the figure above.

4.3.4.1 General Details

The Financial Details Form under General Details below is used to display and print financial details that include Billing, Collection, Salary Payment, Expenditure and Consumption Details when required.

Financial Details Form

Year: Month:

Billing Details

BI Brought Forward: <input type="text" value="42,496,253"/> UGX	Service Fee: <input type="text" value="1,872,000"/> UGX
Consumption Fee: <input type="text" value="19,711,992"/> UGX	Sewerage Fee: <input type="text" value="1,085,000"/> UGX
Total Amount Billed: <input type="text" value="69,245,664"/> UGX	Vat Amount: <input type="text" value="4,080,419"/> UGX

Collection Details

From Bills: <input type="text" value="24,547,025"/> UGX	Bills Balance: <input type="text" value="7,213,823"/> UGX
New Connections: <input type="text" value="0"/> UGX	Conn! Balance: <input type="text" value="0"/> UGX
Re-Connections: <input type="text" value="0"/> UGX	Re-Co Balance: <input type="text" value="0"/> UGX

Salary Payment Details

Amount Paid: <input type="text" value="0"/> UGX	Balance: <input type="text" value="0"/> UGX
---	---

Expenditure Details

Management: <input type="text" value="0"/> UGX	Water Board: <input type="text" value="0"/> UGX
--	---

Consumption Details

Water Consumed: <input type="text" value="13,141,328"/> Litres	<input type="text" value="13,141"/> Units
--	---

The records are sorted by year and Month and the click the Compute button that generates the records according to the criteria specified by the user of the system as seen in the figure above. Click Print Preview to continue with the printing of the displayed records that results to the form below.

Financial Details Form

KISORO TOWN WATER & SEWERAGE AUTHORITY
P.O BOX 100, KISORO

GENERAL FINANCIAL DETAILS

Billing Details (UGX)

Bl Brought Forward:	42,496,253	Service Fee:	1,872,000
Consumption Fee:	19,711,992	Sewerage Fee:	1,085,000
Total Amount Billed:	69,245,664	Vat Amount:	4,080,419

Collection Details (UGX)

From Bills:	24,547,025	Bills Balance:	7,213,823
New Connections:	0	Conn' Balance:	0
Re-Connections:	0	Re-Co Balance:	0

Salary Payment Details (UGX)

[Previous](#)

Click here to print the records shown otherwise click Previous to exit without printing and go back the previous form.

Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.3.4.2 Accumulation

The Financial Accumulation Form under Accumulation below is used to display and print accumulation details from the collection as recorded form the payment made by the customers.

Financial Accumulation Form

Year: **2009** Month: **December** **Compute**

1:	0	0	17:	0	24,547,025
2:	0	0	18:	0	24,547,025
3:	0	0	19:	0	24,547,025
4:	0	0	20:	0	24,547,025
5:	0	0	21:	0	24,547,025
6:	0	0	22:	0	24,547,025
7:	0	0	23:	0	24,547,025
8:	0	0	24:	0	24,547,025
9:	0	0	25:	0	24,547,025
10:	0	0	26:	0	24,547,025
11:	0	0	27:	0	24,547,025
12:	24,547,025	24,547,025	28:	0	24,547,025
13:	0	24,547,025	29:	0	24,547,025
14:	0	24,547,025	30:	0	24,547,025
15:	0	24,547,025	31:	0	24,547,025
16:	0	24,547,025			

Collection Details

Total Amount Collected: **24,547,025** UGX Total Balance: **7,213,823** UGX

Refresh Print Preview Close

The records are sorted by year and Month and the click the Compute button that generates the records according to the criteria specified by the user of the system as seen in the figure above. Click Print Preview to continue with the printing of the displayed records that results to the form below.

Financial Accumulation Form

KISORO TOWN WATER & SEWERAGE AUTHORITY
P.O BOX 100, KISORO

Accumulation Details

1.	0	0	17.	0	0
2.	0	0	18.	0	24,547,025
3.	0	0	19.	0	24,547,025
4.	0	0	20.	0	24,547,025
5.	0	0	21.	0	24,547,025
6.	0	0	22.	0	24,547,025
7.	0	0	23.		24,547,025
8.	0	0	24.	0	24,547,025
9.	0	0	25.	0	24,547,025
10.	0	0	26.	0	24,547,025
11.	0	0	27.	0	24,547,025

Previous

Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

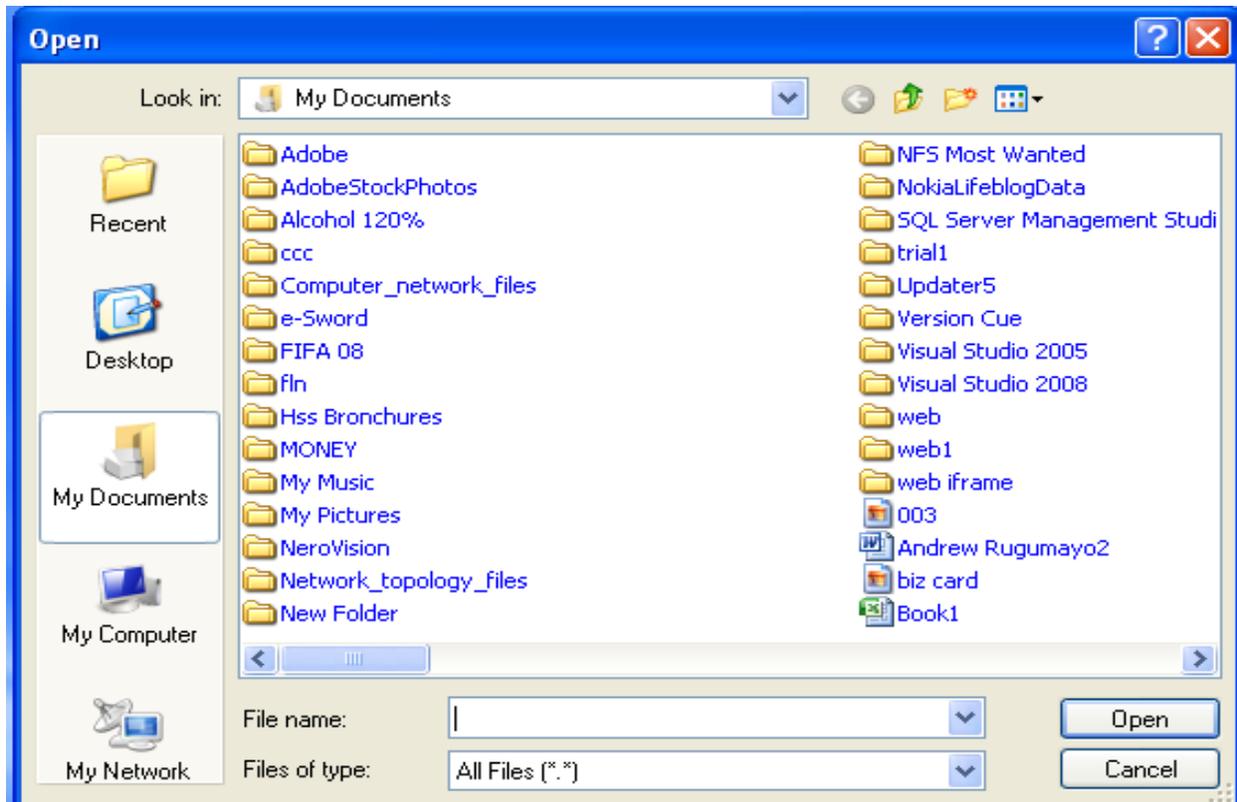
4.4 Media Player

The Media Player is used to play your favorite music and videos while executing other program features. It is initiated by clicking Open Sound/Video File command as shown in the figure below.

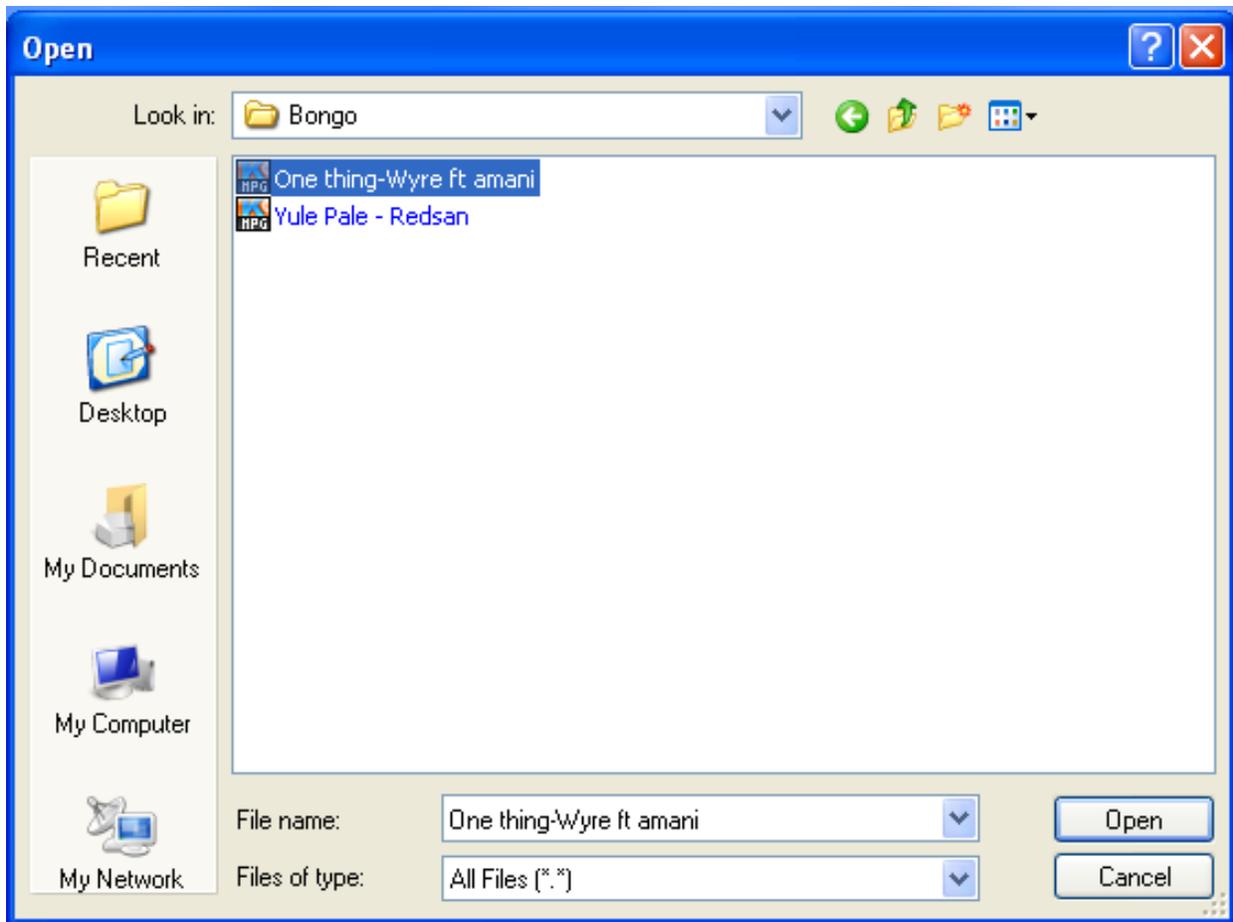


Clicking Open Sound/Video File command displays the figure below.

The Sound/Video File can be opened by clicking File the Open.



Browse for the file you want to play and click Open as shown in the figure below.

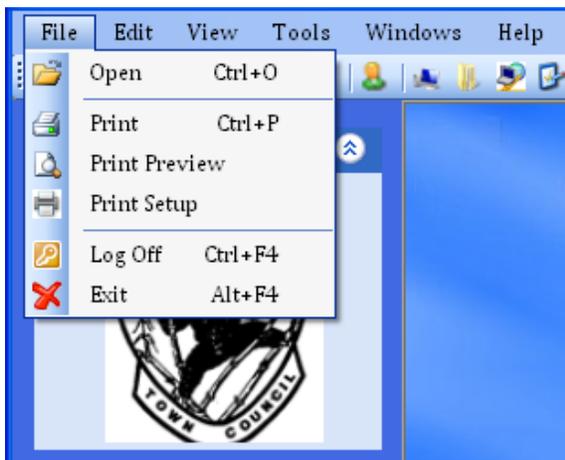


Click Open will prompt the Sound/Video file to play automatically as shown in the figure below.



4.5 Menu bar

4.5.1 File



4.5.1.1 Open

The Open command prompts to open the Sound/Video File to be played in the media player.

4.5.1.2 Print

The Print command prompts to print the selected records by the system users.

4.5.1.3 Print Preview

The Print Preview command prompts to view the records to be printed by the system users.

4.5.1.4 Print Setup

The Print Setup command prompts the user to setup the print options.

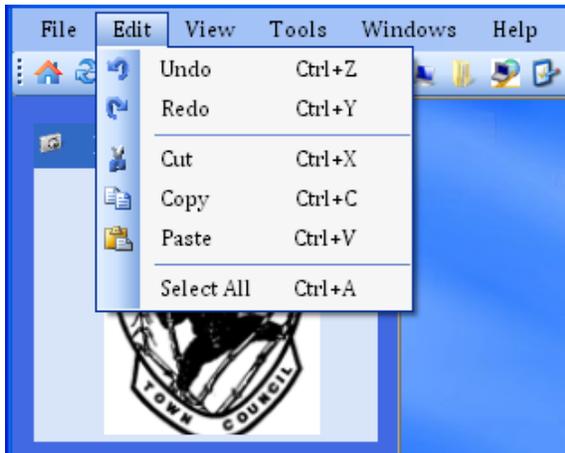
4.5.1.5 Log Off

The Log Off command prompts the system to log off and return to the introduction interface for other users to login into the system with their user name and passwords.

4.5.1.6 Exit

The Exit command prompts the system to shutdown and exit completely.

4.5.2 Edit



4.5.2.1 Undo

The Undo command prompts the system to undo the change made.

4.5.2.2 Redo

The Redo command prompts the system to redo the change made.

4.5.2.3 Cut

The Cut command prompts to cut or remove the selected text data in the system.

4.5.2.4 Copy

The Copy command prompts to make a copy or remove of the selected text data in the system.

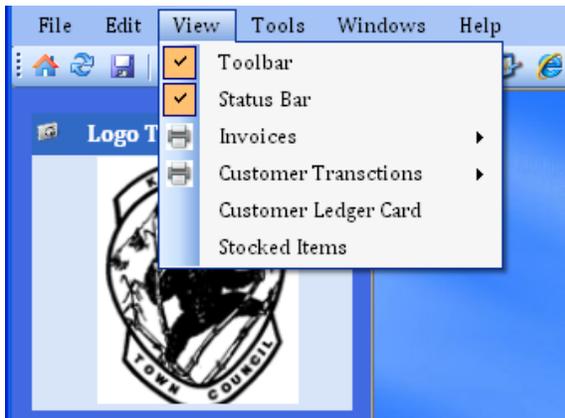
4.5.2.5 Paste

The Paste command prompts to paste the text data that was previously copied or cut by the system user in the system.

4.5.2.6 Select All

The Select All command prompts to select all text data in the system.

4.5.3 View



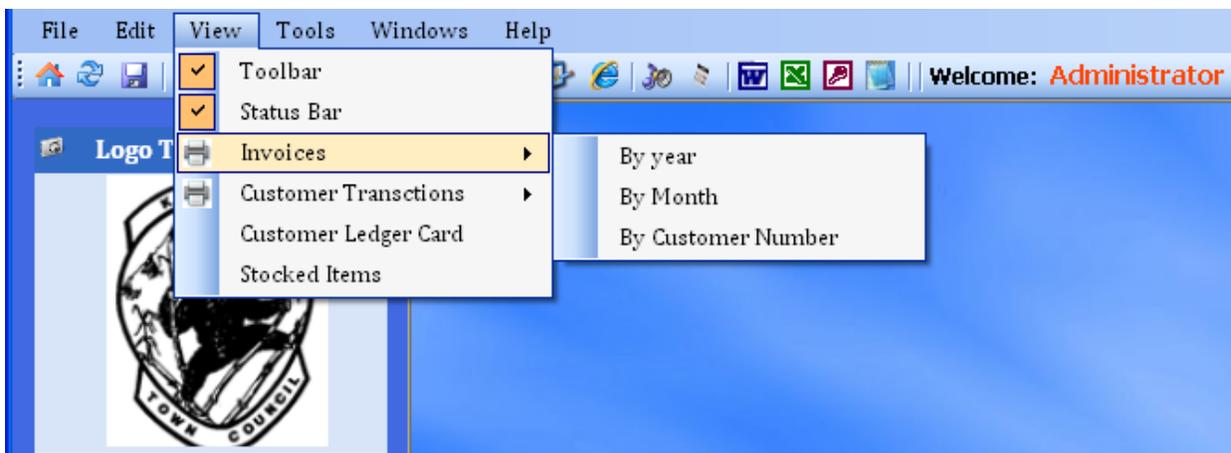
4.5.3.1 Toolbar

The Toolbar command prompts to show or hide the system toolbar.

4.5.3.2 Status bar

The Status bar command prompts to show or hide the system status bar.

4.5.3.3 Invoices



The Invoices command prompts to show the customer invoices by year, month and by customer number.

4.5.3.3.1 By Year

Index	Customer Number	Customer Name	Location
<input type="checkbox"/> 1	913	Bitangaro Sam Kwizera	Bigina Village /Munzerero
<input type="checkbox"/> 2	858	Hafasha Godfrey	Bigina Village
<input type="checkbox"/> 3	846	Twebaze Annociata	Bigina village
<input type="checkbox"/> 4	410	Nsabuwera Aaron	Bigina Village, Rukiribuga
<input type="checkbox"/> 5	409	Nkunze Emmanuel	Bigina Village, Rukiribuga
<input type="checkbox"/> 6	370	Tusiime Bernard(Rev).1	Bigina village / Mutesa cl
<input type="checkbox"/> 7	368	Kwizera Gideon(Rev)	Bigina Plot 4, P.O. Box 25
<input type="checkbox"/> 8	768	Rukundo Tom(Dr)	Bigina
<input type="checkbox"/> 9	749	Sebagabo Bosco.1	Bigina Village
<input type="checkbox"/> 10	743	Maiso Francis	Bigina village
<input type="checkbox"/> 11	737	Bizimenyera John	Bigina
<input type="checkbox"/> 12	711	Nyiraneza Dorothy	Bigina
<input type="checkbox"/> 13	141	Tumushime Charles	Bigina /Muzerero road
<input type="checkbox"/> 14	140	Tereraho John	Bigina /Muzerero road
<input type="checkbox"/> 15	138	Harera Boniface.2	Bigina /Muzerero road
<input type="checkbox"/> 16	87	Nemeye Nelson	Bigina Village,Budallah ro
<input type="checkbox"/> 17	750	Ntanyungura Aurelian	Bigina Village
<input type="checkbox"/> 18	931	Ishimwe Collins	Bigina Village / Gasasira
<input type="checkbox"/> 19	1189	Mbonizana samuel	Bigina/Nyarusiza road
<input type="checkbox"/> 20	592	Nzabandora Paul. 2	Bigina /Buddallah road
<input type="checkbox"/> 21	593	Bakame Dominic	Bigina / Rukiribuga rad
<input type="checkbox"/> 22	1180	Nsabiyeza Emmanuel Stephen	Bigina
<input type="checkbox"/> 23	1170	Niyonzima Stephen	Bigina Village
<input type="checkbox"/> 24	729	Nsenga Christopher	Bigina
<input type="checkbox"/> 25	156	Nsabimana Robert .1	Bigina Village

The Customer Invoice Processing form above is used to print customer bills sorted by year and display them when required.

The customer bills are also sorted by Location and Customer Name by selecting from the dropdown list as required by the system user.

The Customer bills to be printed are selected by checking the check boxes at the beginning of the customer billing record.

To select all the records to be printed, Click Select All otherwise Click Select None or select the require records one by one.

When the selection of the required records is done, Click Print Preview. This will result to the display of the print invoice form. Insert the invoice papers in the printer to enable printing of the customer bills.

Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.5.3.3.2 By Month

Customer Invoice Processing

Year: 2009 Month: December Customer Name:

Location: **Compute**

Customer's Billing Records

Index	Customer Number	Customer Name	Location
<input type="checkbox"/> 1	1	Kwizera Alex.1	Kisoro-Kabale road
<input type="checkbox"/> 2	2	Harerimana Boniface	Kisoro-Kabale road
<input type="checkbox"/> 3	3	Kabami Nteziyaremye (Microcare)	Kisoro-Kabale road
<input type="checkbox"/> 4	4	Panda (UML)	Kisoro hill /Kisoro- Kabale
<input type="checkbox"/> 5	5	Nteziryayo Abdul	Kisoro-Kabale road
<input type="checkbox"/> 6	6	Segawa. Buruhani.1	Kisoro-Kabale road
<input type="checkbox"/> 7	7	The Manager (Bufumbira Hotel)	Kisoro-Kabale road
<input type="checkbox"/> 8	8	Hitimana Lukanika(Dr)	Kisoro-Kabale road
<input type="checkbox"/> 9	9	Hareba Benon.1	Kisoro-Kabale road
<input type="checkbox"/> 10	10	Ahamed Fayida (Park View house)	Kisoro-Kabale road
<input type="checkbox"/> 11	12	Mugabo John.1	Kisoro Hill Village
<input type="checkbox"/> 12	13	Naana Richard	Kisoro Hill Village
<input type="checkbox"/> 13	15	Mugabo Salim	Kisoro Hill Village
<input type="checkbox"/> 14	16	Kwizera Herberts Home	Kisoro Hill Village
<input type="checkbox"/> 15	17	Nsenga Gerald	Chuho road
<input type="checkbox"/> 16	18	Niyonzima Ivan	Kisoro Hill Village
<input type="checkbox"/> 17	19	Uwimana Francis.1-(Home)	Kisoro Hill Village
<input type="checkbox"/> 18	20	Bugigi Muhammad -home	Kisoro Hill Village
<input type="checkbox"/> 19	21	Mbishibishi John	Kisoro Hill Village
<input type="checkbox"/> 20	22	Rucakatsi Mahuuku Stanley.1	Kisoro Hill Village
<input type="checkbox"/> 21	23	Uwimana Francis-2	Kisoro Hill Village
<input type="checkbox"/> 22	24	Ngirabakunzi Emmanuel	Kisoro Hill Village
<input type="checkbox"/> 23	25	Mulengezi Moses	Kisoro Hill Village
<input type="checkbox"/> 24	26	The Manager, KIBA	Kisoro-Kabale road
<input type="checkbox"/> 25	28	The Manager, Stanbic bank	Kisoro-Kabale road
<input type="checkbox"/> 26	28	Muhunguza Peter.1	Kisoro-Kabale road

Select All Select None Refresh Print Preview Close

The Customer Invoice Processing form above is used to print customer bills sorted by year and month and display them when required.

The customer bills are also sorted by Location and Customer Name by selecting from the dropdown list as required by the system user.

The Customer bills to be printed are selected by checking the check boxes at the beginning of the customer billing record.

To select all the records to be printed, Click Select All otherwise Click Select None or select the require records one by one.

When the selection of the required records is done, Click Print Preview. This will result to the display of the print invoice form. Insert the invoice papers in the printer to enable printing of the customer bills.

Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.5.3.3.3 By Customer Number

Customer Invoice Processing

Year:

Month:

Customer Name:

Location:

Customer Number:

Customer's Billing Records

Requirements	Details
Customer Number	1
Customer Name	Kwizera Alex.1
Location	Kisoro-Kabale road
Basis of Charge	Commercial
Meter Number	FA00409000676
Current Reading	272652
Previous Reading	269959
Consumption	2693
Reading Date	11/30/2009
Billing Date	12/1/2009
Invoice Number	2953
Previous Invoice Balance	271248
Previous Payments	0
Balance Brought Forward	271248
Service Fee	1500
Bill Amount	4039.5
Vat Amount	4597.11
Sewerage Fee	20000
Total Amount	301384.61
Record Date	11/30/2009
System User	Barbra

The Customer Invoice Processing form above is used to print customer bills sorted by year, month and customer number and display them when required.

The customer bills are also sorted by Location and Customer Name by selecting form the dropdown list as required by the system user.

The Customer bills to be printed are selected by checking the check boxes at the beginning of the customer billing record.

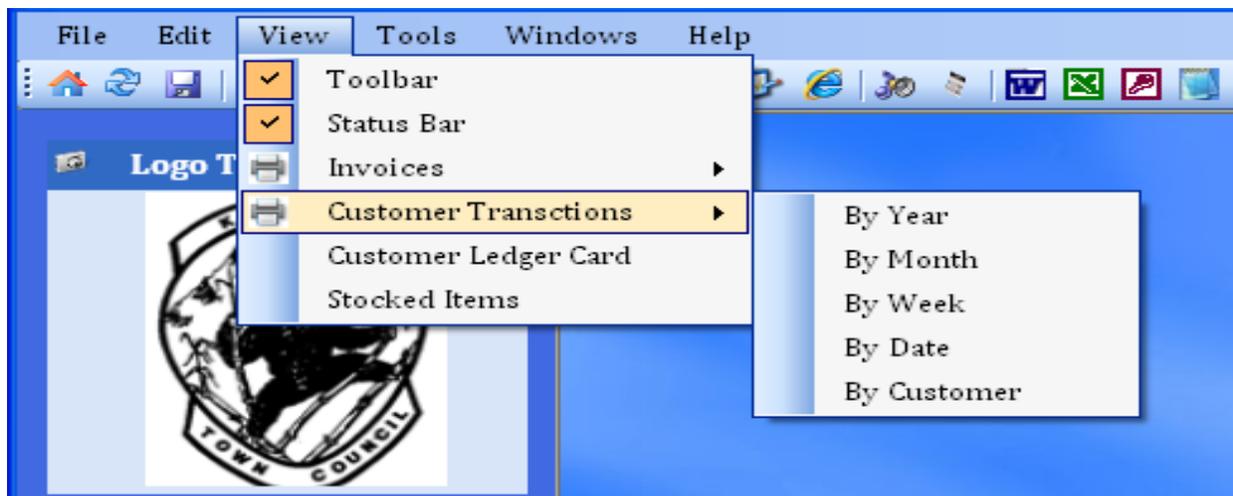
To select all the records to be printed, Click Select All otherwise Click Select None or select the require records one by one.

When the selection of the required records is done, Click Print Preview. This will result to the display of the print invoice form. Insert the invoice papers in the printer to enable printing of the customer bills.

Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.5.3.4 Customer Transactions



4.5.3.4.1 By Year

Customer Transactions Form

Year: **2009** **Compute**

Transaction Records

Index	Customer Number	Customer Name	Location
1	1	Kwizera Alex.1	Kisoro-Kabale road
2	2	Harerimana Boniface	Kamonyi
3	3	Kabami Nteziyaremye (Microcare)	Kisoro-Kabale road
4	4	Panda (UML)	Kisoro hill /Kisoro- Kabale
5	4	Panda (UML)	Kamonyi
6	5	Nteziryayo Abdul	Kisoro-Kabale road
7	5	Nteziryayo Abdul	Kisoro-Kabale road
8	6	Segawa. Buruhani.1	Kisoro-Kabale road
9	7	The Manager (Bufumbira Hotel)	Kisoro-Kabale road
10	7	The Manager (Bufumbira Hotel)	Kisoro-Kabale road
11	7	The Manager (Bufumbira Hotel)	Kisoro-Kabale road
12	8	Hitimana Lukanika(Dr)	Kisoro-Kabale road
13	9	Hareba Benon.1	Kisoro-Kabale road
14	9	Hareba Benon.1	Kisoro-Kabale road
15	10	Ahamed Fayida (Park View house)	Kisoro-Kabale road
16	13	Naana Richard	Kisoro Hill Village
17	13	Naana Richard	Mutolere road
18	13	Naana Richard	Kisoro Hill Village
19	13	Naana Richard	Kisoro Hill Village
20	16	Kwizera Herberts Home	Kisoro Hill Village
21	16	Kwizera Herberts Home	Kivegeri road / Nyagishin
22	16	Kwizera Herberts Home	Kisoro Hill Village
23	17	Nsenga Gerald	Chuho road
24	17	Nsenga Gerald	Kisoro - Kabale road

Collection Details

Total Amount Collected: **78,389,280** UGX Total Balance: **27,893,132** UGX

Refresh Print Preview Close

The Customer Transaction form above is used to print customer transaction details sorted by year and display them when required.

Click Print Preview. This will result to the display of the print form as shown in the figure below.

Customer Transactions Form

KISORO TOWN WATER & SEWERAGE AUTHORITY
P.O BOX 100, KISORO
General Transactions Report

Customer No.	Customer Name	Location	Basis Of Charge	Payment Date	Amount	Balance	Mode	Reciept No.
1	Kwizera Alex. 1	Kisoro-Kabale road	Commercial	01/Jan/0001	300,000	1,385	Cash	32797
2	Haririmana Boniface	Kamonyi		01/Jan/0001	50,000	20,856	Cash	31551
3	Kabami Nteziyaremye (Microcare)	Kisoro-Kabale road	Commercial	11/Nov/2009	111,100	83	Cash	31973
4	Panda (UML)	Kisoro hill /Kisoro-Kabale road	Commercial	10/Aug/2009	36,400	170	Cash	31291
				11/Nov/2009	70,400	-2	Cash	32661
5	Nteziyayo Abdul	Kisoro-Kabale road	Domestic	10/Aug/2009	10,000	-552	Cash	32783

Previous

Click the print icon to print the records shown otherwise click Previous to exit without printing and go back the previous form.

Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.5.3.4.2 By Month

The Customer Transaction form below is used to print customer transaction details sorted by year and month and display them when required.

Click Print Preview to print the displayed customer transaction details.

Customer Transactions Form

Year: 2009 Month: December Compute

Transaction Records

Index	Customer Number	Customer Name	Location
1	1	Kwizera Alex.1	Kisoro-Kabale road
2	4	Panda (UML)	Kisoro hill /Kisoro- Kabale
3	5	Nteziryayo Abdul	Kisoro-Kabale road
4	7	The Manager (Bufumbira Hotel)	Kisoro-Kabale road
5	8	Hitimana Lukanika(Dr)	Kisoro-Kabale road
6	9	Hareba Benon.1	Kisoro-Kabale road
7	13	Naana Richard	Kisoro Hill Village
8	16	Kwizera Herberts Home	Kisoro Hill Village
9	17	Nsenga Gerald	Chuhu road
10	20	Bugigi Muhammad -home	Kisoro Hill Village
11	21	Mbishibishi John	Kisoro Hill Village
12	22	Rucakatsi Mahuku Stanley .1	Kisoro Hill Village
13	25	Mulengezi Moses	Kisoro Hill Village
14	30	Bakenga James -1	Kisoro-Kabale road
15	35	Kisoro Tourist Hotel	Kisoro-Kabale road
16	41	District Water Office	Kisoro-Bunagana road
17	45	Rwabanda Sam	Nyamirima Village
18	45	Rwabanda Sam	Nyamirima Village
19	47	Nturo John.C	Nyamirima Village
20	51	Dusabe Geoffrey.1	Bunagana road
21	53	The Parish Priest,Kisoro Catholic Parish	Bunagana road
22	54	Duhimbaze Kenneth	Bunagana road
23	55	Dusabe Geoffrey. 3	Kivengere road
24	56	Nzabonimpa Francis C/O Halera Boniface	Bunagana road

Collection Details

Total Amount Collected: 24,547,025 UGX Total Balance: 7,213,823 UGX

Refresh Print Preview Close

Click the print icon to print the records shown otherwise click Previous to exit without printing and go back the previous form.

Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.5.3.4.3 By Week

The Customer Transaction form below is used to print customer transaction details sorted by year, month and week and display them when required.

Click Print Preview to print the displayed customer transaction details.

The screenshot displays a software interface titled "Customer Transactions Form". At the top, there are dropdown menus for "Year" (set to 2009), "Month" (set to December), and "Week" (set to 4). A "Compute" button is located to the right of these filters. Below the filters is a section titled "Transaction Records" containing a table with four columns: Index, Customer Number, Customer Name, and Location. The table lists 24 records. At the bottom of the form, there is a "Collection Details" section with two input fields: "Total Amount Collected" (6,758,971 UGX) and "Total Balance" (1,635,187 UGX). Below this section are three buttons: "Refresh", "Print Preview", and "Close".

Index	Customer Number	Customer Name	Location
1	20	Bugigi Muhammad -home	Kisoro Hill Village
2	22	Rucakatsi Mahuuku Stanley.1	Kisoro Hill Village
3	47	Nturo John.C	Nyamirima Village
4	58	Sebutale Pascal	Bunagana road
5	62	Dufitimukiza Christopher-farm	Bunagana road
6	70	JSH Tank 1OPD Kiconco Peace	Bunagana road
7	84	Nkeza Annociata	Church road
8	93	Marimanya Connie 1	Circular road
9	102	Bugigi Muhammed(Virunga Hotel)	Mutanda road
10	102	Bugigi Muhammed(Virunga Hotel)	Mutanda road
11	103	Mugisha Charles	Mutanda road
12	117	Sebahutu Geofrey	Chuhu road
13	135	Kiganda Abdul Musobya	Nyarusiza road
14	162	Niyonsaba Alex	Gasasira road
15	176	Ndagiza Said Sirati	Main Village
16	187	Sebuhingiriza Rwabiti..plot...43	Main Village
17	199	New Market PTs.	Main Village
18	202	New park PTS	Main Village
19	225	Rezida Joseph	Karumena Village
20	240	Sebisura Manzi	Kamonyi
21	252	Hategek Imana.Syliver	Mutolere road
22	259	Mayunga Pontius 2	Mbongera/Bugera
23	264	Nkusi Wa Bnyavanga	Mutolere road
24	286	District Director of Health Services	Kisoro - Kabale road

Click the print icon to print the records shown otherwise click Previous to exit without printing and go back the previous form.

Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.5.3.4.4 By Date

The Customer Transaction form below is used to print customer transaction details sorted by year, month, week and date and display them when required.

Click Print Preview to print the displayed customer transaction details.

Index	Customer Number	Customer Name	Location
1	3	Kabami Nteziyaremye (Microcare)	Kisoro-Kabale road
2	5	Nteziryayo Abdul	Kisoro-Kabale road
3	7	The Manager (Bufumbira Hotel)	Kisoro-Kabale road
4	25	Mulengezi Moses	Kisoro Hill Village
5	29	Nkurunziza Peter.1	Kisoro-Kabale road
6	30	Bakenga James -1	Kisoro-Kabale road
7	45	Rwabanda Sam	Nyamirima Village
8	46	Semucyo Enos	Nyamirima Village
9	53	The Parish Priest,Kisoro Catholic Parish	Bunagana road
10	58	Sebutale Pascal	Bunagana road
11	59	Rubibi Jeremiah	Bunagana road
12	66	MSH.9 Mrs Ndiramiye	Bunagana road
13	70	JSH Tank 1OPD Kiconco Peace	Bunagana road
14	72	JSH.14&15Twebaze Wilbroad	Bunagana road
15	73	JSH.17&18 Kisoro Hospital	Bunagana road
16	79	Kagayifu Geoffrey	Bunagana road
17	82	Sabiti Epaphrah.1	Church road
18	102	Bugigi Muhammed(Virunga Hotel)	Mutanda road
19	104	Hanyurwa Sheeba.1	Mutanda road
20	105	The Manager, Mubano Hotel	Mutanda road
21	105	The Manager, Mubano Hotel	Mutanda road
22	110	Nyagahima Joseline	Chuhu road
23	132	Hakiza William	Nyarusiza road
24	133	Nsababera Junior	Nyarusiza road

Collection Details
Total Amount Collected: **8,868,193** UGX Total Balance: **2,621,643** UGX

Refresh Print Preview Close

Click the print icon to print the records shown otherwise click Previous to exit without printing and go back the previous form.

Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

Customer Transactions Form

KISORO TOWN WATER & SEWERAGE AUTHORITY
P. O BOX 100, KISORO
Customer Financial Details Report

Customer Name: Abex Washing Bay

Customer Number: 724 Basis of Charge: Commercial

Location: Kisoro Hill Village

Payment Date	Amount	Balance	Mode	Receipt No.	Invoice No.	Record Date
01/Jan/0001	150,000	101,327	Cash	32717	2960	12/19/2009
01/Jan/0001	70,000	31,327	Cash	32926	2960	12/31/2009

Previous

Click the print icon to print the records shown otherwise click Previous to exit without printing and go back the previous form.

Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.5.3.5 Customer Ledger Card

The Customer Ledger form below is used to print customer transaction details sorted by the period between years and months and display them when required.

Customer Transactions Form

From Year: 2008 Month: [] **To** Year: 2010 Month: []

Customer Name: Abex Washing Bay Customer Number: 724 **Compute**

Location: Kisoro Hill Village Basis of Charge: Commercial

Index	Meter Number	Current Reading	Previous Reading	Consumption	Invoice
1	132753	742867	593321	149546	2754
2	132753	833983	742867	91116	2960
3	132753	833983	742867	91116	2960
4	132753	593321	555761	37560	1288
5	132753	593321	555761	37560	1288
6	132753	742867	593321	149546	2754

Collection Details

Total Amount Collected: 575,000 UGX Total Balance: 168,282 UGX

Refresh **Print Preview** **Close**

Click Print Preview to print the displayed customer transaction details as shown in the figure below.

Customer Transactions Form

KISORO TOWN WATER & SEWERAGE AUTHORITY
P.O BOX 100, KISORO
CUSTOMER LEDGER CARD

Customer Name: Abex Washing Bay
Customer Number: 724 Basis of Charge: Commercial
Location: Kisoro Hill Village Meter Number: 132753

Date	Current Reading	Previous Reading	Consumption	Amount of Bill	Amount Paid	Invoice No.	Balance
01/Jan/0001	742,867	593,321	149,546	168,282	80,000	2754	88,282
01/Jan/0001	833,983	742,867	91,116	251,327	150,000	2960	101,327
01/Jan/0001	833,983	742,867	91,116	101,327	70,000	2960	31,327
10/Dec/2009	593,321	555,761	37,560	176,815	70,000	1288	106,815
10/Dec/2009	593,321	555,761	37,560	106,815	35,000	1288	71,815
11/Nov/2009	742,867	593,321	149,546	338,282	170,000	2754	168,282

Previous

Click the print icon to print the records shown otherwise click Previous to exit without printing and go back the previous form.

Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

Stocked Items Form

KISORO TOWN WATER & SEWERAGE AUTHORITY
P.O BOX 100, KISORO

SL.No	Item Name	Unit	Quantity Stocked	Additions	Total Recieved	Issue s	Stock Balance
1	Water Metres	Pcs	450		450		450

Previous

Click the print icon to print the records shown otherwise click Previous to exit without printing and go back the previous form.

Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.5.4 Tools

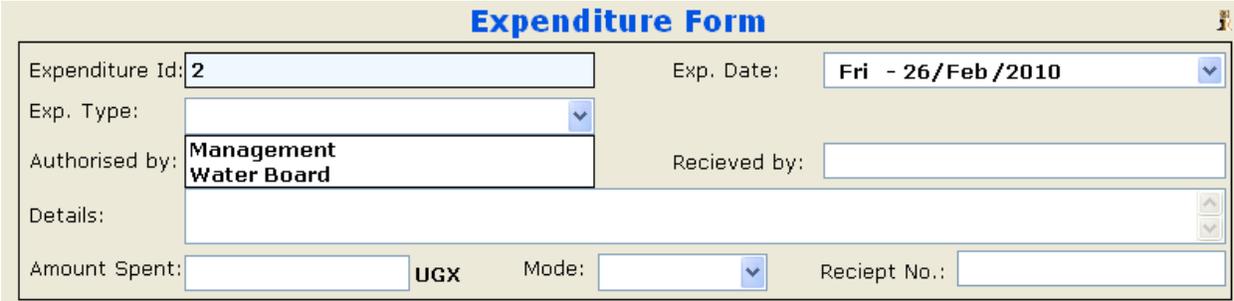


4.5.4.1 Expenditure

The Expenditure command prompts to open the Expenditure Form.

Index	Expenditure Id	Exp. Date	Expenditure Type	Authorised by
1	1	26/02/2010	Management	Area Manager

The expenditure Id is automatically generated by the system, the expenditure date is selected by the system user, and the expenditure type is selected by the user specifying the type of expenditure made either by the Management or by the Water Board as shown in the diagram below.



The screenshot shows a web-based form titled "Expenditure Form". The form contains several input fields and dropdown menus. The "Expenditure Id" field contains the number "2". The "Exp. Date" dropdown menu is set to "Fri - 26/Feb/2010". The "Exp. Type" dropdown menu is currently empty. The "Authorised by:" field contains the text "Management Water Board". The "Recieved by:" field is empty. The "Details:" field is empty. The "Amount Spent:" field is empty, followed by the text "UGX". The "Mode:" dropdown menu is empty. The "Reciept No.:" field is empty.

The person's name that authorized the expenditure to be made is entered under authorised by while the receiver's name is also entered under received by. The details of the expenditure are entered under details and so are the amount spent, mode of payment and the receipt number.

FORM OPERATIONS

Add New: - In this operation, an expenditure record is entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.



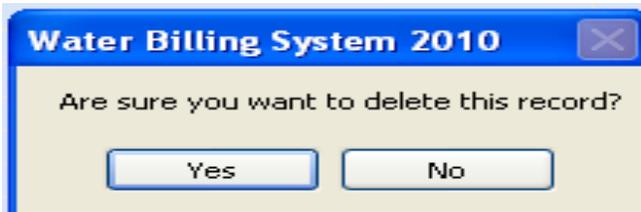
Edit: - Click Edit to change or delete any expenditure record and the following Edit Expenditure Records form will be displayed. Select the expenditure whose details you want to edit from the Datagrid view.



A set of buttons, Edit Buttons, appears at the bottom of the list view as shown in the figure above.

Carry out the operations as you would wish i.e. **Save** changes made, **Delete** entire record, or **Previous** if you would wish to exit without saving changes.

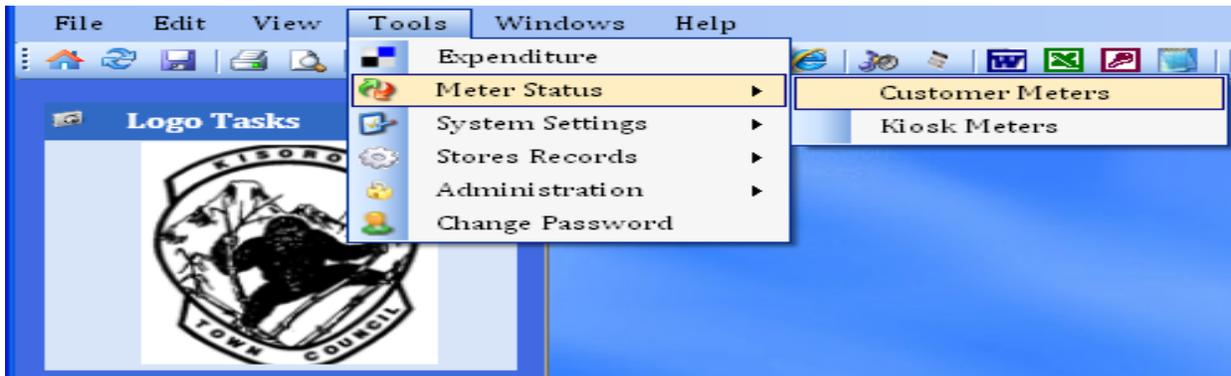
If you try to delete a record then the following message will be displayed. Click Yes if you want to delete the selected record otherwise Click No.



Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.5.4.2 Meter Status



4.5.4.2.1 Customer Status

This form updates the connection status of the customers. Customers that are connected to water are recorded in the meter status as connected while those that are not connected to water are recorded in the meter status as Not Connected. All new customers are recorded in the meter status as Not Connected by default. The Customer Meter status form can be shown below.

Customer Meter Status Form

Customer Number: Customer Name:

Meter Number: Connection Date:

Meter Status: Meter Reading:

Customer's Records

Index	Customer's Name	Customer Number	Meter Number	Meter Reading
1	Kwizera Alex.1	1	FA00409000676	269959
2	Harerimana Boniface	2	222309	1910179
3	Kabami Nteziyaremye (Microc...	3	0409000677	324623
4	Panda (UML)	4	223096	603714
5	Nteziryayo Abdul	5	04100071	310472
6	Segawa. Buruhani.1	6	0703186	169002
7	The Manager (Bufumbira Hotel)	7	FB011909-04	1153009
8	Hitimana Lukanika(Dr)	8	3692058	659978
9	Hareba Benon.1	9	0409000679	1284038
10	Ahamed Fayida (Park View ho...	10	025931-05	555198
11	Seguya Didas	11		0
12	Mugabo John.1	12	223598	251296
13	Naana Richard	13	FA024813-05	1380977
14	Kisoro Mosque	14	134622	44863
15	Mugabo Salim	15	0703380	97041
16	Kwizera Herberts Home	16	9112081	794347
17	Nsenga Gerald	17	03131	106236
18	Niyonzima Ivan	18	3691838	0
19	Uwimana Francis.1-(Home)	19	3693354	140072
20	Bugigi Muhammad -home	20	3692060	0
21	Mbishibishi John	21	3692002	0
22	Rucakatsi Mahuuku Stanley.1	22	025934-05	0
23	Uwimana Francis-2	23		0
24	Nairahakunzi Emmanuel	24	0701253	0

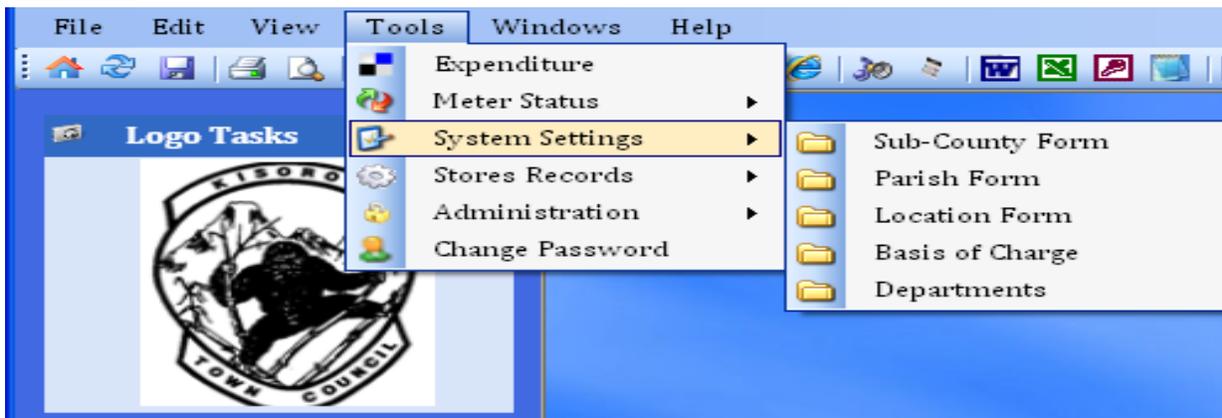
FORM OPERATIONS

Update Record: - In this operation, the kiosk meter connection status is recorded and updated in the system.

Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

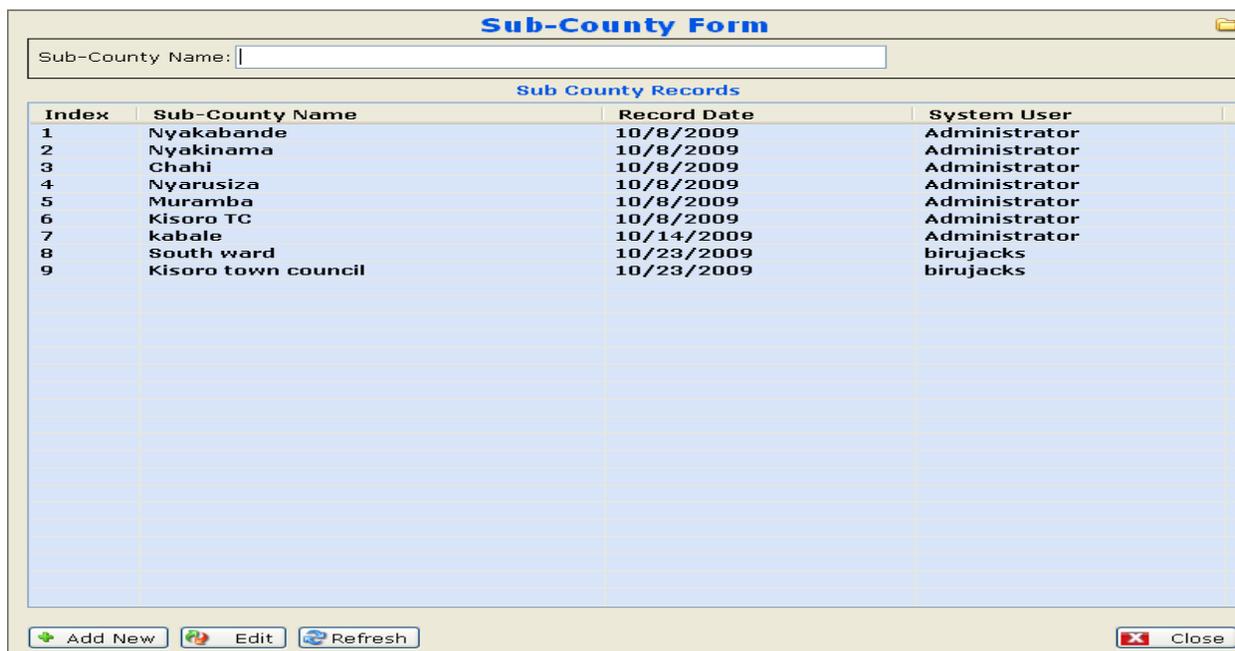
Close: - Closes the form.

4.5.4.3 System Settings



4.5.4.3.1 Sub-County Form

The Sub-County command prompts to open the Sub-County Form.



The screenshot shows a window titled 'Sub-County Form'. At the top, there is a text input field labeled 'Sub-County Name:'. Below this is a table titled 'Sub County Records' with the following data:

Index	Sub-County Name	Record Date	System User
1	Nyakabande	10/8/2009	Administrator
2	Nyakinama	10/8/2009	Administrator
3	Chahi	10/8/2009	Administrator
4	Nyarusiza	10/8/2009	Administrator
5	Muramba	10/8/2009	Administrator
6	Kisoro TC	10/8/2009	Administrator
7	kabale	10/14/2009	Administrator
8	South ward	10/23/2009	birujacks
9	Kisoro town council	10/23/2009	birujacks

At the bottom of the window, there are buttons for 'Add New', 'Edit', 'Refresh', and 'Close'.

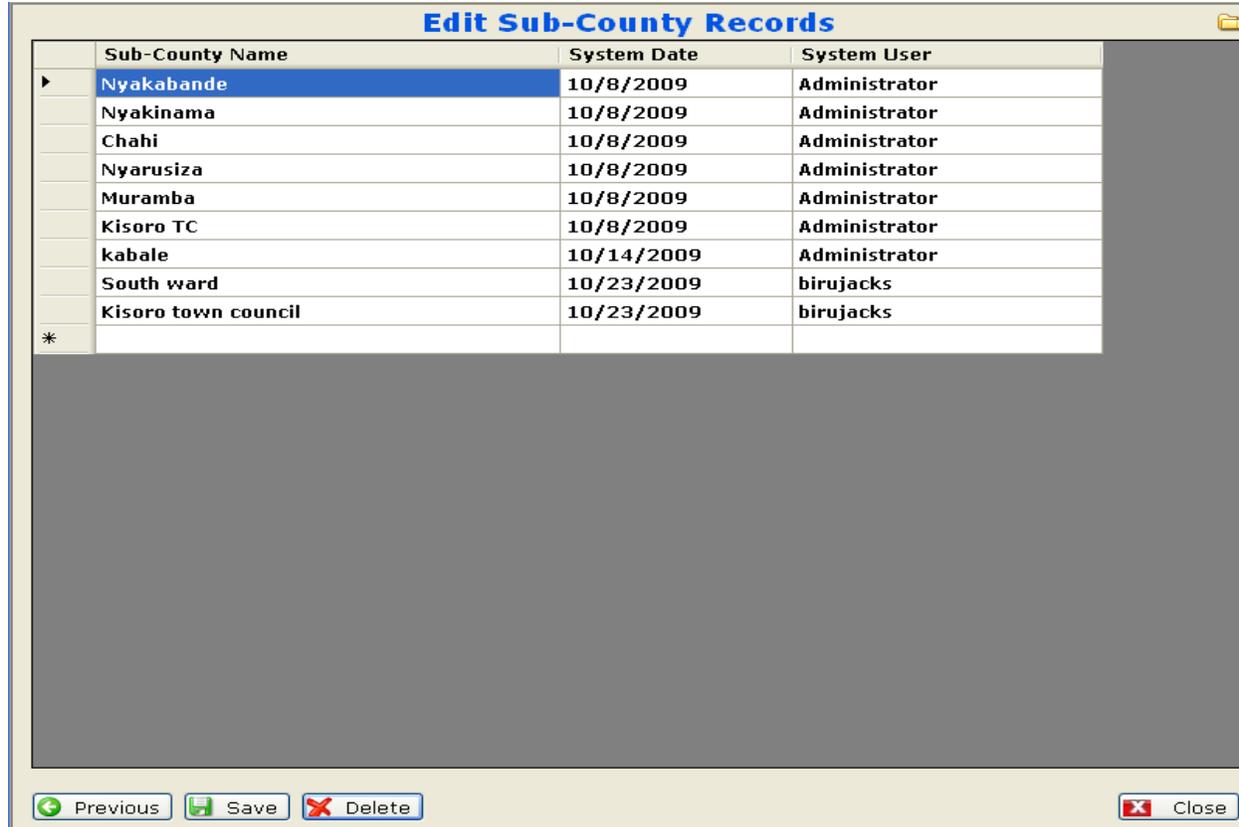
The Sub-County is entered by the system user in order to add a new Sub-County to the system.

FORM OPERATIONS

Add New: - In this operation, a Sub-County record is entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.



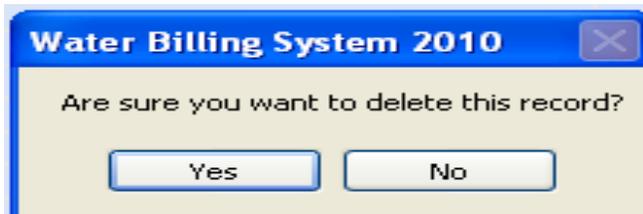
Edit: - Click Edit to change or delete any Sub-County record and the following Edit Sub-County Records form will be displayed. Select the Sub-County whose details you want to edit from the Datagrid view.



A set of buttons, Edit Buttons, appears at the bottom of the list view as shown in the figure above.

Carry out the operations as you would wish i.e. **Save** changes made, **Delete** entire record, or **Previous** if you would wish to exit without saving changes.

If you try to delete a record then the following message will be displayed. Click Yes if you want to delete the selected record otherwise Click No.



Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.5.4.3.2 Parish Form

The Parish Form command prompts to open the Parish Form as shown below

Index	Parish	Sub-County	Record Date
1	Gikoro	Nyakabande	10/8/2009
2	Mutolere	Nyakabande	10/8/2009
3	Kagera	Nyakabande	10/8/2009
4	Rwaramba	Nyakinama	10/8/2009
5	Mubuga	Nyakinama	10/8/2009
6	Nyacisenyi	Nyarusiza	10/8/2009
7	Mabungo	Nyarusiza	10/8/2009
8	Kabuhungiro	Nyarusiza	10/8/2009
9	Kabindi	Nyarusiza	10/8/2009
10	tyre	kabale	10/14/2009
11	South ward	Kisoro town council	10/23/2009
12	Nyakabaya	Nyarusiza	10/8/2009
13	North ward	Kisoro town council	10/23/2009
14	Bikoro	Nyarusiza	10/8/2009
15	Gasiza	Nyakabande	10/23/2009
16	Gisorora	Nyakabande	10/23/2009
17	Nyakabingo	Chahi	10/8/2009
18	Chanika	Chahi	10/8/2009
19	Muganza	Chahi	10/8/2009
20	Kisoro Town	Kisoro TC	10/8/2009
21	Sooko	Muramba	10/8/2009
22	Chuhu	Nyakabande	10/8/2009

The Sub-County name is selected from the drop down list while the Parish name is entered by the system user.

FORM OPERATIONS

Add New: - In this operation, a new Parish record is entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.



Edit: - Click Edit to change or delete any Parish record and the following Edit Parish Records form will be displayed. Select the Parish whose details you want to edit from the Datagrid view.

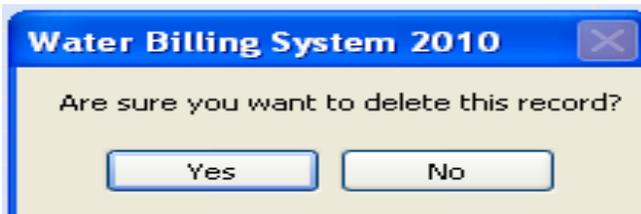
Edit Parish Records					
	Parish	Sub-County	System Date	System_Weel	Syste
▶	Gikoro	Nyakabande	10/8/2009	2 - 10 - 2009	Octob
	Mutolere	Nyakabande	10/8/2009	2 - 10 - 2009	Octob
	Kagera	Nyakabande	10/8/2009	2 - 10 - 2009	Octob
	Rwaramba	Nyakinama	10/8/2009	2 - 10 - 2009	Octob
	Mubuga	Nyakinama	10/8/2009	2 - 10 - 2009	Octob
	Nyacisenyi	Nyarusiza	10/8/2009	2 - 10 - 2009	Octob
	Mabungo	Nyarusiza	10/8/2009	2 - 10 - 2009	Octob
	Kabuhungiro	Nyarusiza	10/8/2009	2 - 10 - 2009	Octob
	Kabindi	Nyarusiza	10/8/2009	2 - 10 - 2009	Octob
	tyre	kabale	10/14/2009	2 - 10 - 2009	Octob
	South ward	Kisoro town council	10/23/2009	4 - 10 - 2009	Octob
	Nyakabaya	Nyarusiza	10/8/2009	2 - 10 - 2009	Octob
	North ward	Kisoro town council	10/23/2009	4 - 10 - 2009	Octob
	Bikoro	Nyarusiza	10/8/2009	2 - 10 - 2009	Octob
	Gasiza	Nyakabande	10/23/2009	4 - 10 - 2009	Octob
	Gisorora	Nyakabande	10/23/2009	4 - 10 - 2009	Octob
	Nyakabingo	Chahi	10/8/2009	2 - 10 - 2009	Octob
	Chanika	Chahi	10/8/2009	2 - 10 - 2009	Octob
	Muganza	Chahi	10/8/2009	2 - 10 - 2009	Octob
	Kisoro Town	Kisoro TC	10/8/2009	2 - 10 - 2009	Octob
	Sooko	Muramba	10/8/2009	2 - 10 - 2009	Octob
	Chuhu	Nyakabande	10/8/2009	2 - 10 - 2009	Octob
*					

Previous Save Delete Close

A set of buttons, Edit Buttons, appears at the bottom of the list view as shown in the figure above.

Carry out the operations as you would wish i.e. **Save** changes made, **Delete** entire record, or **Previous** if you would wish to exit without saving changes.

If you try to delete a record then the following message will be displayed. Click Yes if you want to delete the selected record otherwise Click No.

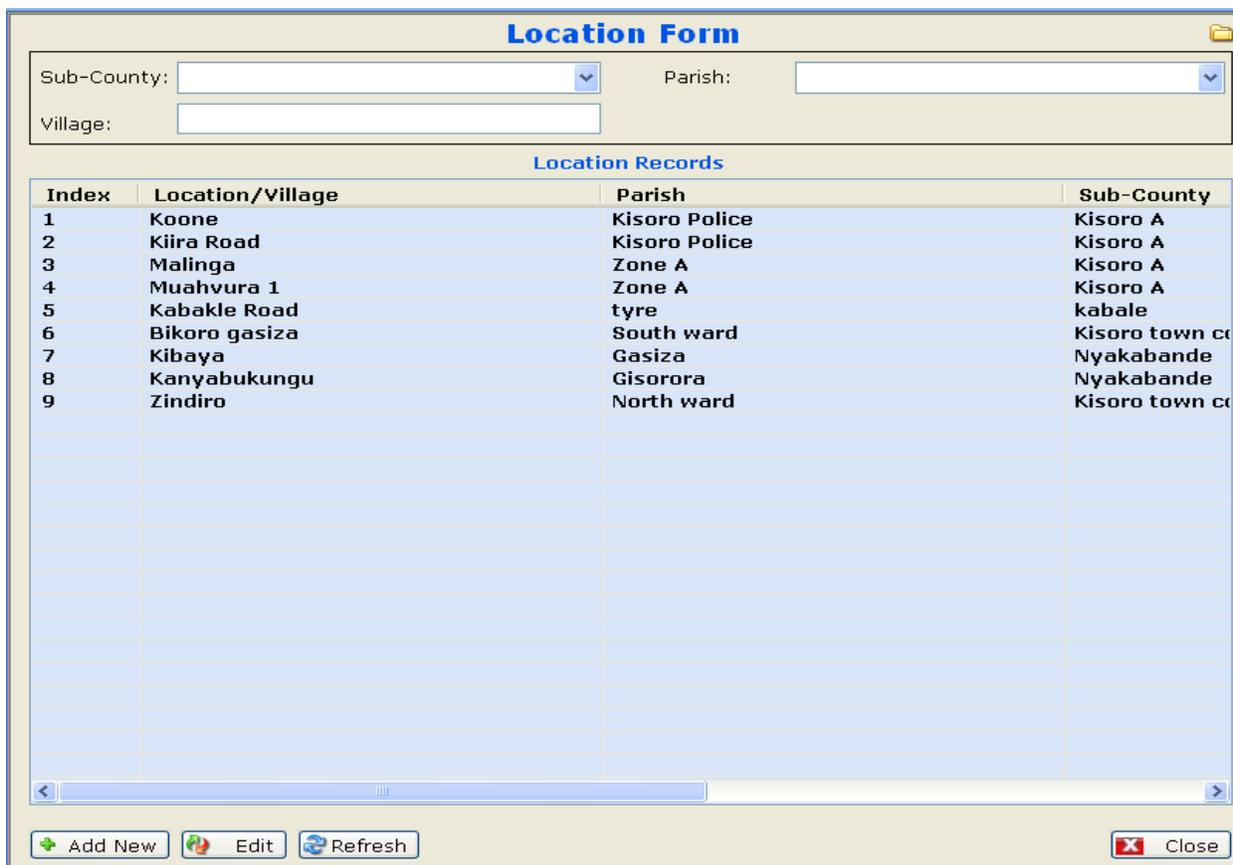


Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.5.4.3.3 Location Form

The Location Form command prompts to open the Location Form as shown below



The screenshot shows a window titled 'Location Form'. At the top, there are three input fields: 'Sub-County:' with a dropdown arrow, 'Parish:' with a dropdown arrow, and 'Village:' with a text box. Below these is a table titled 'Location Records' with four columns: 'Index', 'Location/Village', 'Parish', and 'Sub-County'. The table contains 9 rows of data. At the bottom of the window, there are four buttons: 'Add New' (with a plus icon), 'Edit' (with a pencil icon), 'Refresh' (with a circular arrow icon), and 'Close' (with a red X icon).

Index	Location/Village	Parish	Sub-County
1	Koone	Kisoro Police	Kisoro A
2	Kiira Road	Kisoro Police	Kisoro A
3	Malinga	Zone A	Kisoro A
4	Muahvura 1	Zone A	Kisoro A
5	Kabakle Road	tyre	kabale
6	Bikoro gasiza	South ward	Kisoro town cc
7	Kibaya	Gasiza	Nyakabande
8	Kanyabukungu	Gisorora	Nyakabande
9	Zindiro	North ward	Kisoro town cc

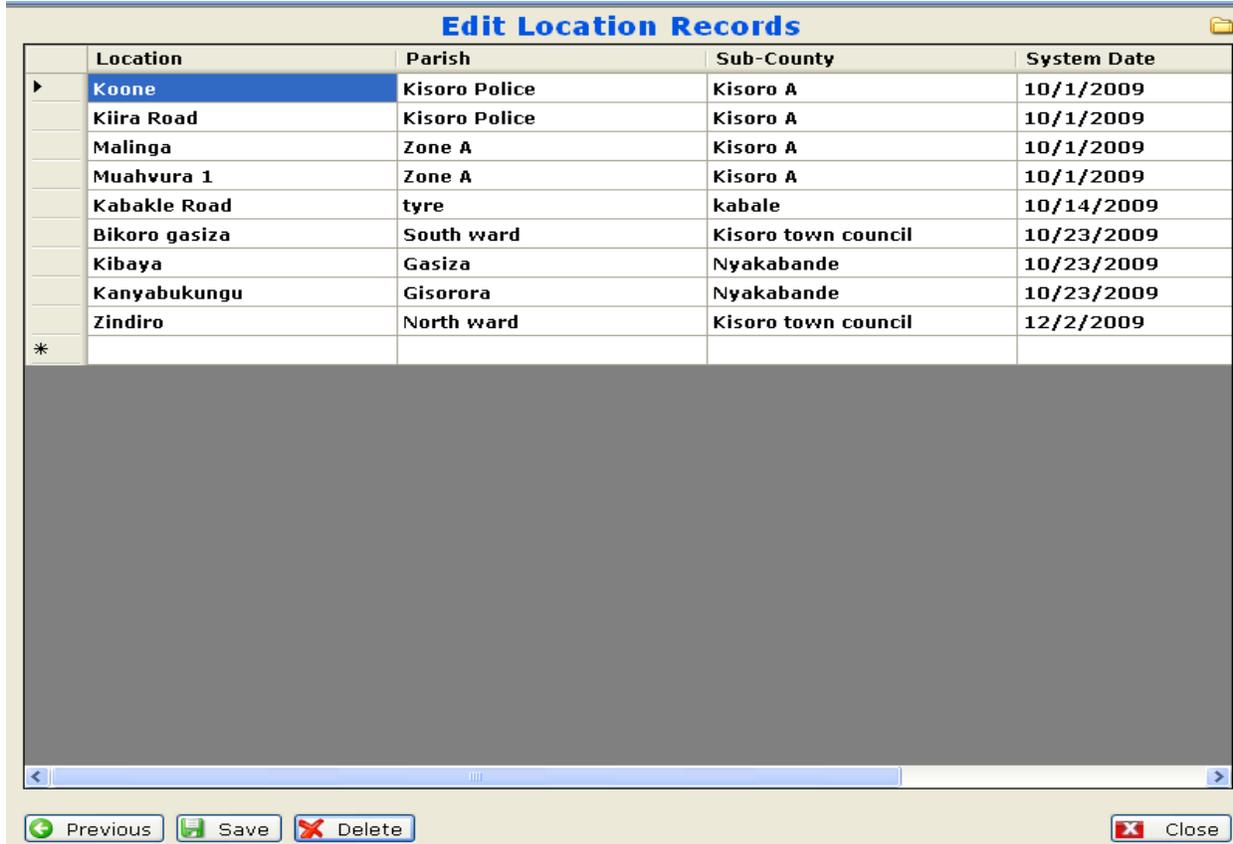
The Sub-County name and the Parish name are selected from the drop down list while the Location name is entered by the system user.

FORM OPERATIONS

Add New: - In this operation, a new Location record is entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.



Edit: - Click Edit to change or delete any Location record and the following Edit Location Records form will be displayed. Select the Location whose details you want to edit from the Datagrid view.



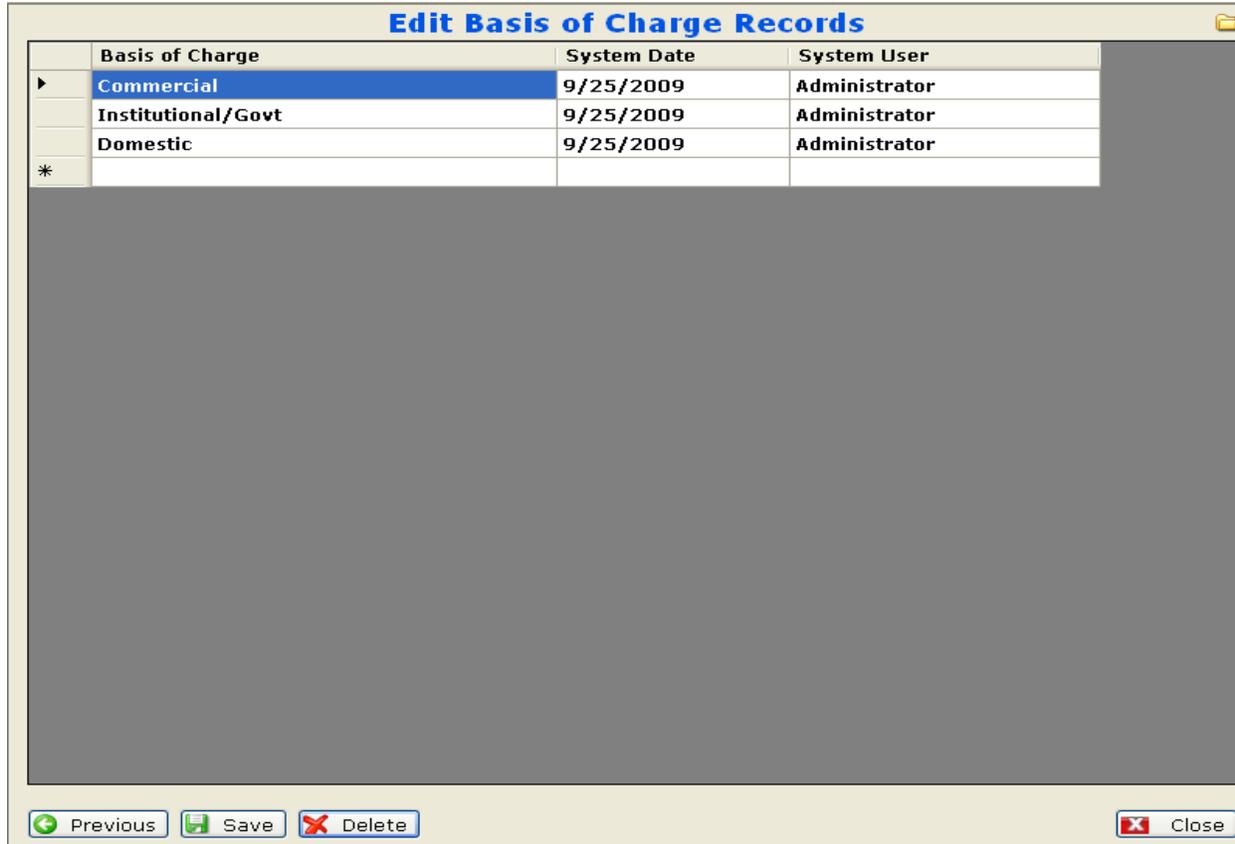
The Basis of Charge is entered by the system user in order to add a new Basis of Charge to the system.

FORM OPERATIONS

Add New: - In this operation, a Basis of Charge record is entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.



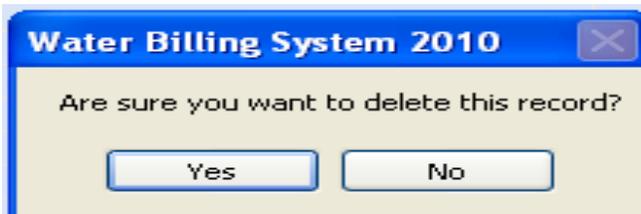
Edit: - Click Edit to change or delete any Basis of Charge record and the following Edit Basis of Charge Records form will be displayed. Select the Basis of Charge whose details you want to edit from the Datagrid view.



A set of buttons, Edit Buttons, appears at the bottom of the list view as shown in the figure above.

Carry out the operations as you would wish i.e. **Save** changes made, **Delete** entire record, or **Previous** if you would wish to exit without saving changes.

If you try to delete a record then the following message will be displayed. Click Yes if you want to delete the selected record otherwise Click No.

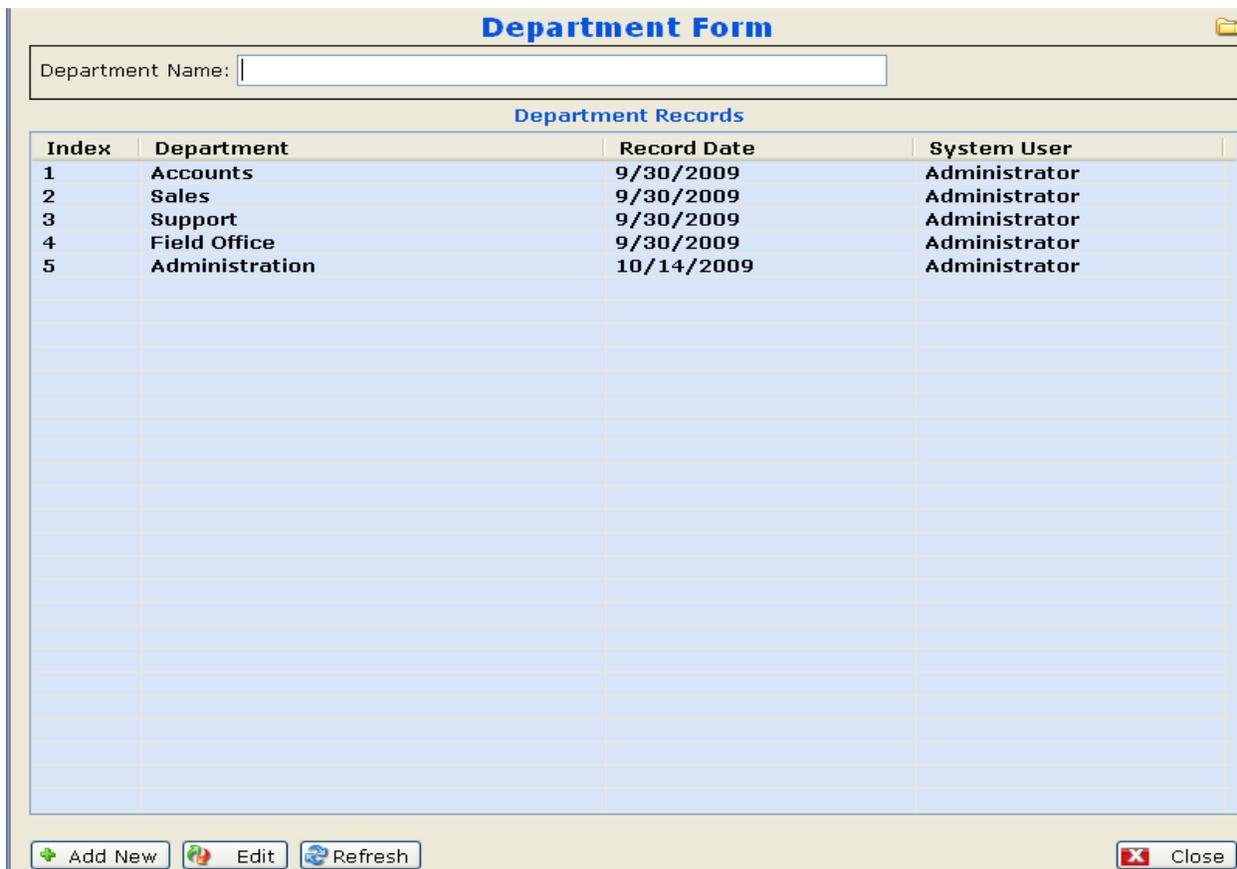


Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.5.4.3.5 Departments

The Departments command prompts to open the Departments Form.

A screenshot of a web-based form titled 'Department Form'. At the top, there is a text input field labeled 'Department Name:'. Below this is a table titled 'Department Records'. The table has four columns: 'Index', 'Department', 'Record Date', and 'System User'. The data in the table is as follows:

Index	Department	Record Date	System User
1	Accounts	9/30/2009	Administrator
2	Sales	9/30/2009	Administrator
3	Support	9/30/2009	Administrator
4	Field Office	9/30/2009	Administrator
5	Administration	10/14/2009	Administrator

At the bottom of the form, there are four buttons: 'Add New', 'Edit', 'Refresh', and 'Close'.

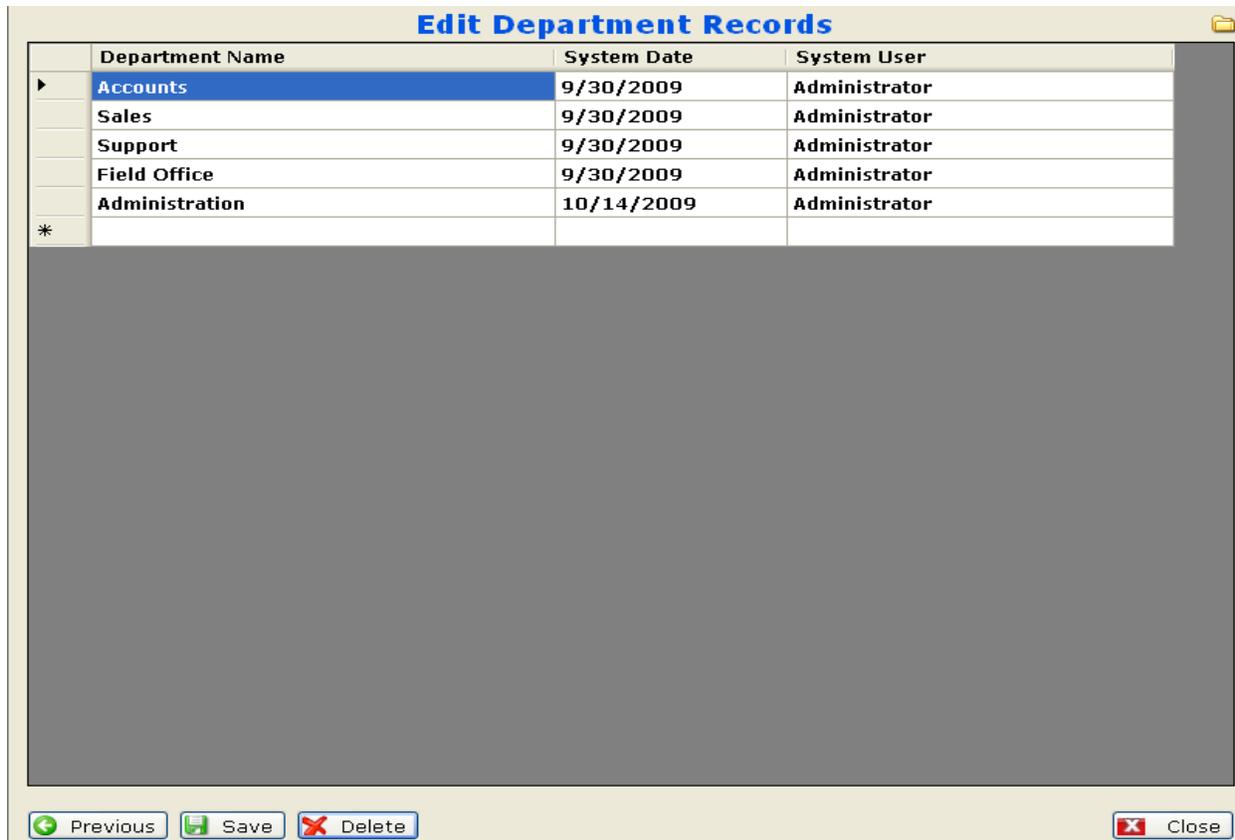
The Departments name is entered by the system user in order to add a new Department to the system.

FORM OPERATIONS

Add New: - In this operation, a Department record is entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.



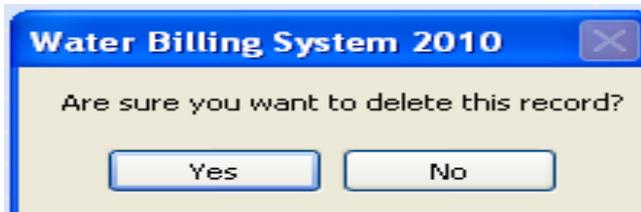
Edit: - Click Edit to change or delete any Department record and the following Edit Departments Records form will be displayed. Select the Department whose details you want to edit from the Datagrid view.



A set of buttons, Edit Buttons, appears at the bottom of the list view as shown in the figure above.

Carry out the operations as you would wish i.e. **Save** changes made, **Delete** entire record, or **Previous** if you would wish to exit without saving changes.

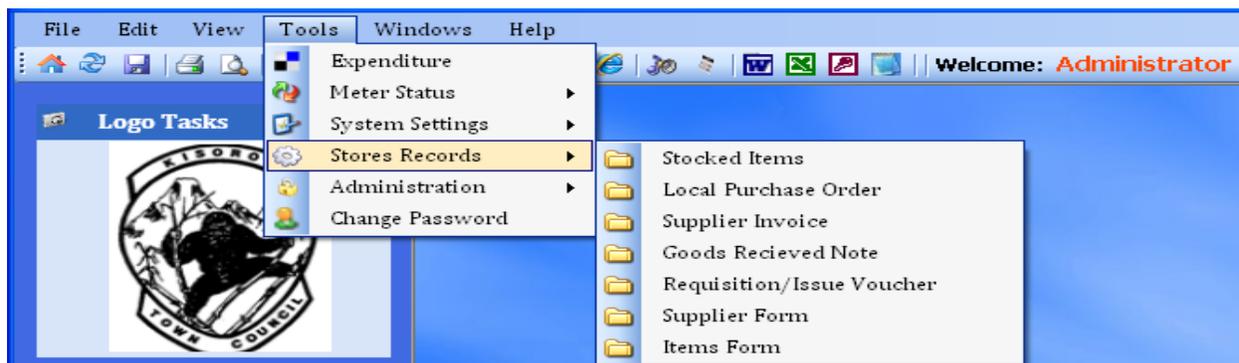
If you try to delete a record then the following message will be displayed. Click Yes if you want to delete the selected record otherwise Click No.



Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.5.4.4 Stores Records



4.5.4.4.1 Stocked Items

The Stocked Items command prompts to open the Stocked Items Form as shown in the figure below.

Selecting the Item name prompts the system to load the Item Id, Item Units and available Quantity, the receiving date is selected by the system user, and the received quantity is entered by the system user while the person that received the items is selected for the drop down list.

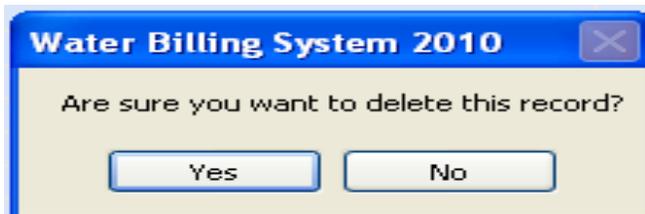
Edit: - Click Edit to change or delete any Local Purchase Order record and the following Edit Local Purchase Order Records form will be displayed. Select the LPO whose details you want to edit from the Datagrid view.



A set of buttons, Edit Buttons, appears at the bottom of the list view as shown in the figure above.

Carry out the operations as you would wish i.e. **Save** changes made, **Delete** entire record, or **Previous** if you would wish to exit without saving changes.

If you try to delete a record then the following message will be displayed. Click Yes if you want to delete the selected record otherwise Click No.



4.5.4.4.3 Supplier Invoice

The Supplier Invoice command prompts to open the Supplier Invoice Form as shown in the figure below.

Supplier Invoice Form

Invoice Number: LPO No.: LPO Date:
Invoice Date: Received by:

LPO Records without Invoices

Index	LPO Number	LPO Date	Supplier Id	Supplier Name

Invoiced LPO Records

Index	LPO Number	LPO Date	Invoice Number	Invoice Date	Supplier Id
<input type="checkbox"/> 1	00001	25/02/2010	0123	25/02/2010	00001

The invoice number is entered manually by the user; the LPO number is selected from the system and then click compute. Clicking the compute button retrieves the LPO date from the system while the invoice date is selected by the system user plus entering the person who received the supplier invoice.

FORM OPERATIONS

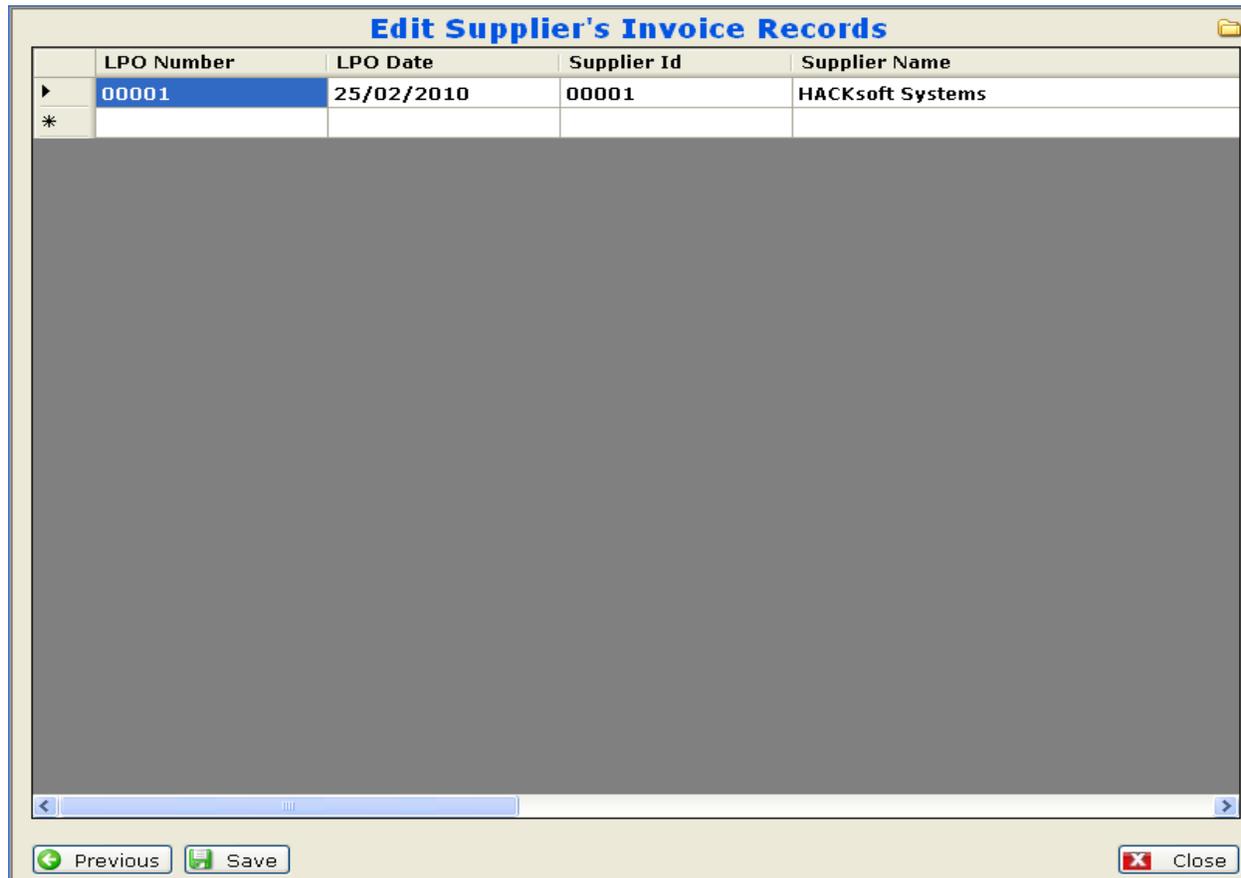
To mark as Uninvoiced: - The lower list view shows the LPOs that have been invoice by the suppliers. To mark as Uninvoiced, select the check box adjacent to the record, and then press Mark As Uninvoiced.

To select all records, press Select all below the list view otherwise Click Select None or select the require records one by one.

Add New: - In this operation, an invoice record is entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.



Edit: - Click Edit to change or delete any invoice record and the following Edit Supplier's Invoice Records form will be displayed. Select the invoice whose details you want to edit from the Datagrid view.



A set of buttons, Edit Buttons, appears at the bottom of the list view as shown in the figure above.

Carry out the operations as you would wish i.e. **Save** changes made, or **Previous** if you would wish to exit without saving changes.

Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.5.4.4 Goods Received Note

Index	Recieved Note Id	Receiving Date	Supplier Id	Supplier Name
1	08458	25/02/2010	00001	HACKsoft Systems

The Goods Received Note command prompts to open the Goods Received Note Form as shown in the figure above

The Goods Received number is entered manually by the system user.

Selecting the Supplier name prompts the system to load the Supplier Id, selecting the Item name prompts the system to load the Item Id and Item Units while the Quantity received is entered by the user and the person that receiving person is selected for the drop down list.

FORM OPERATIONS

Add New: - In this operation, a Goods Received Note record is entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.



Edit: - Click Edit to change or delete any Goods Received Note record and the following Edit Goods Received Note Records form will be displayed. Select the Goods Received Note whose details you want to edit from the Datagrid view.



The screenshot shows a window titled "Edit Goods Received Records" with a folder icon in the top right. It contains a datagrid with the following data:

	Received Note Id	Receiving Date	Supplier Id	Supplier Name
▶	08458	25/02/2010	00001	HACKsoft Systems
*				

Below the datagrid is a horizontal scrollbar. At the bottom of the window are four buttons: "Previous" (with a left arrow), "Save" (with a floppy disk icon), "Delete" (with a red X icon), and "Close" (with a red X icon).

The Requisition/Issue Voucher command prompts to open the Requisition/Issue Voucher Form as shown in the figure above

The Requisition/Issue Voucher is used to assign stocked items to the employee's of KITOWASO to use in the field or to supply to customers.

The Requisition number is entered manually by the system user.

Selecting the Item name prompts the system to load the Item Id, Item Units and the available quantity while the Quantity to be issued is entered by the user and the person that receiving person is selected for the drop down list. The issuing and receiving date are selected from the date viewer by the system user.

FORM OPERATIONS

Add New: - In this operation, a Requisition record is entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.



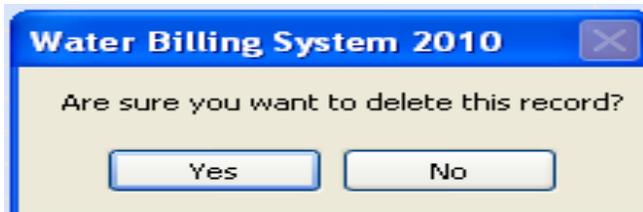
Edit: - Click Edit to change or delete any Requisition record and the following Edit Requisition/Issue Voucher Records form will be displayed. Select the Requisition whose details you want to edit from the Datagrid view.



A set of buttons, Edit Buttons, appears at the bottom of the list view as shown in the figure above.

Carry out the operations as you would wish i.e. **Save** changes made, **Delete** entire record, or **Previous** if you would wish to exit without saving changes.

If you try to delete a record then the following message will be displayed. Click Yes if you want to delete the selected record otherwise Click No.



Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

FORM OPERATIONS

Add New: - In this operation, a supplier record is entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.



Edit: - Click Edit to change or delete any supplier record and the following Edit Supplier's Records form will be displayed. Select the supplier whose details you want to edit from the Datagrid view.



The items management form above is used to capture item details and display them when required.

This form acts as an item entry point into the system. Item details are entered here. These details include; Item Name, Item Units and Description.

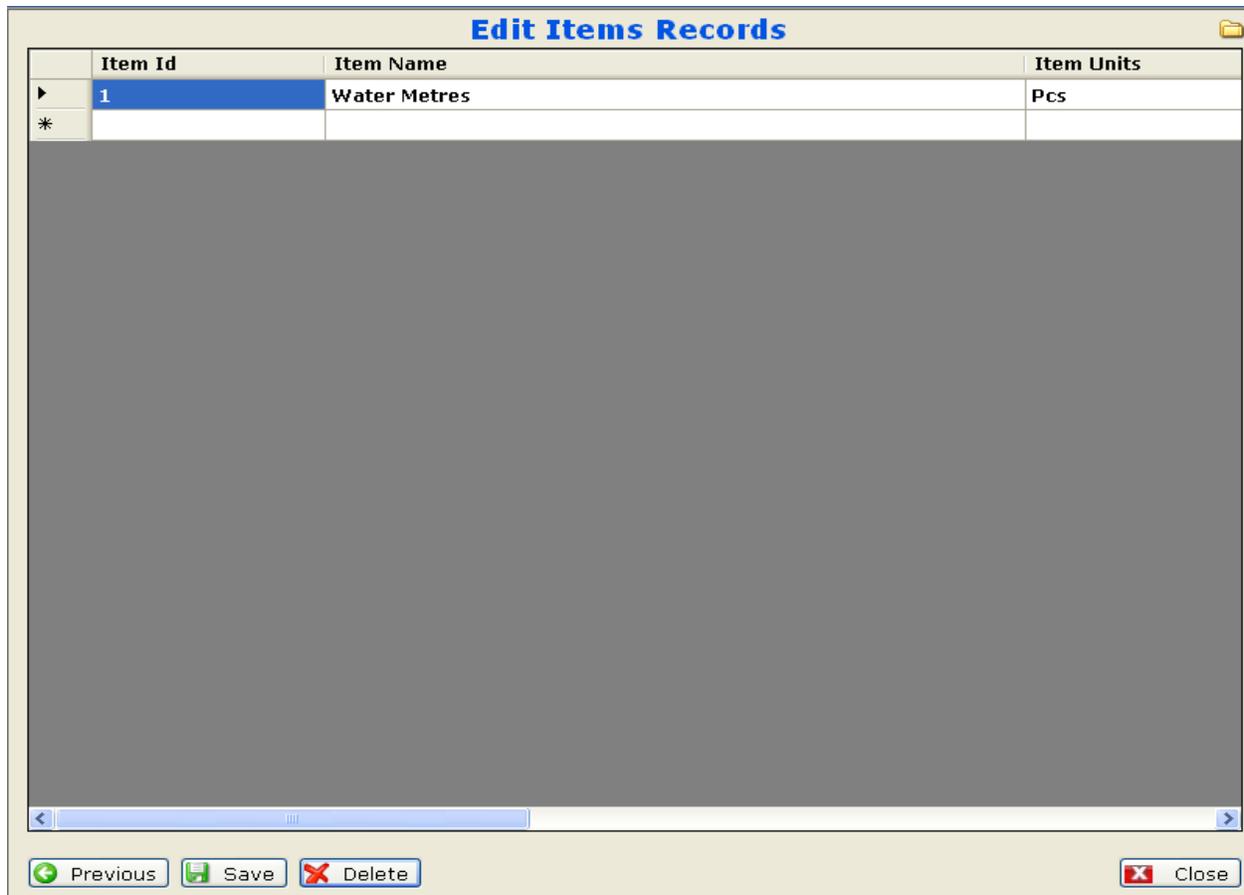
The Item number is assigned automatically by the computer, so there's no need to follow up the last item number.

FORM OPERATIONS

Add New: - In this operation, an items record is entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.



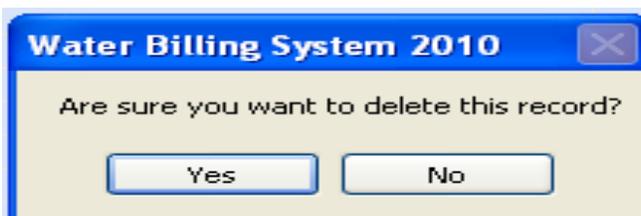
Edit: - Click Edit to change or delete any item record and the following Edit Item's Records form will be displayed. Select the item whose details you want to edit from the Datagrid view.



A set of buttons, Edit Buttons, appears at the bottom of the list view as shown in the figure above.

Carry out the operations as you would wish i.e. **Save** changes made, **Delete** entire record, or **Previous** if you would wish to exit without saving changes.

If you try to delete a record then the following message will be displayed. Click Yes if you want to delete the selected record otherwise Click No.



Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

The employee's management form above is used to capture employees' details and display them when required.

This form acts as employee's entry point into the system. Employee's details are entered here and are categorised in three phases. I.e. Employee's information, Employment information and Salary information. The employee's information contains information as seen in the figure below.

The screenshot shows a web form with three tabs: "Employee's Information" (selected), "Employment Information", and "Salary Information". The form contains the following fields:

- Employee's Name:
- Employee's Id:
- Postal Address:
- Sex:
- Date of Birth:
- Phone Number:
- Residential Address:
- Home Phone:
- Title Held:
- Employee's Photo:

The employee's photo is added by clicking the employee's photo button and then browse it from the computer where it was stored by the computer user. The storage of the employee's photo can not be on any removable media that includes CD-ROM, Flash disk, iPods, and others but if it is contained on the removable media it is first copied to the computer system hard drive.

The employee's Id is assigned automatically by the computer, so there's no need to follow up the last employee's number.

The employment information contains information as seen in the figure below.

The screenshot shows the "Employment Information" tab selected. The form contains the following fields:

- Hire Date:
- Department:
- Village:
- Position:
- Referee1:
- Reports to:
- Tel Number:
- Employee's Profile (Notes):
- Referee2:
- Tel Number:

The salary information contains information as seen in the figure below.

Employee's Information Employment Information **Salary Information**

Basic Pay: UGX

Allowances: UGX

NSSF (0.08 UGX) Net Pay: UGX

Pay As You Earn (0.100 UGX)

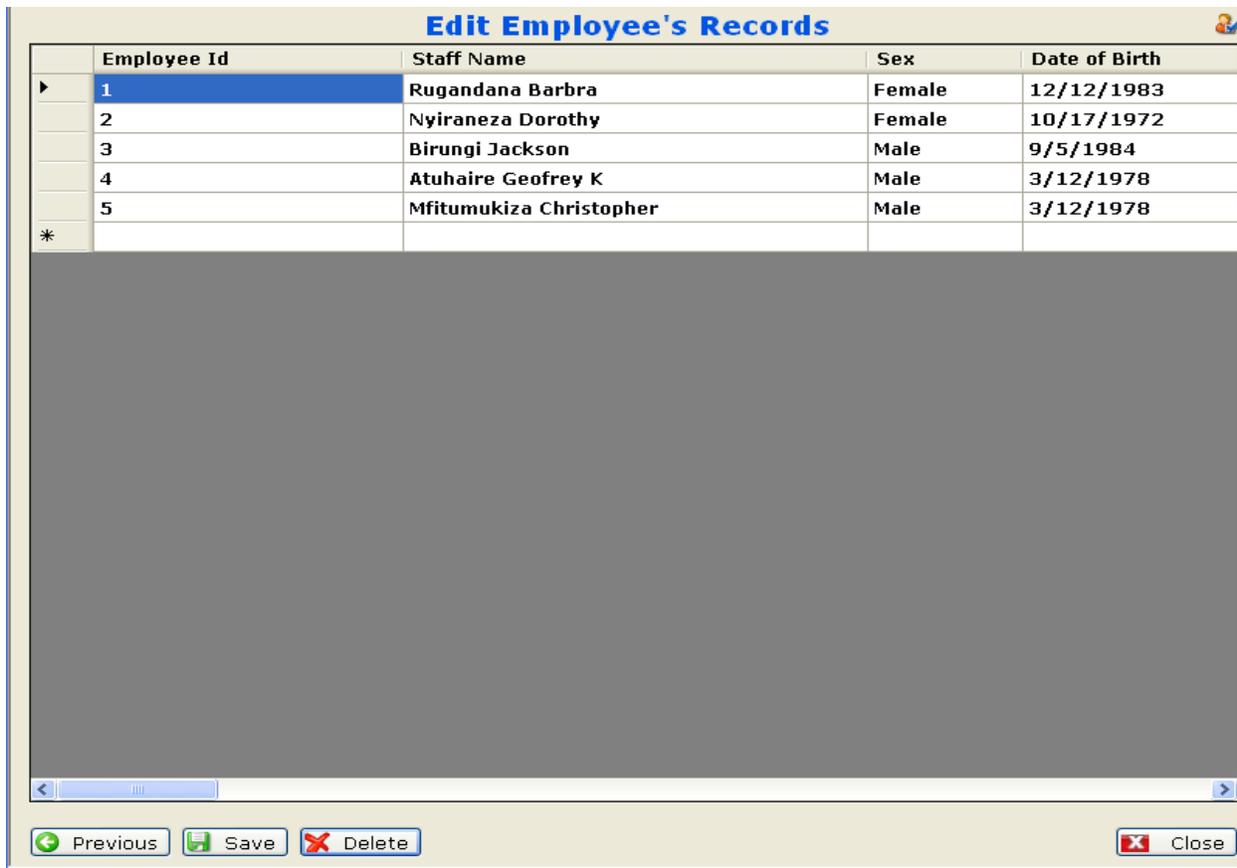
Local Service Tax (20000 UGX)

FORM OPERATIONS

Add New: - In this operation, an items record is entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.



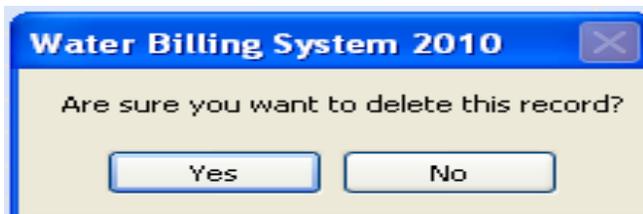
Edit: - Click Edit to change or delete any item record and the following Edit Item's Records form will be displayed. Select the item whose details you want to edit from the Datagrid view.



A set of buttons, Edit Buttons, appears at the bottom of the list view as shown in the figure above.

Carry out the operations as you would wish i.e. **Save** changes made, **Delete** entire record, or **Previous** if you would wish to exit without saving changes.

If you try to delete a record then the following message will be displayed. Click Yes if you want to delete the selected record otherwise Click No.



Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

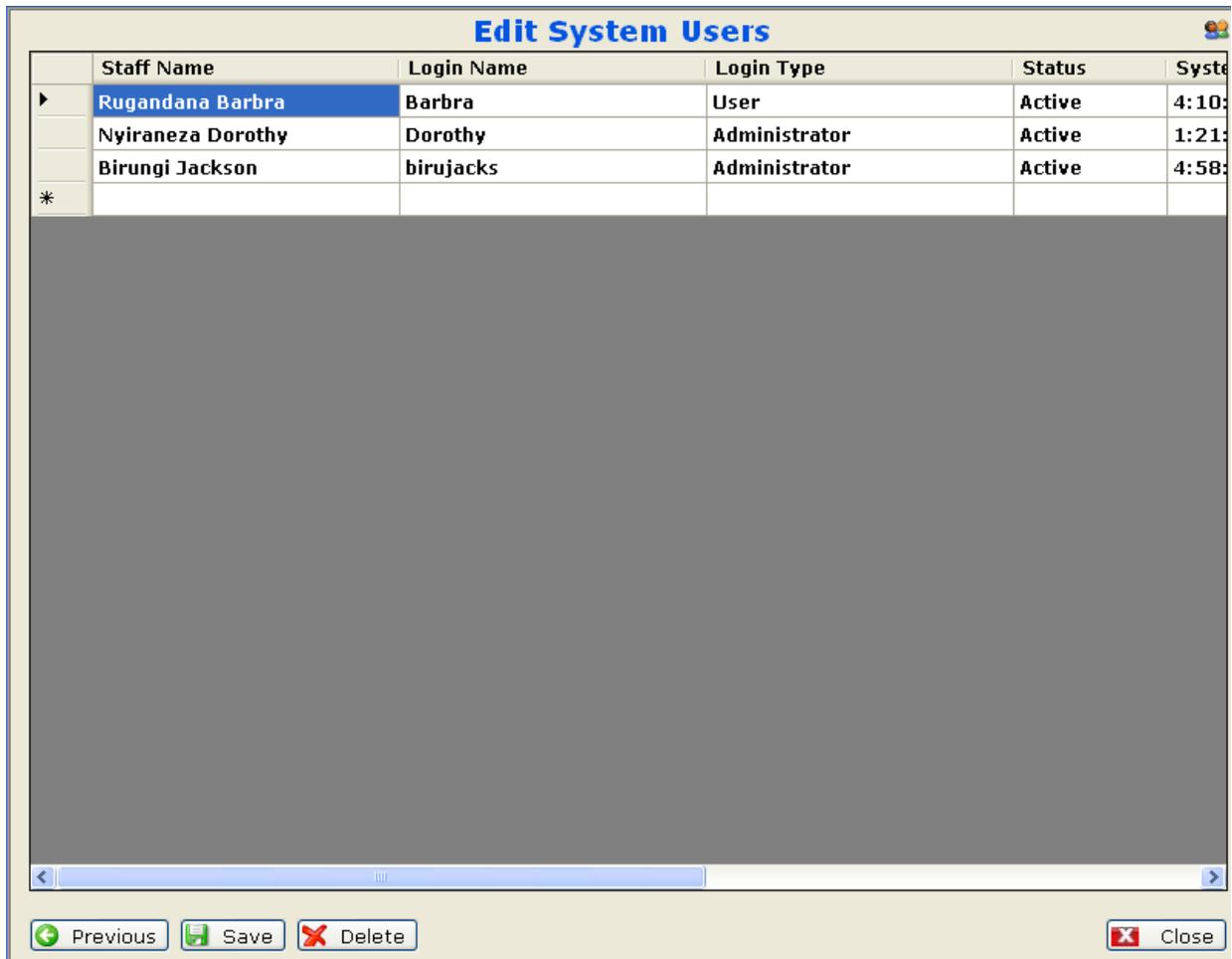
Close: - Closes the form.

FORM OPERATIONS

Add New: - In this operation, a system user's record is entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.



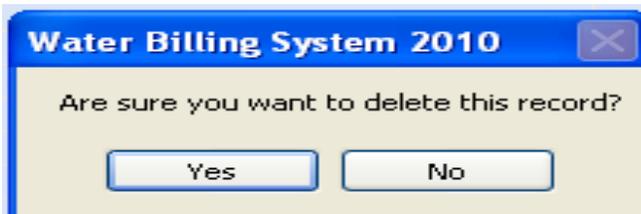
Edit: - Click Edit to change or delete any item record and the following Edit System User's Records form will be displayed. Select the system user whose details you want to edit from the Datagrid view.



A set of buttons, Edit Buttons, appears at the bottom of the list view as shown in the figure above.

Carry out the operations as you would wish i.e. **Save** changes made, **Delete** entire record, or **Previous** if you would wish to exit without saving changes.

If you try to delete a record then the following message will be displayed. Click Yes if you want to delete the selected record otherwise Click No.



Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.5.4.5.3 Salary Payment

The salary payment form below is used to capture employee's salary payment details and display them when required.



Index	Employee's Id	Payment Year	Payment Month	Payment Date	Basic Pay	Allowa

This form acts as an employee's salary payment point into the system. Employee's salary is paid from here.

The employee's record can be selected by the employee's Id from the drop down list alongside the customer number label. After selecting the employee's Id and you click on Compute, all the employee's salary payment records are displayed as shown in the figure below.

Employee's Id:	<input type="text" value="1"/>	<input type="button" value="Compute"/>	Employee's Name:	<input type="text" value="Rugandana Barbra"/>
Payment Year:	<input type="text" value="2010"/>		Payment Month:	<input type="text" value="January"/>
Basic Pay:	<input type="text" value="250000"/>		Payment Date:	<input type="text" value="Sat - 30/Jan /2010"/>
Allowances:	<input type="text" value="10000"/>		Advance Amount:	<input type="text"/>
Taxes:	<input type="text" value="0"/>		Prev-Balance:	<input type="text"/>
Amount Paid:	<input type="text"/>	UGX	Net Pay:	<input type="text" value="260000"/>
Current Balance:	<input type="text"/>	UGX	Mode:	<input type="text"/>
			Receipt No.:	<input type="text"/>

As you type or input the amount paid to the employee, the Current Balance is calculated by the system automatically.

The payment mode is selected as it was done by the manager and the respective receipt number is entered by the user.

FORM OPERATIONS

Add New: - In this operation, a new employee's salary payment record is generated and entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.

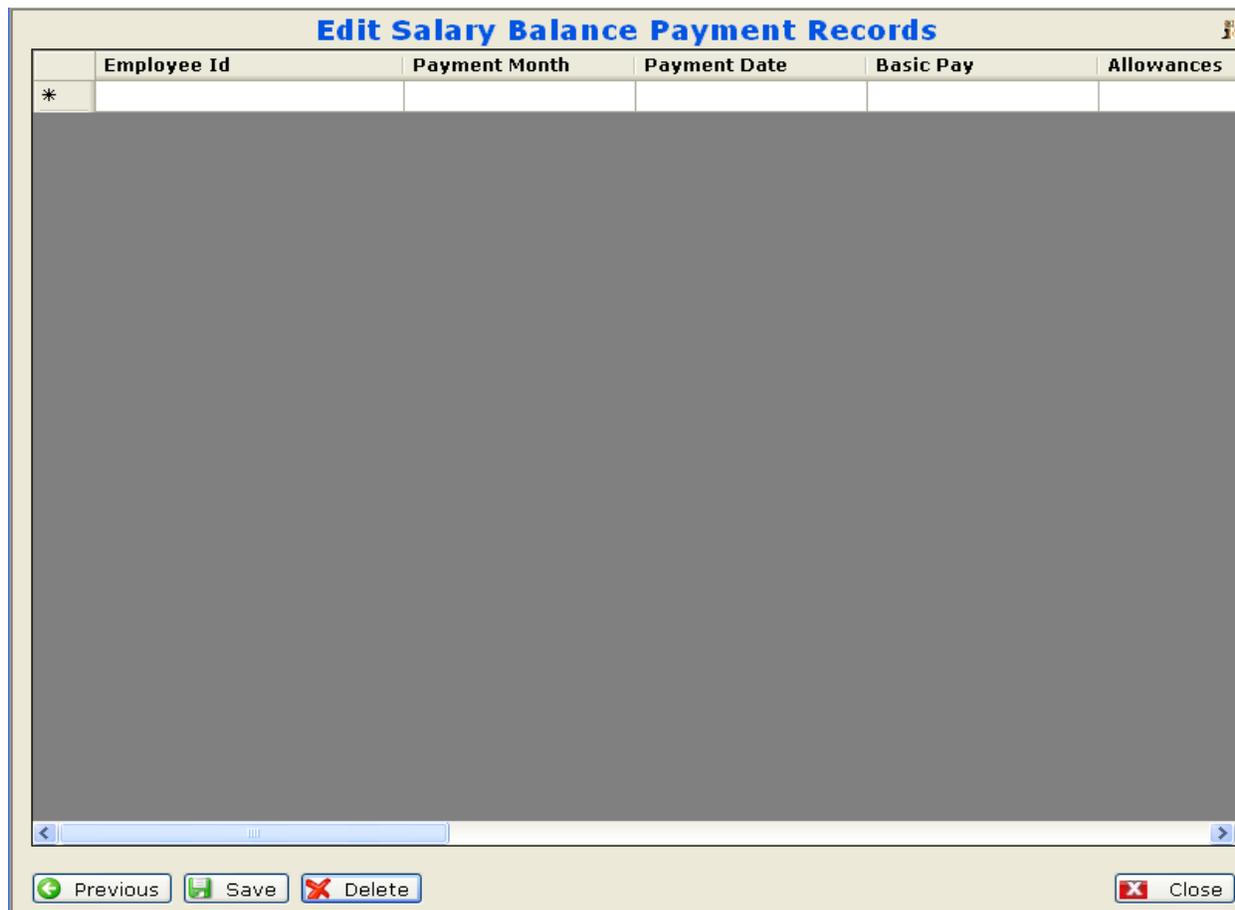


FORM OPERATIONS

Add New: - In this operation, a new employee's salary balance payment record is generated and entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.



Edit: - Click Edit to change or delete any employee's salary balance payment record and the following Edit Salary Balance Payment Records form will be displayed. Select the employee whose details you want to edit from the Datagrid view.



The screenshot shows a window titled "Edit Salary Balance Payment Records". At the top, there is a header bar with the title. Below it is a datagrid with the following columns: "Employee Id", "Payment Month", "Payment Date", "Basic Pay", and "Allowances". The first row of the datagrid contains an asterisk (*) in the first column. The rest of the datagrid area is greyed out. At the bottom of the window, there are four buttons: "Previous" (with a left arrow), "Save" (with a floppy disk icon), "Delete" (with a red X icon), and "Close" (with a red X icon).

This form acts as an employee's salary advance payment point into the system. Employee's salary advances are paid from here.

The employee's record can be selected by the employee's Id from the drop down list alongside the customer number label. After selecting the employee's Id and you click on Compute, all the employee's salary advance payment records are displayed.

As you type or input the amount paid to the employee, the Current Balance is calculated by the system automatically.

The payment mode is selected as it was done by the manager and the respective receipt number is entered by the user.

FORM OPERATIONS

Add New: - In this operation, a new employee's salary advance payment record is generated and entered into the system. Before you carry out this operation, all fields must be filled to ensure proper validation otherwise the following error message will be displayed.



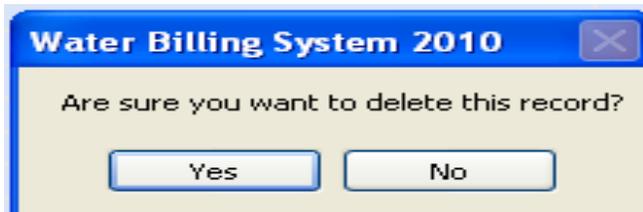
Edit: - Click Edit to change or delete any employee's salary advance payment record and the following Edit Salary Advance Payment Records form will be displayed. Select the employee whose details you want to edit from the Datagrid view.



A set of buttons, Edit Buttons, appears at the bottom of the list view as shown in the figure above.

Carry out the operations as you would wish i.e. **Save** changes made, **Delete** entire record, or **Previous** if you would wish to exit without saving changes.

If you try to delete a record then the following message will be displayed. Click Yes if you want to delete the selected record otherwise Click No.



Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

4.5.4.5.5 Update Constants

Constants Form

System Constants Records

Requirements	Details
Vat Rate	0.18
Consumption Fee	1.5
Service Fee	1500
Connection Fee	50000
Disconnection Fee	10000
Reconnection Fee	10000
New Sewer Connection	50000
Sewer Service Fee	10000
Sewer Discharge Fee	10000
CessPool Service Fee	50000
CessPool Emptying	85000
Fine	400000
Estimated Consumption	200000
Illegal Connection Reporter	1
Public Stand Post/Kiosk	2
NSSF Rate	0.08
PAYE Rate	0.100
Local Service Tax	20000
Record Date	10/14/2009
System User	Administrator

Edit Section

	Vat Rate	Consumption Fee	Service Fee	Connection Fee	Disconnection Fee
▶	0.18	1.5	1500	50000	10000
*					

This form updates the constants of the system users. The administrator can change the constants of the system any time using the form above.

FORM OPERATIONS

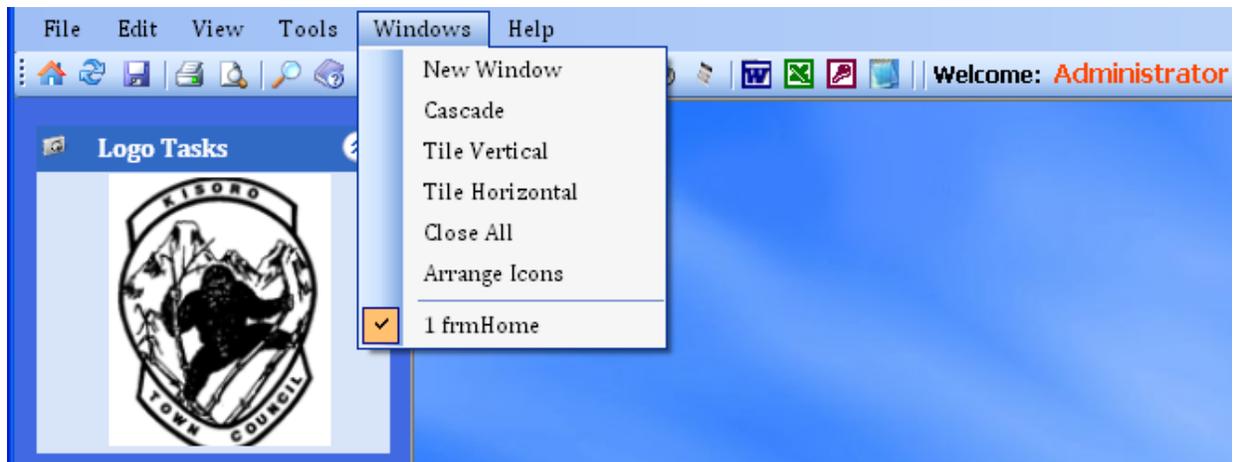
Update Constants: - In this operation, the new system constants are recorded and updated in the system.

Refresh: - This operation causes records to be reloaded and clears the fields for fresh data entry.

Close: - Closes the form.

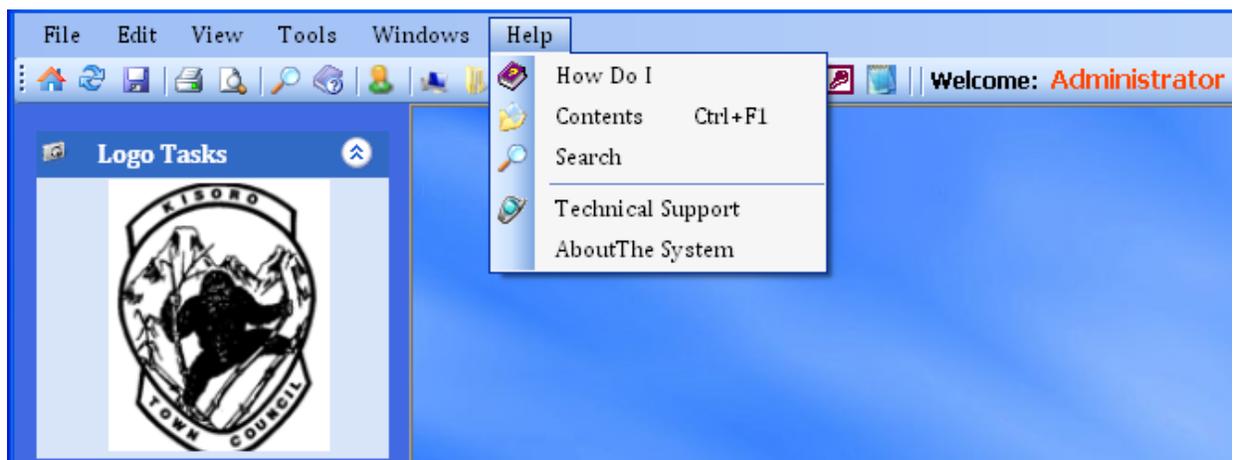
4.5.5 Windows

This menu contains different features to do with the look and appearance of windows in the system.



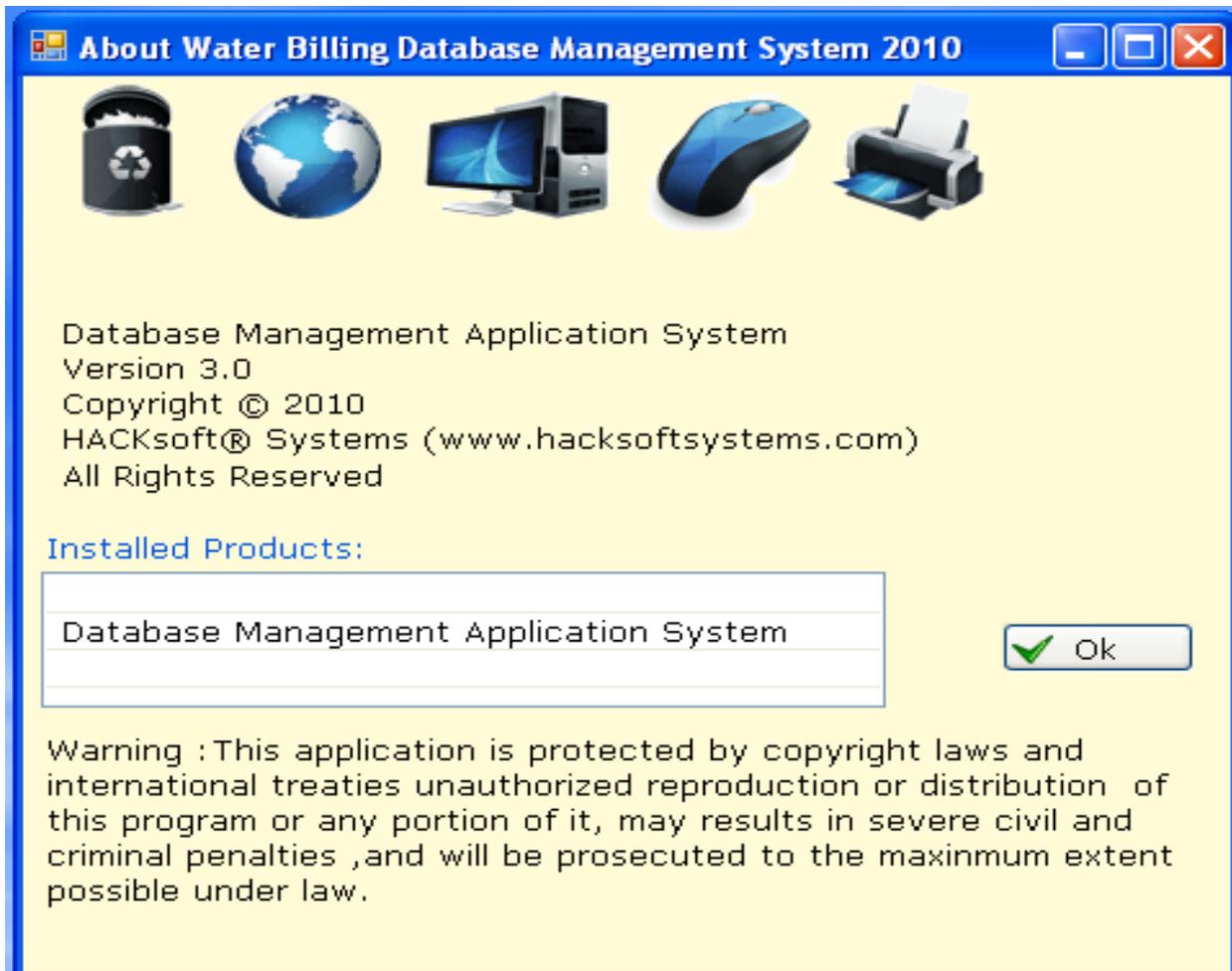
4.5.6 Help

The help menu contains different help features of the system.

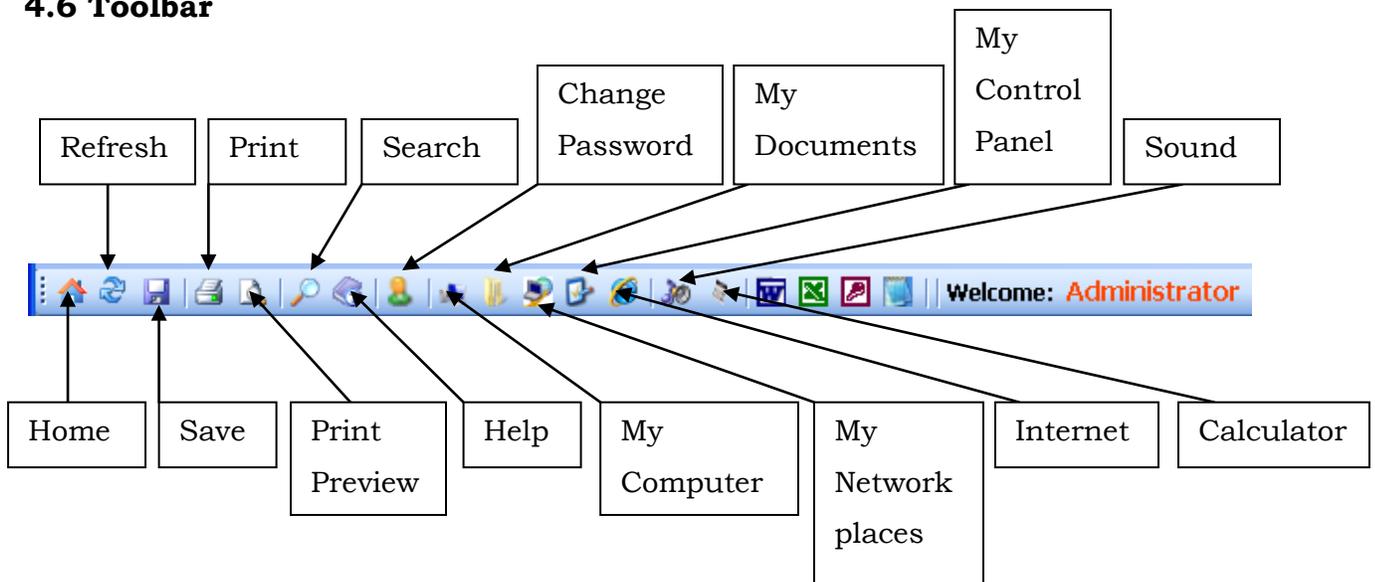


4.5.6.1 About the System

This contains the name, version, copyright year and copyright Company, of the system as seen in the figure below. It also contains the warning message that must be read by the users of the system at all times.



4.6 Toolbar



5.0 System Testing

Testing is a systematic attempt to reveal the presence of errors (to "falsify" system).

Testing is accomplished by identifying defects in the system and revealing problems.

The system had to be tested to confirm whether it meets its requirements. A prototype was used to verify functions of the system, which was later to be demonstrated for the users. Quality control techniques like fault avoidance, fault detection and fault tolerance, to prevent errors by finding faults before the system is released. Input/output of each component has been tested (black testing). Internal data structure has also been test (white box).

The usability of prototypes is not sometimes evaluated, but it was to obtain the user's opinion of the prototype and this was through testing the system with the help of some users:

- It was first tested during coding, to make sure that the codes produce the desired functionality.
- The system administrators have clear control over the system, therefore, they do regulate user access at a given time that is to say issues regarding user authentication.
- All links on the MDI work as required, information is added and updated very fast, prompting the users of the system to appreciate and view the information in time.
- All data added on the database becomes operational immediately, there is absolutely no lead time between adding and updating records and when it becomes available for system user's viewing.
- The restrictions placed on users do apply and a user cannot access information he is not meant to access, in the same vein, the system administrators have got absolute control over who uses the system.

6.0 Conclusion, Recommendations & Limitations

The system was developed, data for the new system collected from the old system using various tools like interviews, questionnaires and observations, data analysed and later used to design and implement the system that was tested and validated successfully.

Below are Conclusions made from the developed system and what is recommended for the intended results from the system.

5.2 Conclusions

The developers were able to draw out the following conclusions:

- a) The new system will bring about increased efficiency in carrying out water billing activities, by reducing on the time taken during the processing of bills and payments.
- b) The work force will be reduced and funds may be saved as well. Thus being cost effective since it costs less and yet the benefits are more.
- c) This system will increase staff moral and zeal at work hence increased productivity

5.3 Recommendations

The developers recommend that the following should be done:

- a) The system should be installed on all the computers and sections of KITOWASO.
- b) The database should be installed on one server to enable access from the staff of KITOWASO on a network.
- c) Only one user should be registered as an administrator in the system, otherwise confidential data may be corrupted. However the system may register many normal users.
- d) Updated anti-virus software should be installed on all the computers in order to combat system malicious codes such viruses, Trojan horse programs and worms.

- e) Anti-spy ware software should be installed to protect against spy ware that is, since the computer system is connected to any network
- f) Routine backup procedures since the data dealt with is always needed for next transactions.
- g) Buy a printer to interconnect it with the personal computer to be used for printing out customer bills, stock records, receipts and other needed documents and reports.

5.4 Limitations

- a) It does not have the advanced security options include biometric fingerprint login and bar-code badge scanning.
- b) The system does not have the following functionalities which would be of benefit if the pharmacy grows into a larger scale: computerized customer consumption tracking, on-line customer interactions and pre-screening, integrated restock reminder system, water and & sewer line contraindication monitoring, multiple disconnection options.
- c) It cannot be accessed online.

Function Keys and Combinations

The shortcut keys described on this page refer to the U.S keyboard layout. Keys on the other layouts may not correspond exactly to the keys on a U.S keyboard.

	ENTER	CTRL	ALT	
	Execute Add New, Save			
O		Go to Open		
P		Go to Print		
F4		Log Off	Exit the system	
F1		System Contents		
A		Select All		
C		Copy the selected text		
V		Paste the copied or cut text		
X		Cut the selected text		
Y		Redo		
Z		Undo		

