REMOTE WEB DATABASE ADMINISTRATION

PROJECT WORK DONE AT

e-Plexus Technologies
Chennai.

P-353

PROJECT REPORT

SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR THE AWARD OF THE DEGREE OF
MASTER OF COMPUTER APPLICATIONS
Of **Bharathiar University,** COIMBATORE.

SUBMITTED BY

M.KUMARAN
(9938MO614)

GUIDED BY

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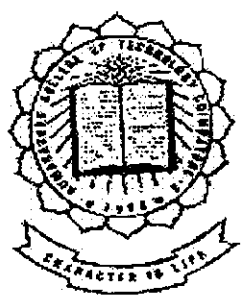
Software Engineer,
e-Plexus Technologies, Chennai



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
KUMARAGURU COLLEGE OF TECHNOLOGY
COIMBATORE-641006

MAY 2002

Certificates

Department of Computer Science & Engineering

Kumaraguru College of technology

(Affiliated to Bharathiar University)

Coimbatore-641006

CERTIFICATE

This to certify that this project work entitled

"REMOTE WEB DATABASE ADMINISTRATION"

Done by

M.KUMARAN
(9938MO614)

Submitted in partial fulfillment of the requirements for the award of the degree of

Master of Computer Applications

Professor and Head 29/4/02

29/4/02
Internal Guide

Submitted to University Examination held on 09-05-2002

9/5/02
Internal Examiner

External Examiner

e-Plexus Technologies

In Association with **EMERGYS Inc**

Date : 15-04-2002

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Mr. M.Kumaran, final year student of M.C.A from Kumaraguru College of Technology, Coimbatore has successfully completed the project Entitled **"REMOTE WEB DATABASE ADMINISTRATION"** at e-Plexus Technologies, Chennai from January 2002 to April 2002 under my supervision and guidance

For e-Plexus Technologies, (Technical guide)

Natrj.k.patil

iv Appartments, 6th cross, Vijaya nagar, velachery, Chennai Ph: +91-44-8447135

Declaration

DECLARATION

I here by declare that the project entitled '**Remote Web Database Administration**', submitted to Bharathiar University as the project work of Master of Computer Application Degree, is a record of original work done by me under the supervision and the guidance of **Natraj.k.patil (e-Plexus echnologies)** and **Mr.N.Kannan M.C.A lecturer,CSE Dept (Kumaraguru College of Technology)** and this project work has not found the basis for the award of any Degree/Diploma/Associateship/Fellowship or similar title to any candidate of any university.

Place COIMBATORE

Date 29/04/2002

Signature of the Student

Countersigned by

29/4/02

(Internal Guide)

29/4/02

(External Guide)

Acknowledgement

ACKNOWLEDGEMENT

I express my heart full thanks to **Dr. K.K Padmanabhan B.Sc., (Engg.)MTech.,Ph.D.,** Principal, Kumaraguru College of Technology, for having given me the opportunity to serve the purpose of my education

I am indebted to Prof **Dr.S.Thangasamy Ph.D**, Head of Department Of Computer Science and Engineering, Kumaraguru College of Technology, for his valuable guidance and useful suggestions during the course of project.

I am deeply indebted to my project guide, **Mr.N.Kannan,** M.C.A, Lecturer, Department of computer Science and Engineering, Kumaraguru College of Technology, for his helpful guidance and valuable support given to me throughout the project.

With immense pleasure, I express my esteemed gratitude to **Mr.V.Balasubramanium**, Director of e-Plexus Technologies, for providing me the opportunity to do the project in reputed organization.

I take privilege of expressing my sincere thanks to my external guide **Mr.Natraj.k.patil** B.E, for his keen interest and efforts in guiding and encouraging me throughout the project and also providing all necessary resources needed for the project in the organization.

I would like to thank all the staff members of the Department of Computer Science and Engineering of my college, for their constant encouragement and guidance throughout the course.

I would like to thank all, who have directly or indirectly assisted me in completing this project successfully.

M.Kumaran

Synopsis

SYNOPSIS

Remote web Database Administrator is a DBA tool. This software tool which can be installed in any Operating System has its own setup. This tool can be connected to the Databases Mysql or Oracle

This tool can be connected on local network of an organization or through the internet. This software tool is mainly used for the DBA activities.

The tool has login and connectivity option, the database administrator or the user who has access to the database can login and connect to their own databases. The system works with the option that has been selected by the user. It takes the data and displays in its original form from the database. Similarly data can be backed up into the database or restored from the databases.

There are options for the PL/SQL [Programming logic and Structured Query Language]. The simple SQL queries can be executed through the tool and also advanced SQL queries can be created through the tool .

The Application software tool RWDBA [Remote Web Database Administrator] is developed using JAVA- Swings and is supported by all Operating Systems, The system needs JRE [Java Run Time Environment]

The successful execution of Java application makes the setup to be installed in the system

User privileges for connectivity

- DBA [Database Administrator]
- Connect [To connect and view the database]
- Resource [Access the resources of database]

Each user must provide his user name and password and should select the database they intend to connect and work on.

Advantages of RWDBA

- System developed with Graphical user interface
- Security with login and password
- Can connect to databases at remote location and user can login and work in that database
- DBA activities made easier with RWDBA

The user Manual and Help files give more information about the tool to the client .

Contents

introduction

1.2 Organization Profile

e-Plexus Technologies is a company in India which has a tie-up with Emergys group of companies (UK) and focus on delivering quality IT solutions. The Professionals behind the venture have a successful track record in setting up and managing large IT organizations in various parts of the globe.

The parent company Emergys, UK has been in the IT business for the last five years and their functional and development activities in India is carried out through e-Plexus Technologies. The mission is to develop web based tools and Intranet technology for large organizations, the companies smart practices and experience enabled the clients to maximize their return on IT investments and also to empower organizations with Networking within their entire branches and make them user friendly, this result orientation enabled e-Plexus to reach its highest goals.

Clients

The clients for the company are Industrial Automation controls (India), Mans Friday – Kuwait, Bhamans group of companies – Kuwait.

Areas

The company concentrates on areas like Intranet, Web based technologies, E-business

Strengths

The Parent company located in UK with strengths in several core areas of IT, the Company has a multicultural workforce, consisting of best sets of knowledge workers available in the industry.

Business Model

e-Plexus Technologies offer innovative business models, which are flexible to meet the specific requirements. Customers can choose any one of the business models or a combination of any of them for the different phases of the project

Time and Material

The company will form the project team including the Development and Implementation of the project.

Offshore policy

The company has more offshore customers and has to satisfy them with proper methodologies for need based customers.

Highlights of Methodology

Requirements are clearly specified by the customer in a formal 'Business specification document'. These requirements are clearly understood by the e-Plexus Project team through detailed discussions with the customer. Based on the requirements, e-Plexus prepares a complete specification of the Intranet development in India, which is reviewed by customer for approval to proceed for further Coding, and testing is done and finally the Trail run and Implementation is done at the customers place.

The test plan required for various levels of testing such as unit testing, integration testing and system testing is also prepared by e-Plexus. The test results are recorded after executing the plan.

Software Delivery

Software delivery may be done in a number of ways

-Shipment via floppies or CD's

-Through telecom facilities available in their company

-By on-line connectivity through satellite hookup.

A team of professionals from e-Plexus may be sent to the customer's site for implementing the software and imparting the required training to the end-users.

System Study &Analysis

2. System study & Analysis

2.0.1 Purpose

Data base administration is a time consuming job and large data base are available in the network. The DBA activities can be carried out by this tool which supports GUI. The main purpose of this tool is to make database administration user friendly.

The user can just login and connect to the data base and can do all the operation's by clicking the mouse on the specified menus and buttons.

2.0.2 Scope

In today's world of e – technology we find lot of data transactions going around with huge databases and unlimited users. It becomes very important that each data transaction Unit (database) needs a database administrator to keep the database up and running .The administrator who has to maintain huge databases need to work round the clock, which is very tedious and lingering job. This is where our software **Remote web database administration** (RWDBA) comes in to picture. This software can help the administrator to login and connect to a remote database and administrate with good GUI, which makes job of the administrator effortless. We don't find many remote web database administration tools in the market today. Even though this tool is going to be used by administrators of database we can estimate that it has got a good scope at the market.

Database is a large memory location where huge amount of data are stored & retrieved. DBA is the person who has control over the database the administrator must be provided with a tool that makes his job easier in sub a way that he can maintain the database effectively. The DBA has to manually type in for all his queries. This RWDBA is developed with graphical user interface.

2.0.3 Legends and Abbreviations

S.no	Legends	Stands for
1	LNC	Login and Connect
2	SQL	Structural query language
3	Admin	Administrator
4		Request Failed
5	Stm	Statement
6	WDBAT	Web Database Administration Tool
7	JDBC	Java Database Conectivity
8	WDBAA	Web Database Administration Application

2.0.4 Document Overview

This document describes the system analysis of "Remote web database administration tool". It starts with an introduction, scope and describes various requirements of the system which are listed below,

1. Use case diagrams
2. Activity diagrams
3. Sequence diagram
4. Class diagram
5. State diagram
6. Deployment diagram

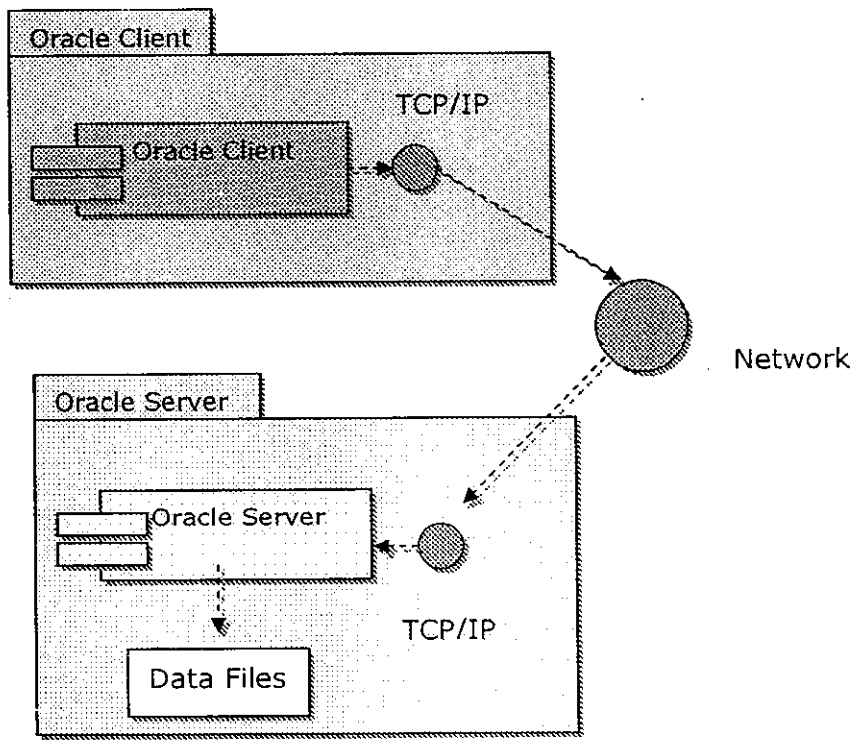
2.1 Existing system-limitations

2.1.1 Existing system

Oracle and Mysql databases provide their own remote database accessing tools. The below existing component diagrams of Oracle and Mysql will give us idea of existing systems.

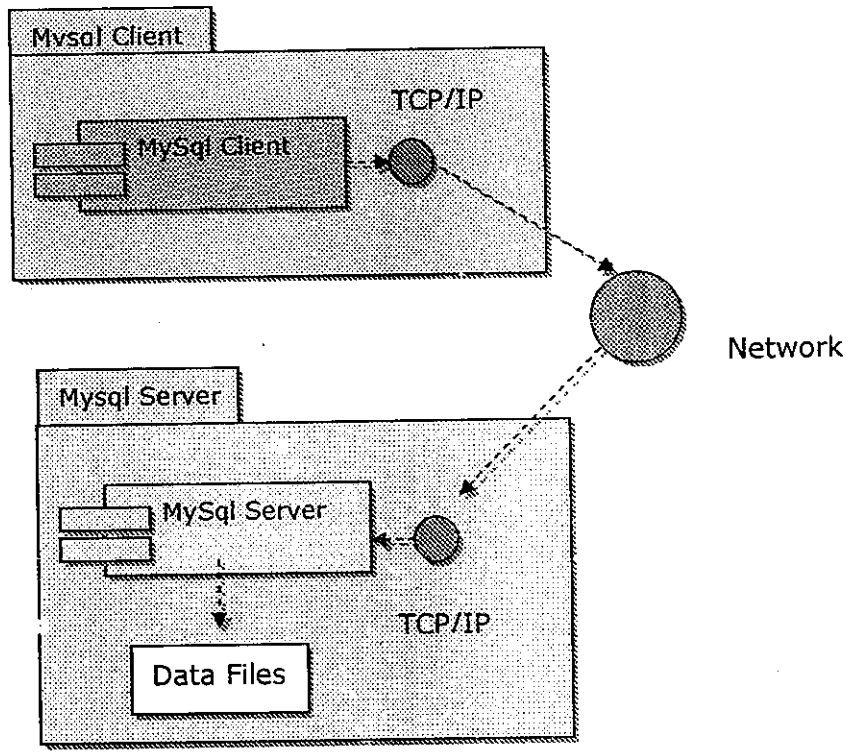
Component diagram of Oracle remote data accessing

Oracle client is available in the client machine and oracle server runs in the server machine, the system is connected in network through TCP/IP. Oracle client requests data files from server, server responses by sending the data files. The process and network connectivity of oracle client and server is shown in the component diagram



Component diagram of Mysql remote data accessing

Mysql client is available in the client machine and server runs in the server machine, the system is connected in network through TCP/IP. Mysql client requests data files from server, server responses by sending the data files. The process and network connectivity of Mysql client and server is shown in the component diagram

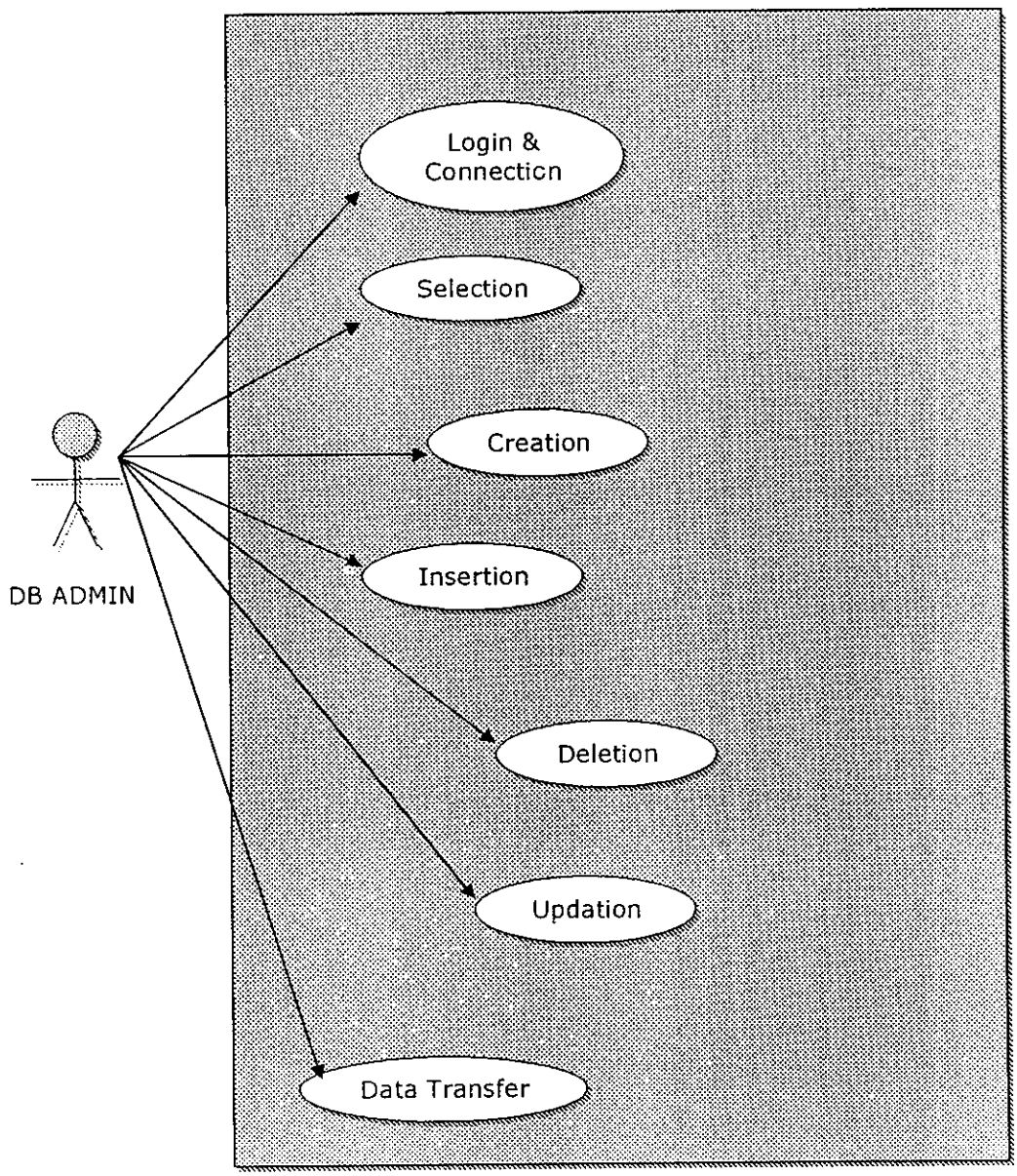


2.1.2 Limitations

Even though Oracle and Mysql provides remote accessing of the database from respective data servers, we don't find any tool that can commonly used to access various databases with good GUI. This becomes limitations for existing tools and starting point of Remote web database administration tool.

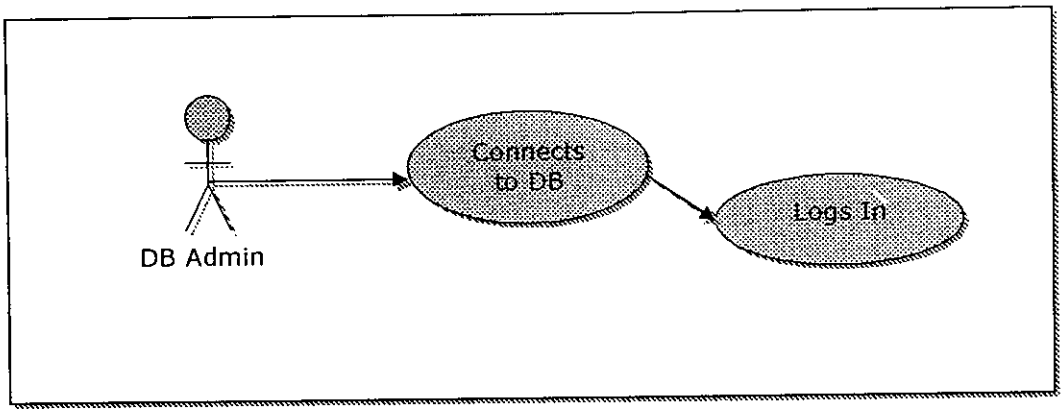
2.1.3 Connecting to database

The DBA connects to oracle or Mysql database by just starting of the respective servers, this is done in the respective system in which oracle or Mysql is available



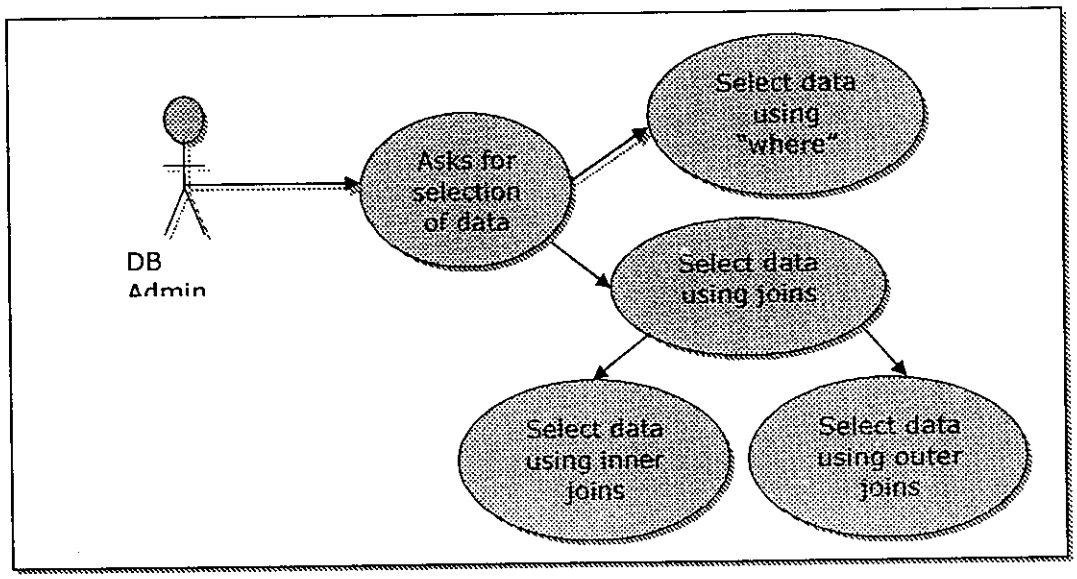
2.1.4 Login and Connecting to DB

Database Administrator Starts up the server, connects to the database and login



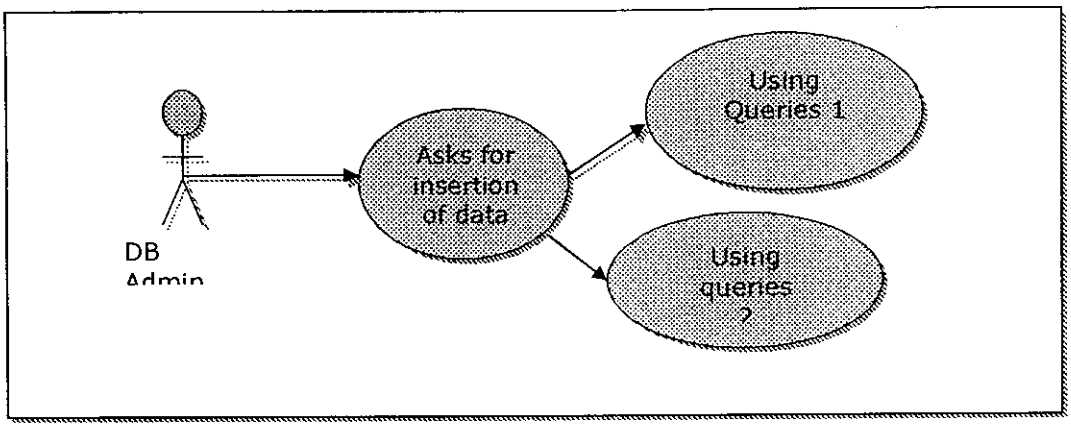
2.1.5 Data Selection

Database Administrator Selects the data by using were clause and joins



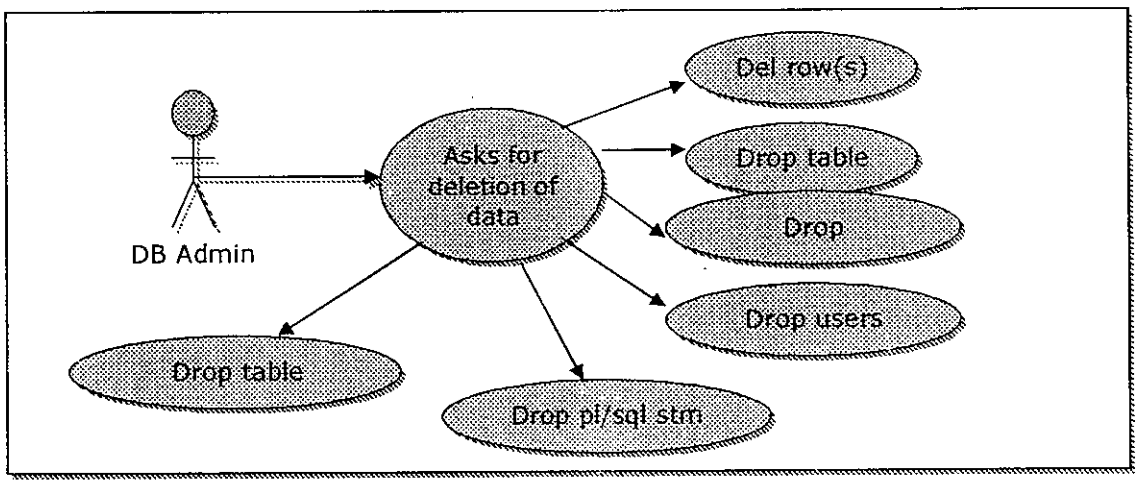
2.1.6 Data Insertion

Database Administrator Insertion of the data using the queries



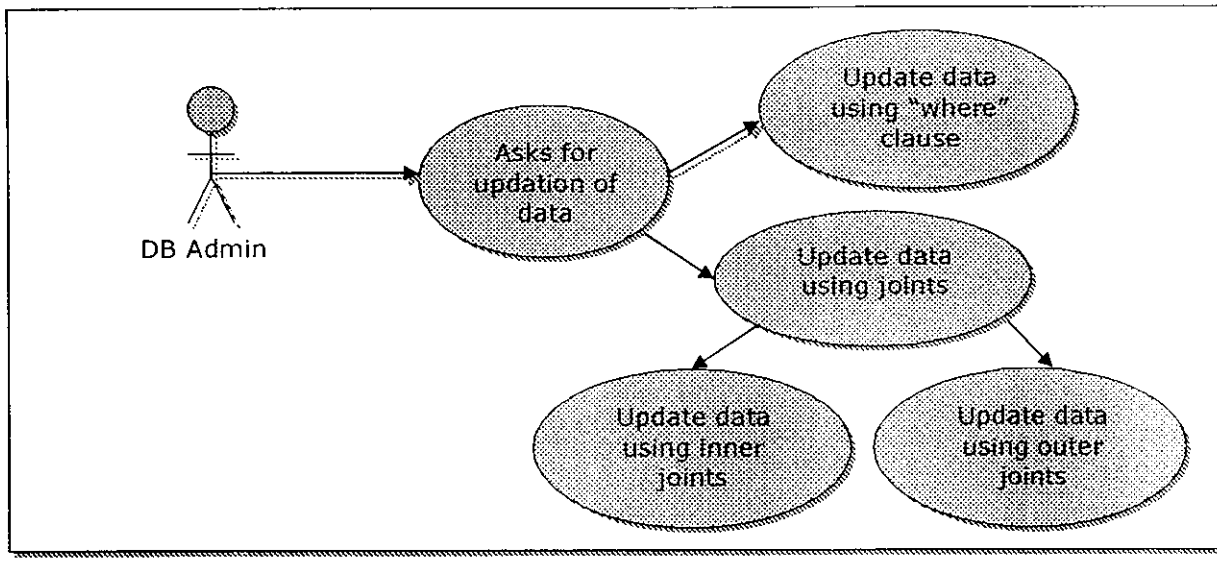
2.1.7 Data Deletion (Dropping)

Database Administrator Asks for deletion of the data from each row, drops table data base and users



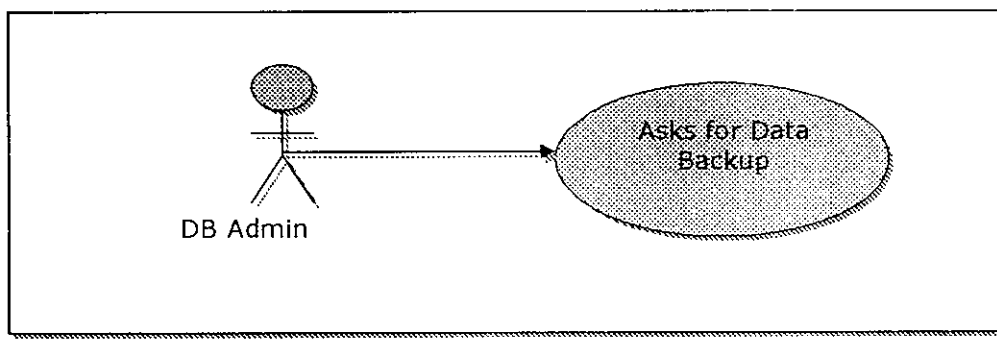
2.1.8 Data Modification or Data Updating

Database Administrator Updates the data using where clause and joints



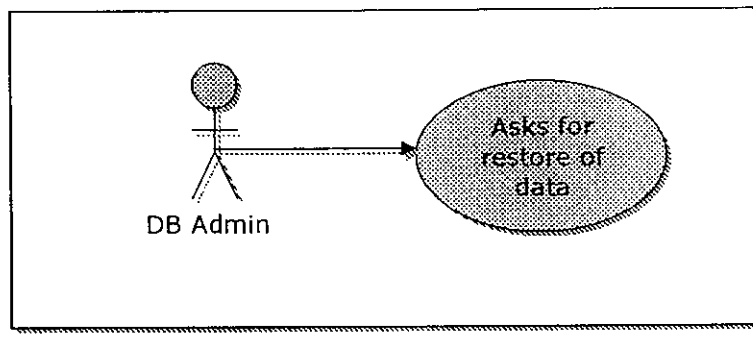
2.1.9 Data Backup

Database Administrator Stores the data in the same system by specifying the directory



2.1.10 Data restore

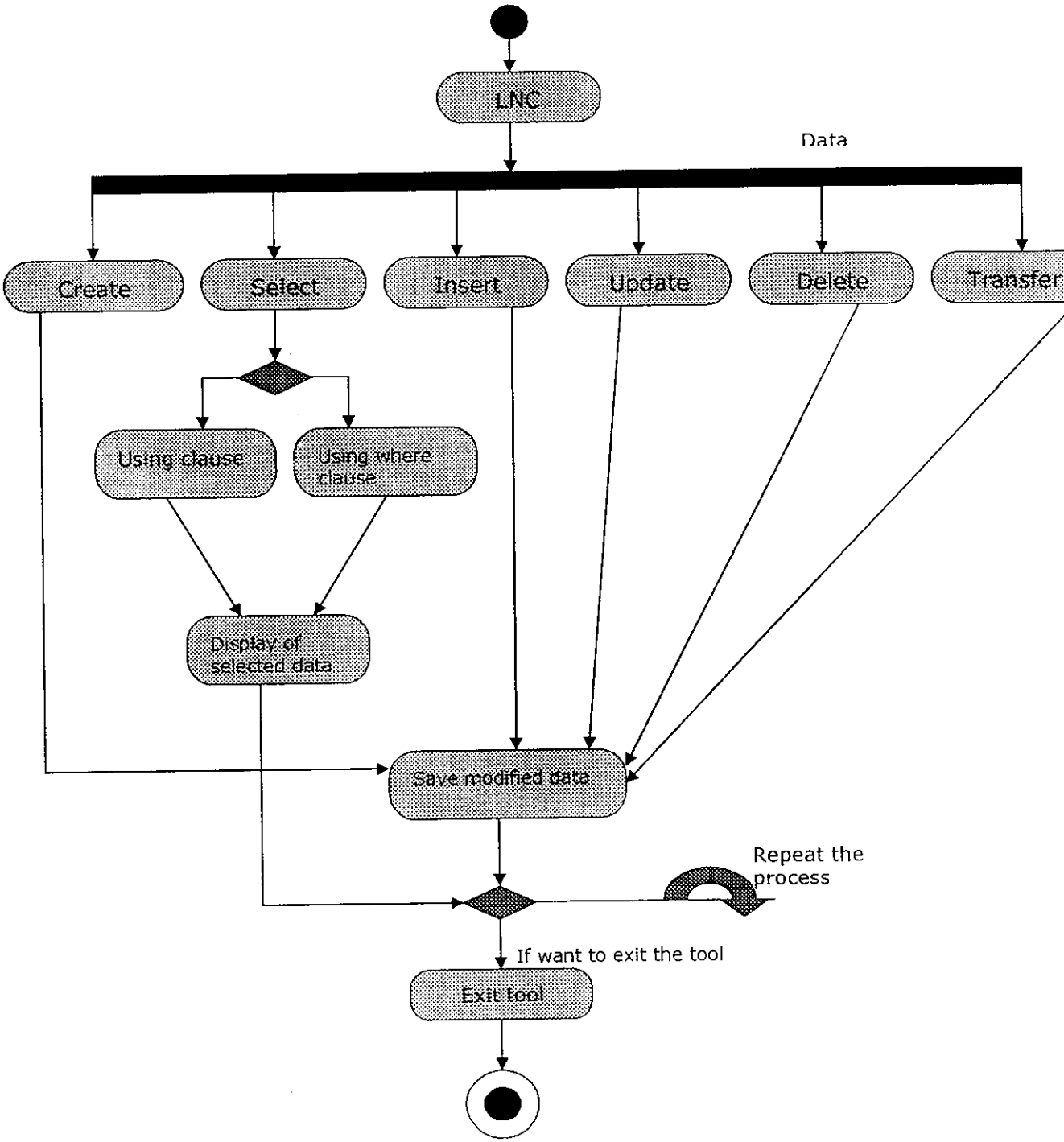
Database Administrator Restores the data from the same system by specifying the directory



2.2 Proposed system

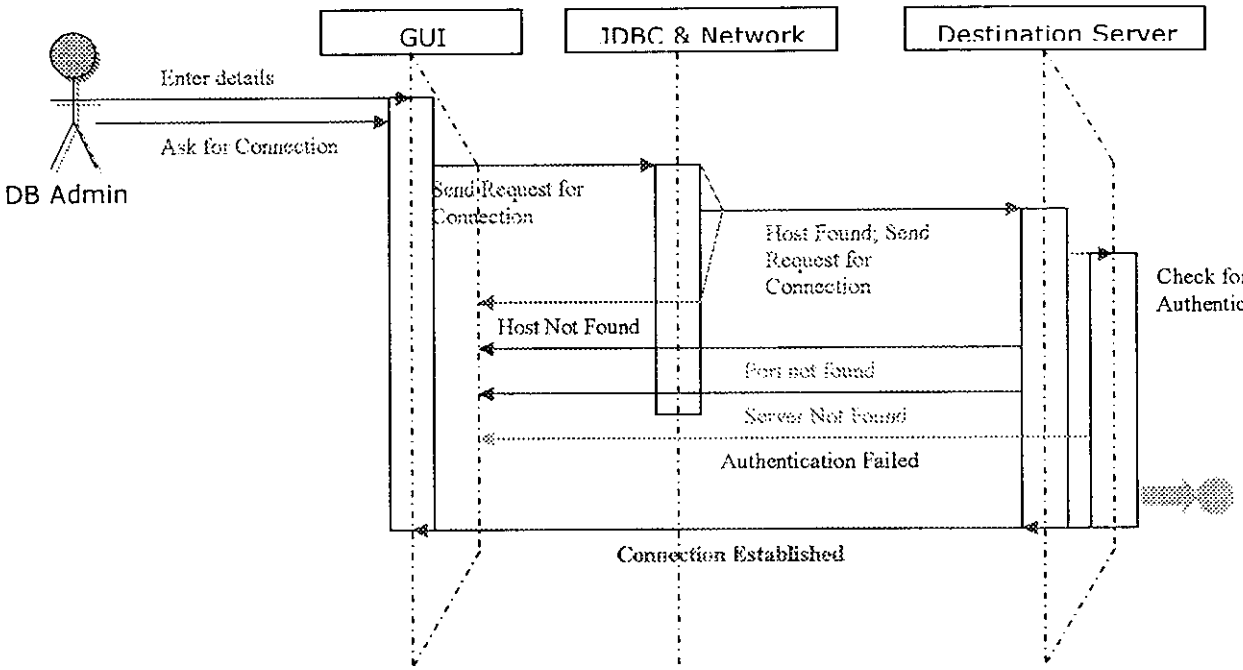
Sequence diagram

The new system makes login and connectivity to database (oracle or mysql) located in remote system which are connected through local net work or internet and the following functionalities of the database are performed.



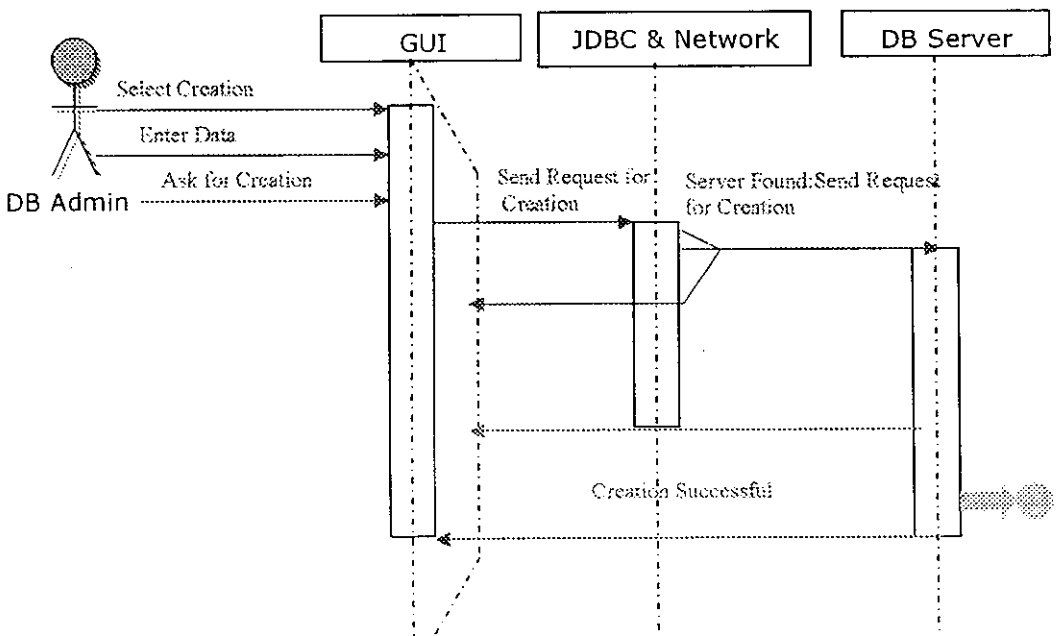
2.2.1 Login and Connect

The tool is connected through the network to the destination server and the process is explained in the diagram.



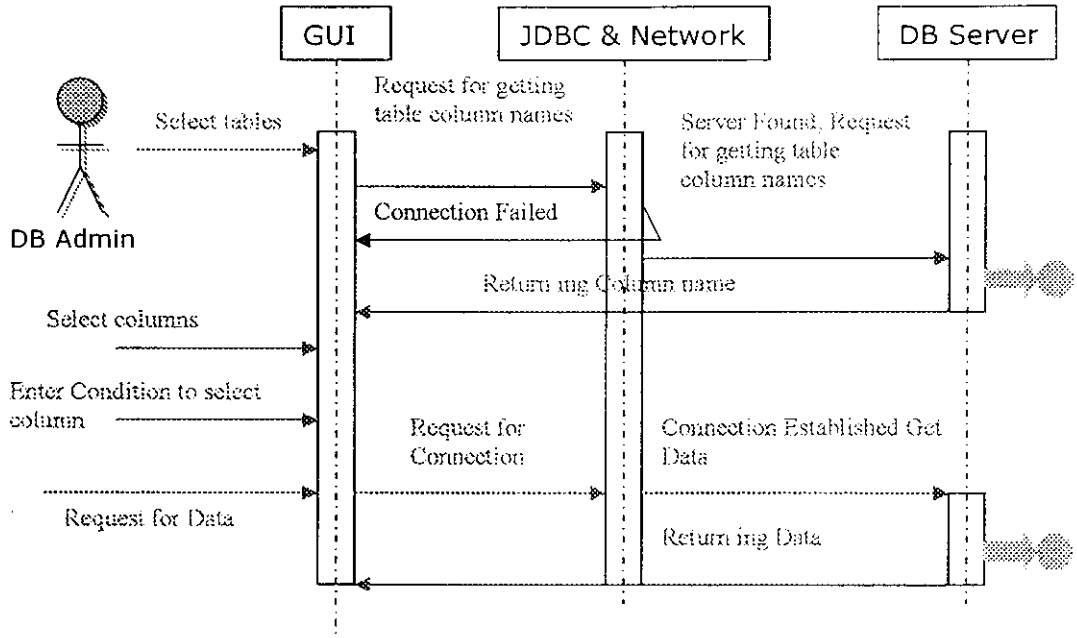
2.2.2 Create

The creation operation is done through the tool



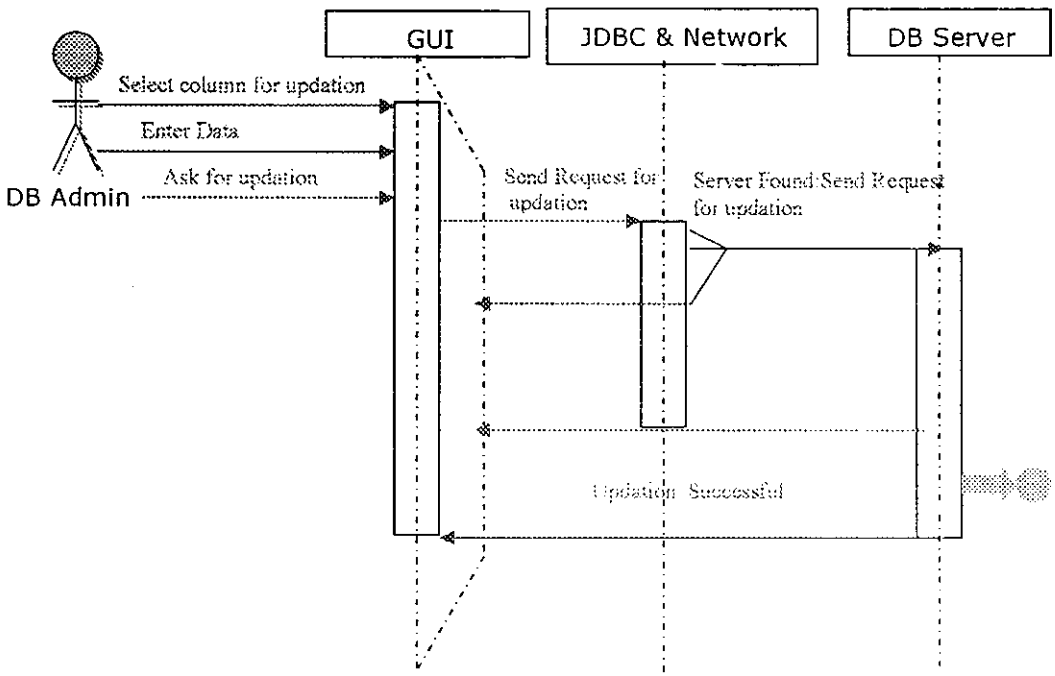
2.2.3 Select

The selection of tables and columns using condition are performed through the tool



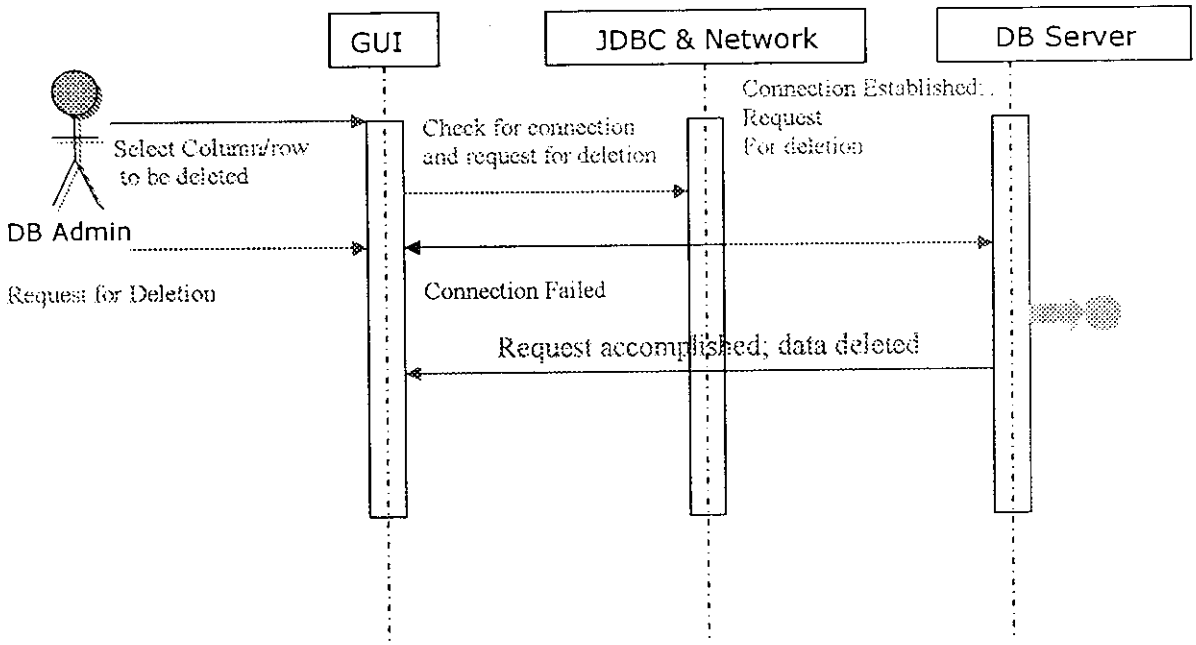
2.2.4 Update

The update operation is performed using the tool



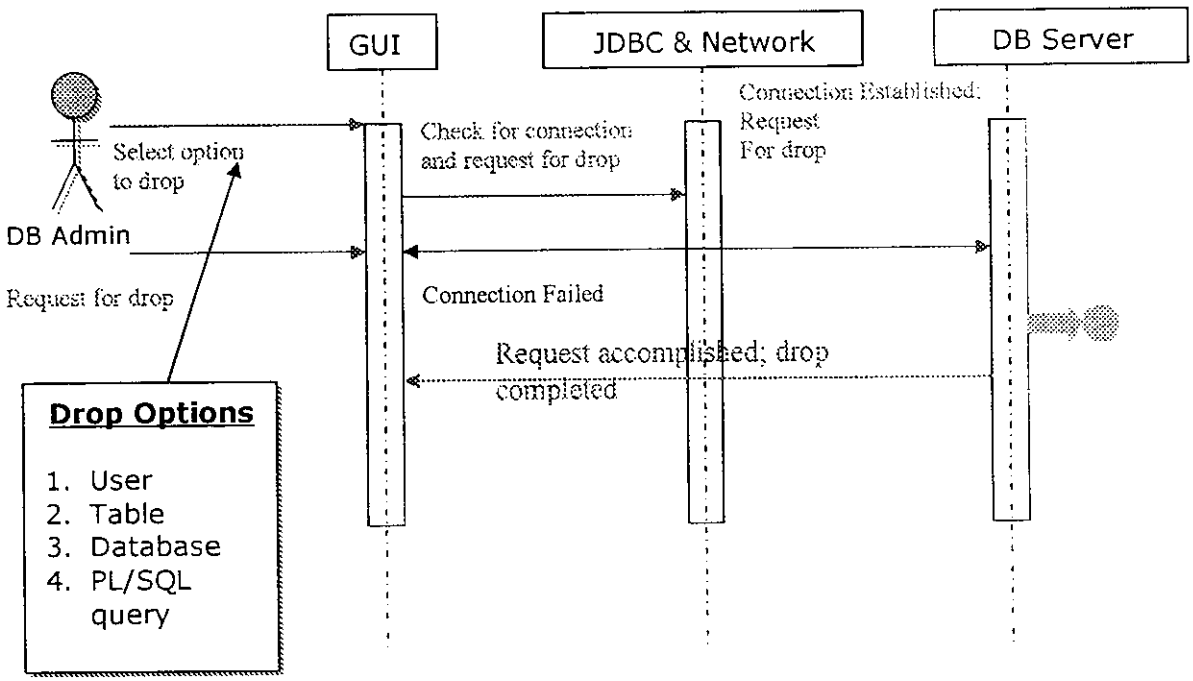
2.2.5 Delete

The delete operation is performed using the tool



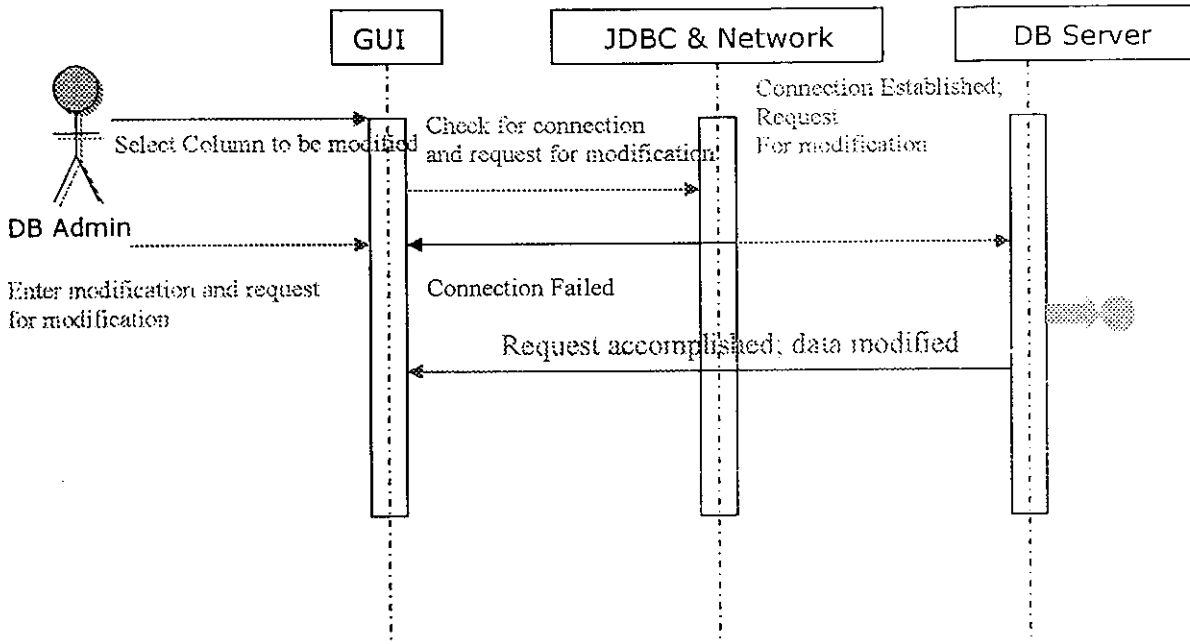
2.2.6 Drop

Unwanted user, table, database, queries are dropped using the tool



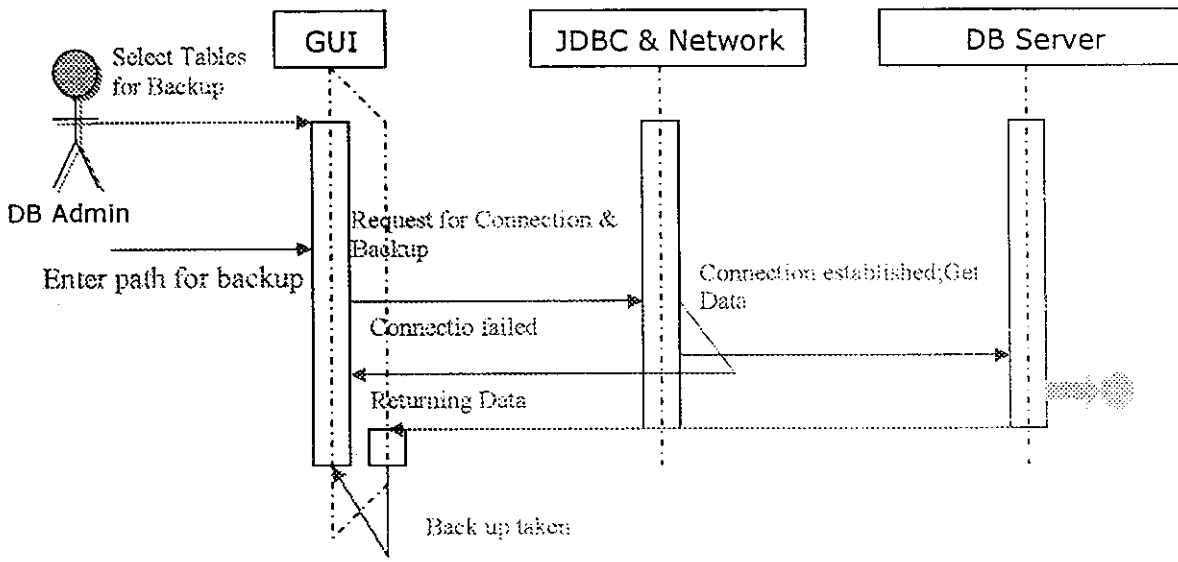
2.2.7 Alter

Modification of the columns are performed using the tool



2.2.8 DataBackup

The data can be backed up in any location or server by just connecting to them with their IP address.

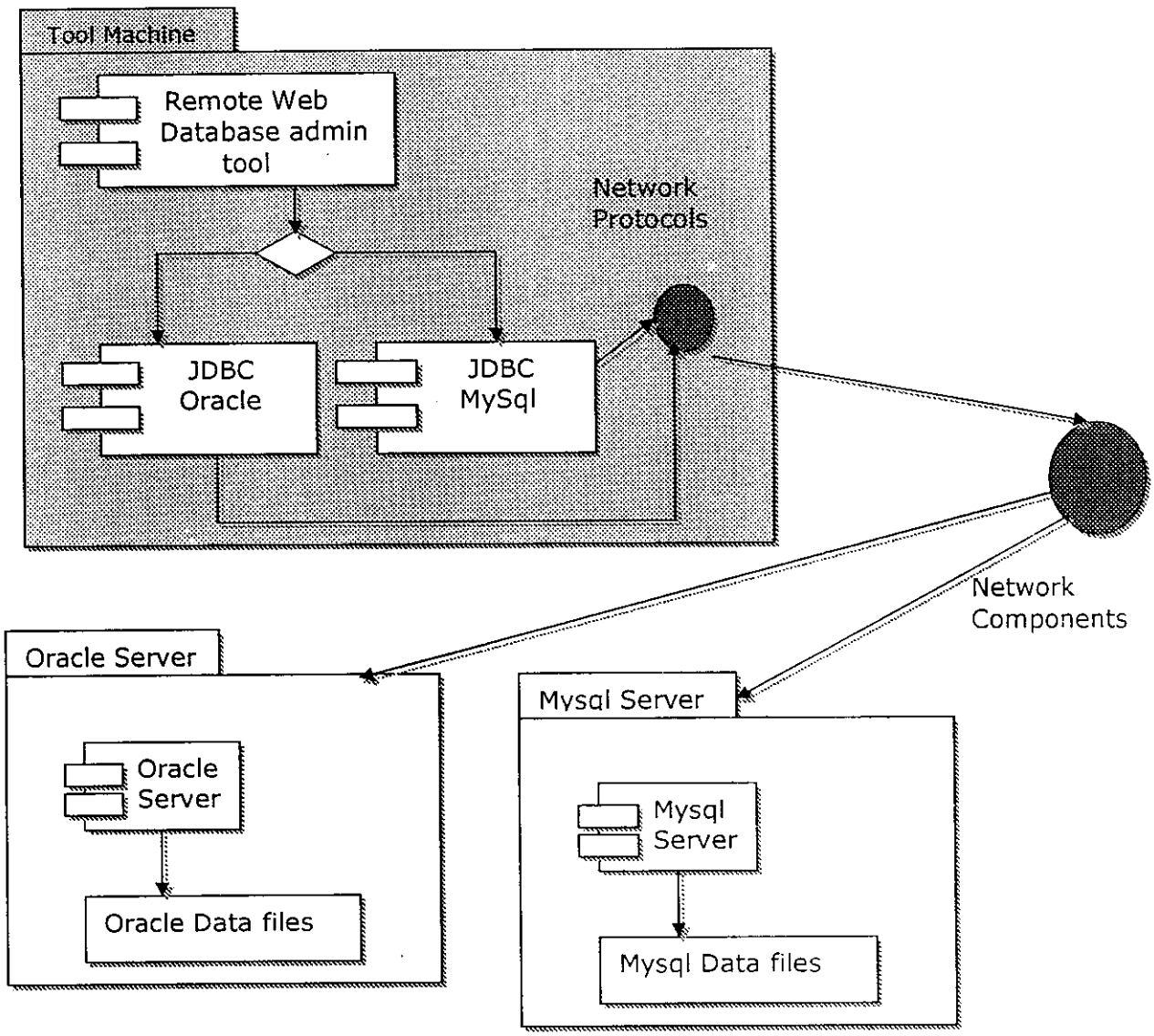


2.3 Requirements on new system

The system being developed is a hand tool that will allow the user to connect to any database

1. It requires system with minimum configuration
2. Requires net work connectivity to the system in which oracle or mysql is installed

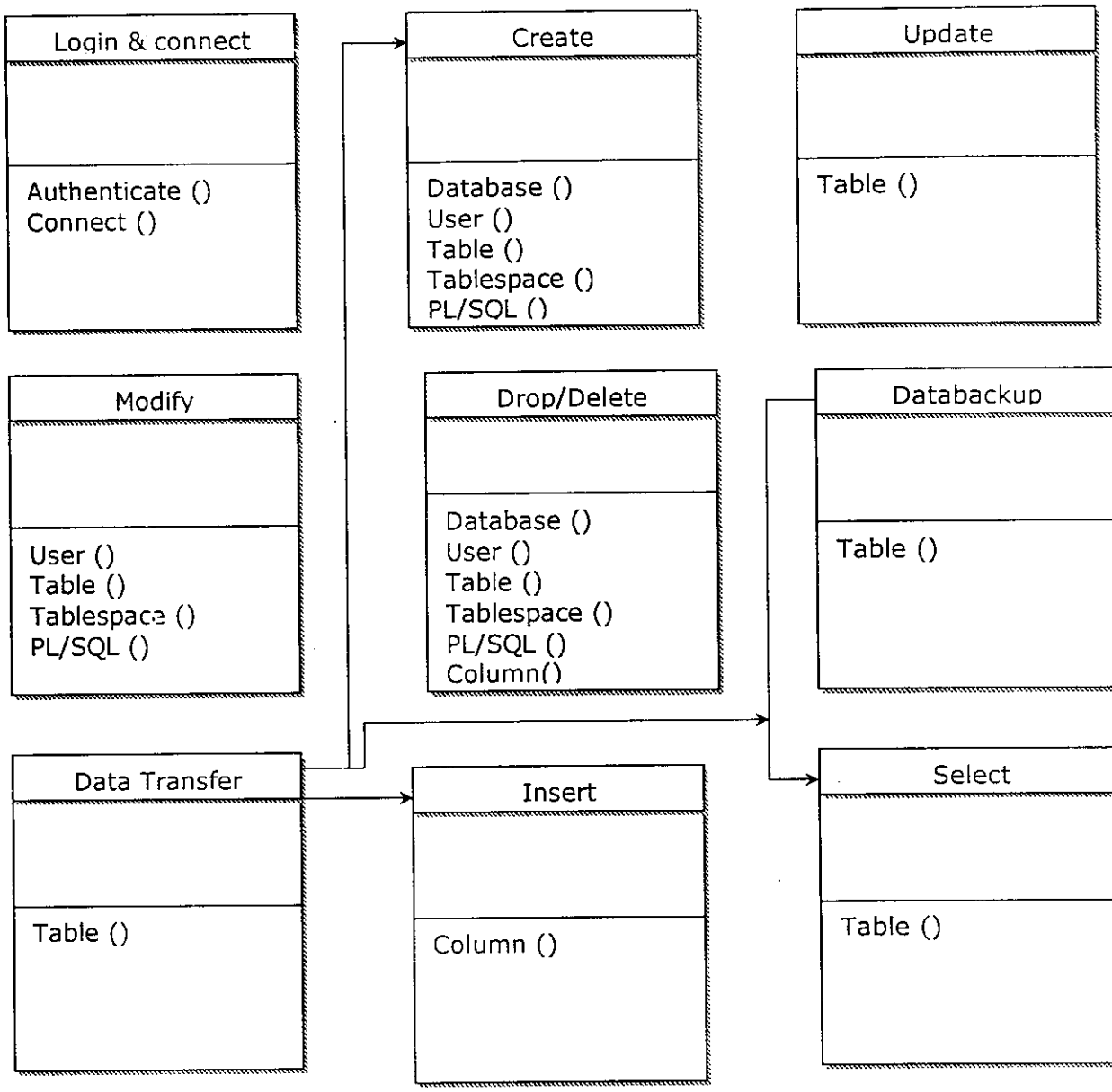
The RWDBA tool is installed in the machine which is connected to the net work with appropriate network protocols. The connectivity is done through JDBC. Then the oracle data files and mysql data files are retrieved in the tool machine.



2.3.1 Functional requirements

Class Diagram

The DBA operation has the following functionalities which are specified in the class diagram, class diagram is prepared for the functional requirements of the tool, each DBA function is separated into classes with respective functions within the class.



2.4 User characteristics

User constraints

a. User using this tool should know the user id and password of the database

b. Even though any user having knowledge of computers can use this tool (part of function) it becomes important to have some knowledge regarding database such that the data in the database is not mishandled

General constraints

a. The system on which database is mounted should be on the network

b. Version conflicts of the databases

c. Network protocols required

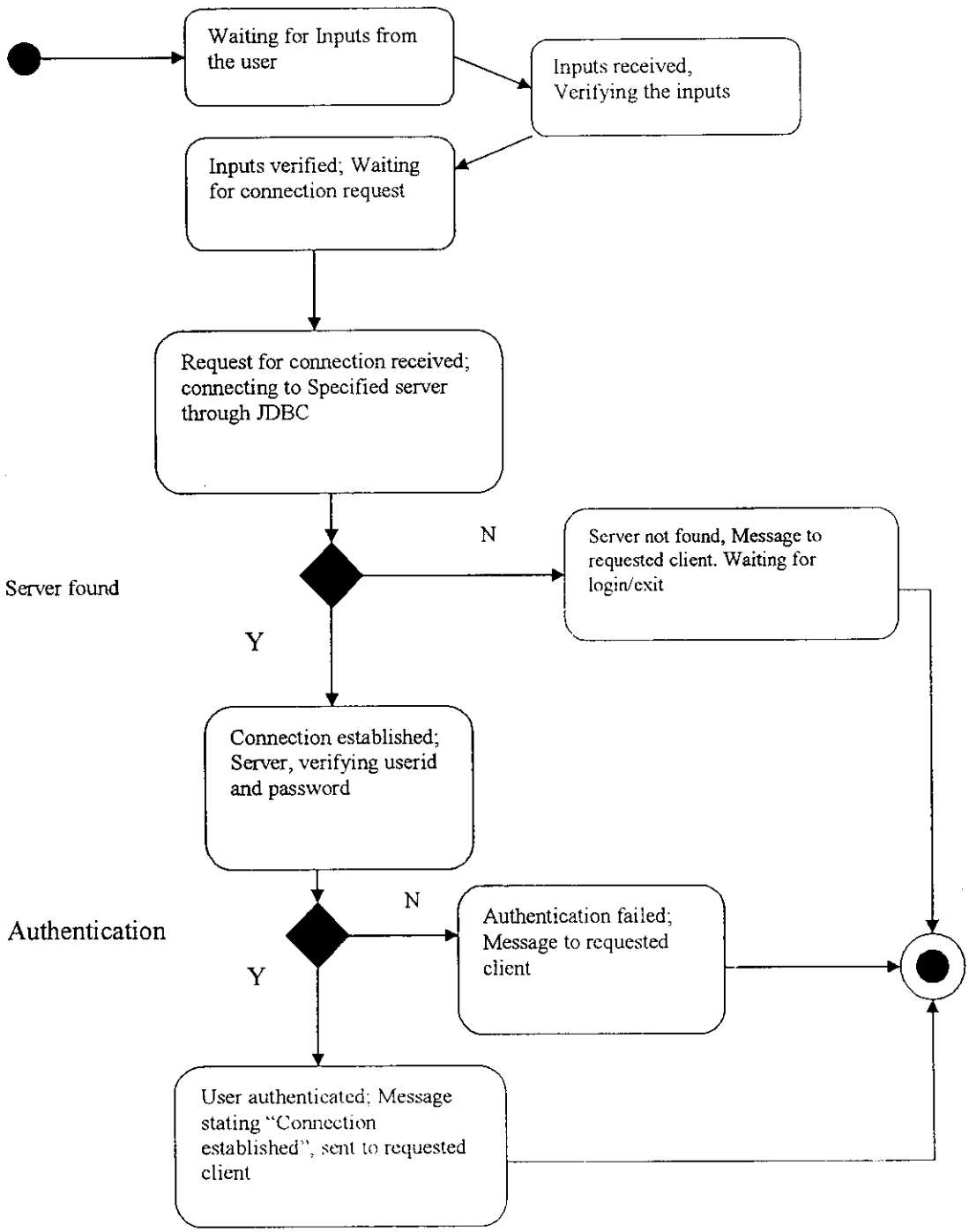
d. The operating system must support GUI and JAVA

2.4.1 Login and Connect

The system waits for the username and password from the user, inputs are verified, user connects to specified server through JDBC. If server is not found message is sent to client waiting for Login/Quit.

If connection is established server verifies user id and password, user authentication is checked and message stating connection established is displayed

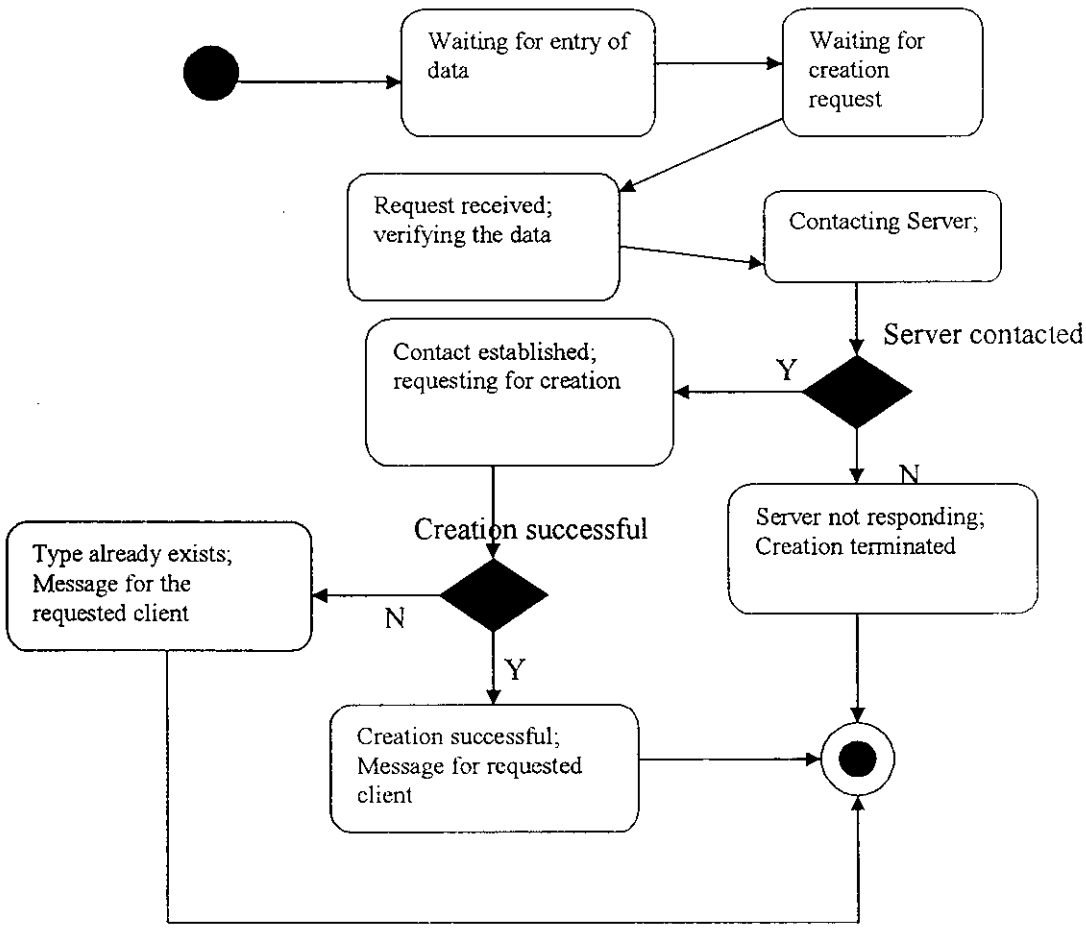
Login and Connect



2.4.2 Create

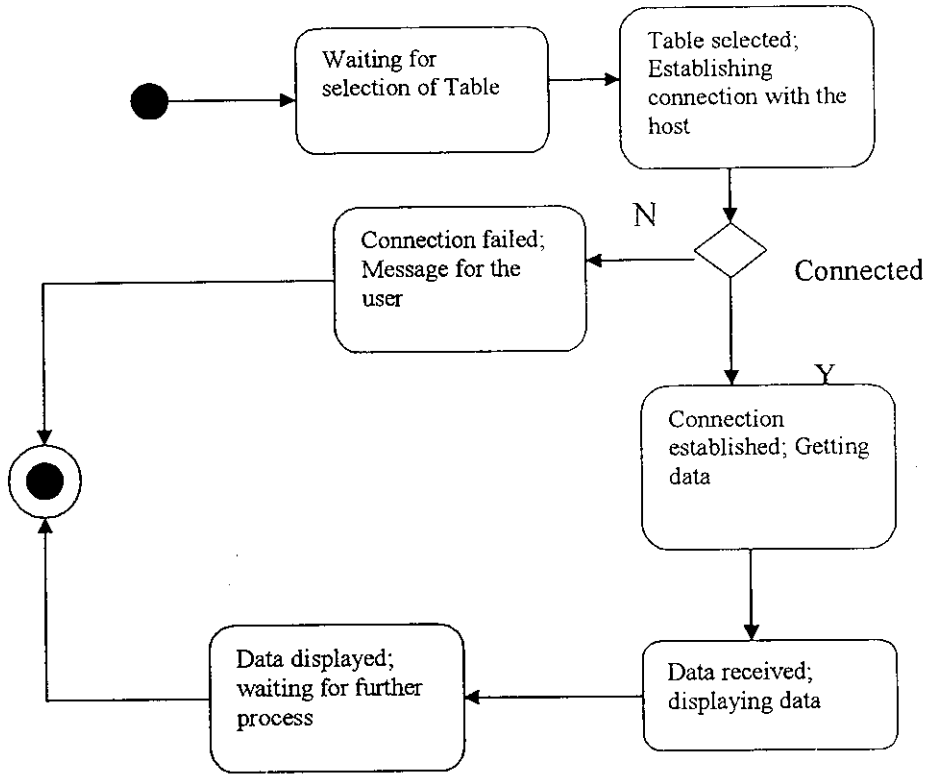
The system waits for the user to enter data for creation, Connection is established with the server, user sends creation request, if the connection is not established error message is sent to the user. User creates database, table, user,

Redundancy of data does not occur and system gives message that data exists and has to be changed with alternate name, Creation is done successfully.



2.4.3 Select

2.4.3.1 Simple Select



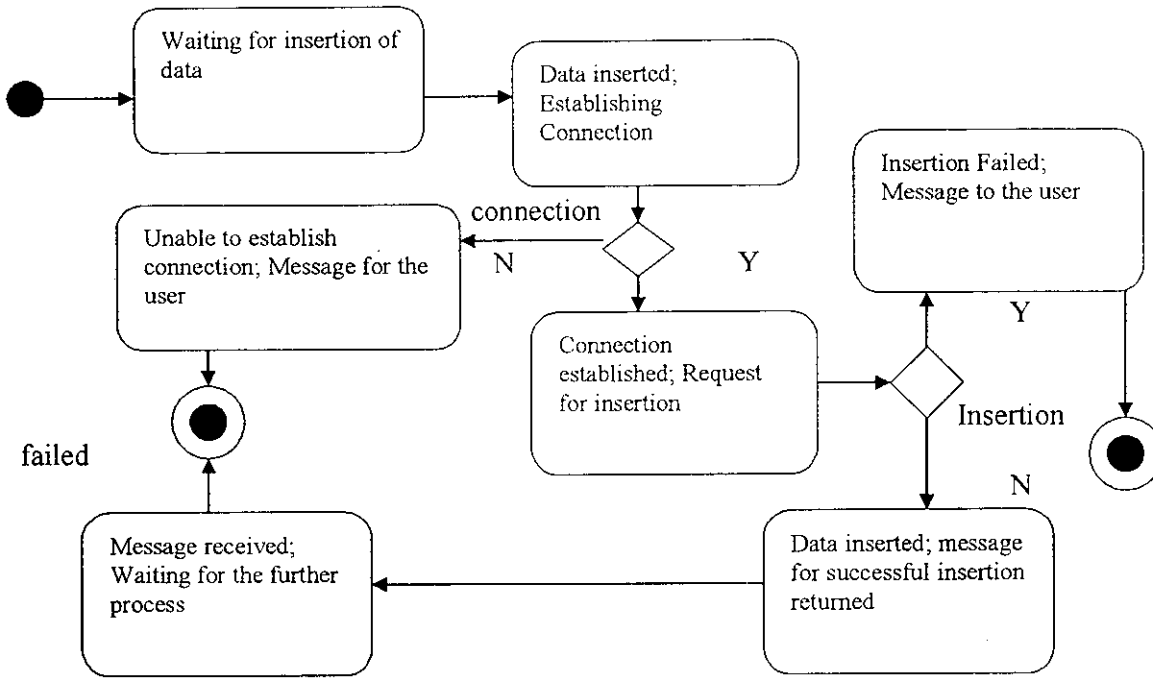
The system for the user to select the table, After establishing the connection with the host the selected data are displayed. User can view selected data on the screen.

Advanced select

User selects data using conditions. The system waits for user to select the table, table is displayed with column values, the tool displays all column data

- user should enter the conditions
- user requests data using conditions
- data is displayed and user verifies data.

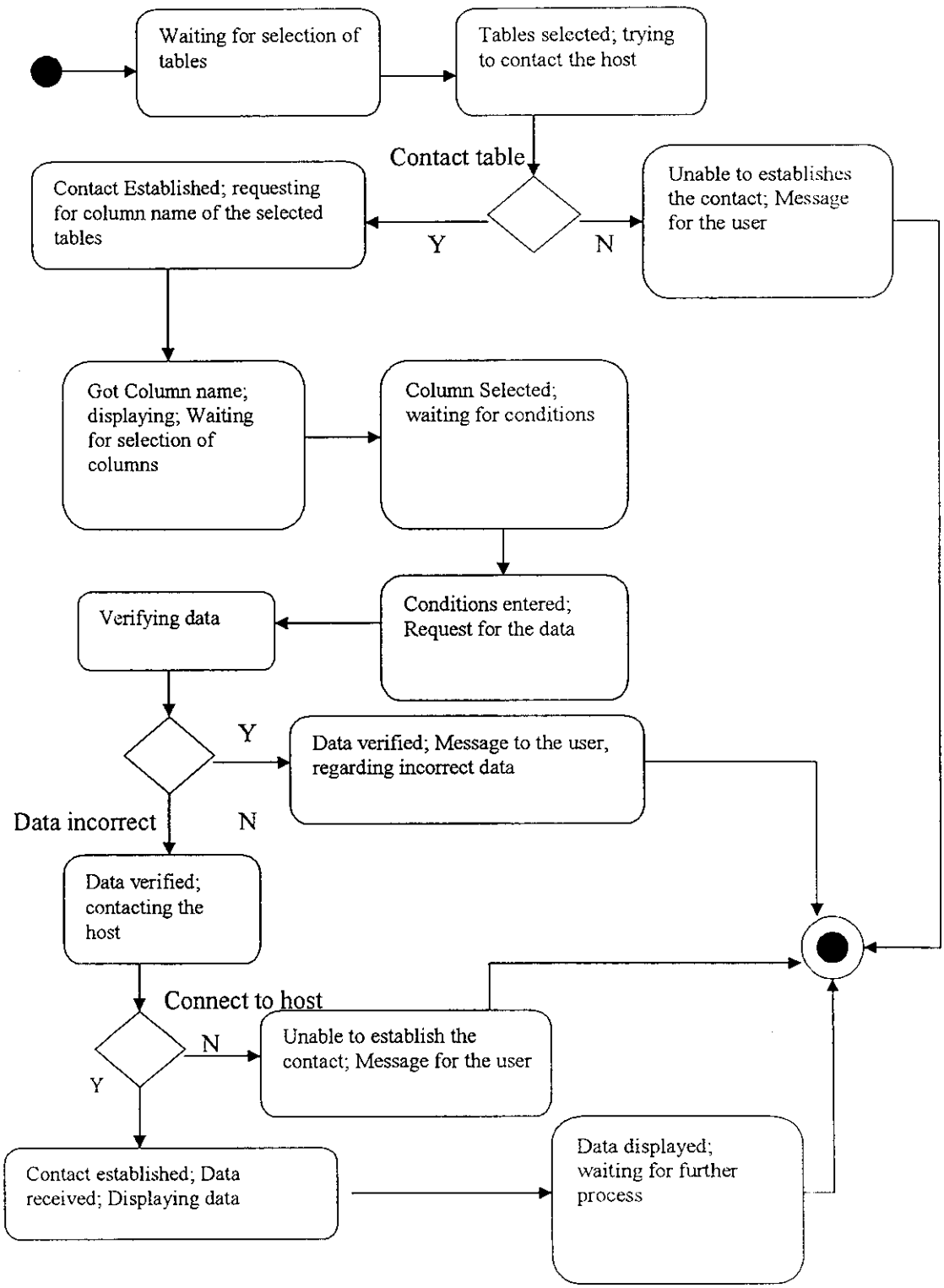
2.4.4 Insertion



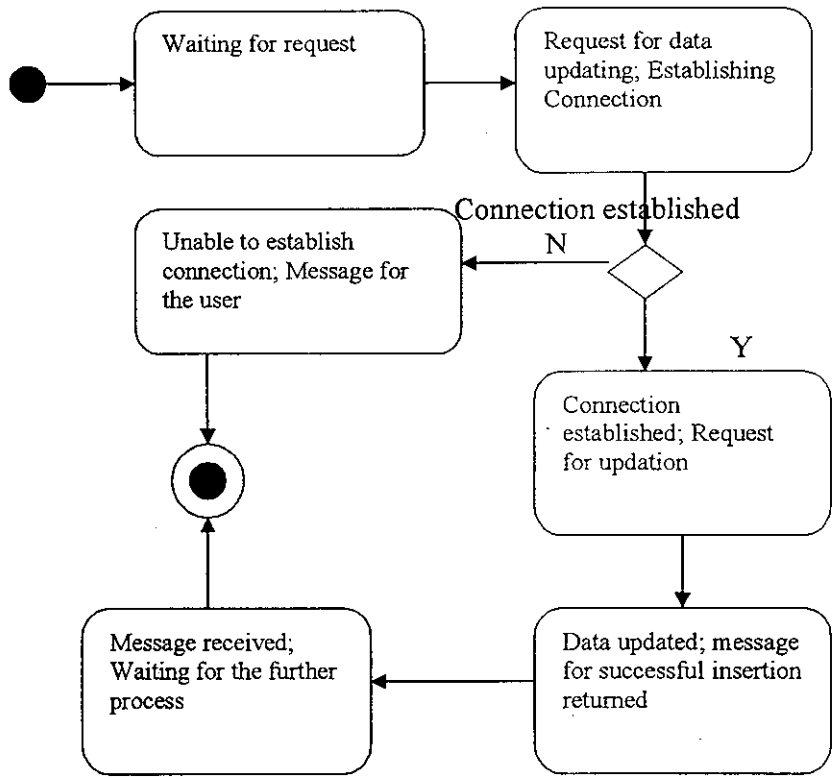
User inserts data after establishing connection

- if connection is established insert data in table
- data inserted and message for successful insertion is returned.
- If connection is failed, insertion failed message is sent to the user.

2.4.3.2 Advanced Select



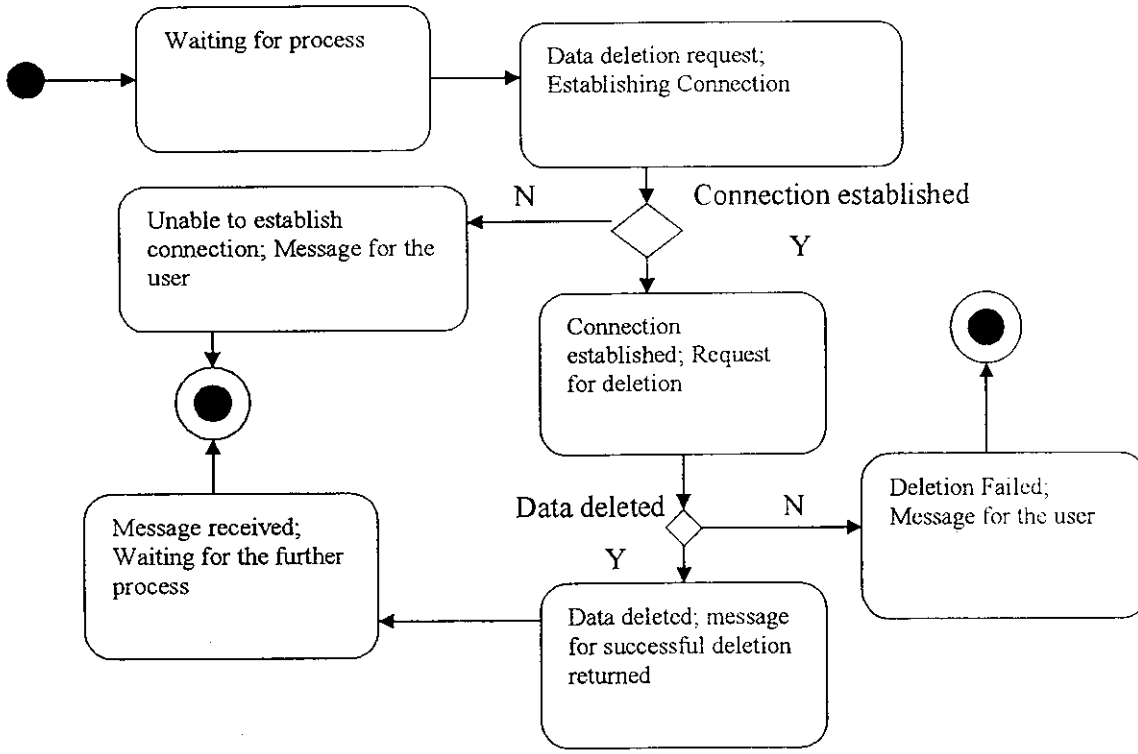
2.4.5 Updation



User sends request for table data updation

- System establishes connection
- User request for updation is accepted
- Data updated, message displayed
- If unable to establish connection, message is sent o user.
- System waits for further process

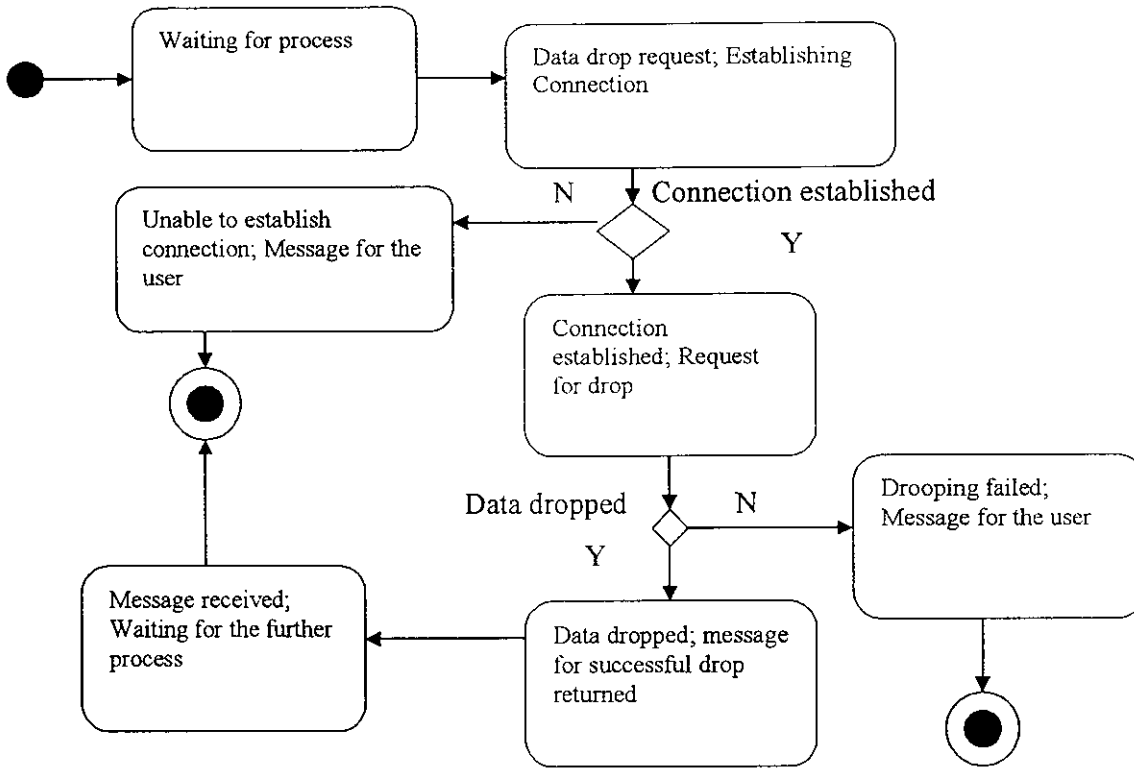
2.4.6 Deletion



User sends request to delete the data

- System establishes connection.
- Request for deletion of data is sent by selecting the rows and columns to be deleted.
- Data deleted message is sent after successful deletion.
- System waits for further process.

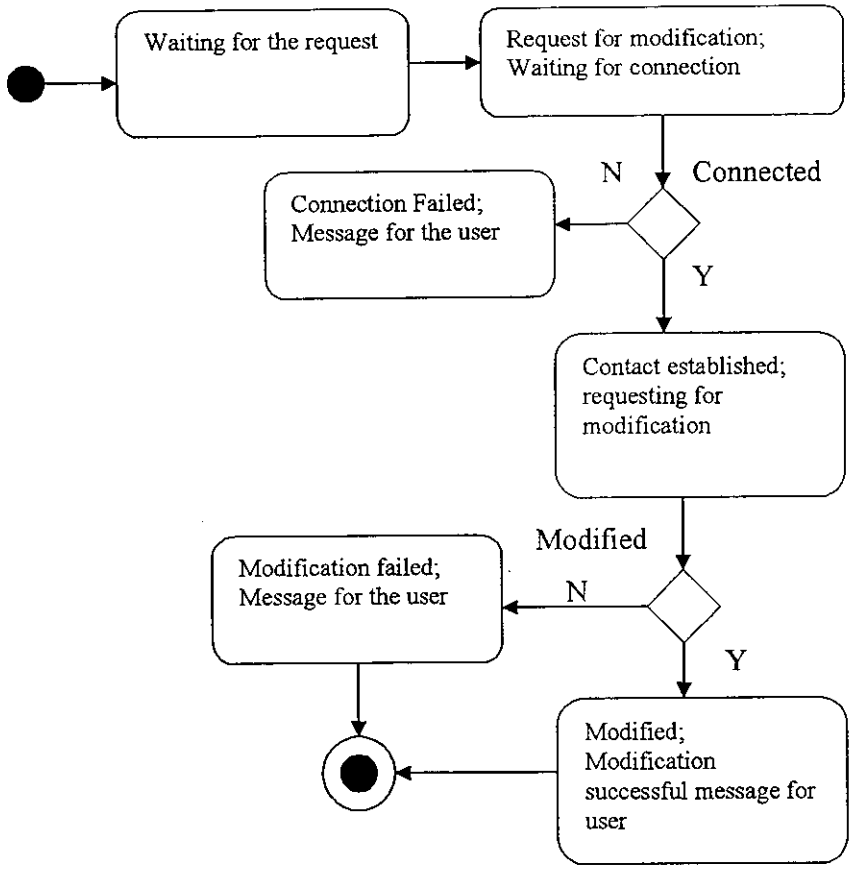
2.4.7 Dropping



User sends request to drop database, table, user

- system establishes connection
- Drop data request is sent
- Data dropped message is sent after successfully dropping the data
- If unable to establish connection ,drop failed message is sent to user
- System waits for further process.

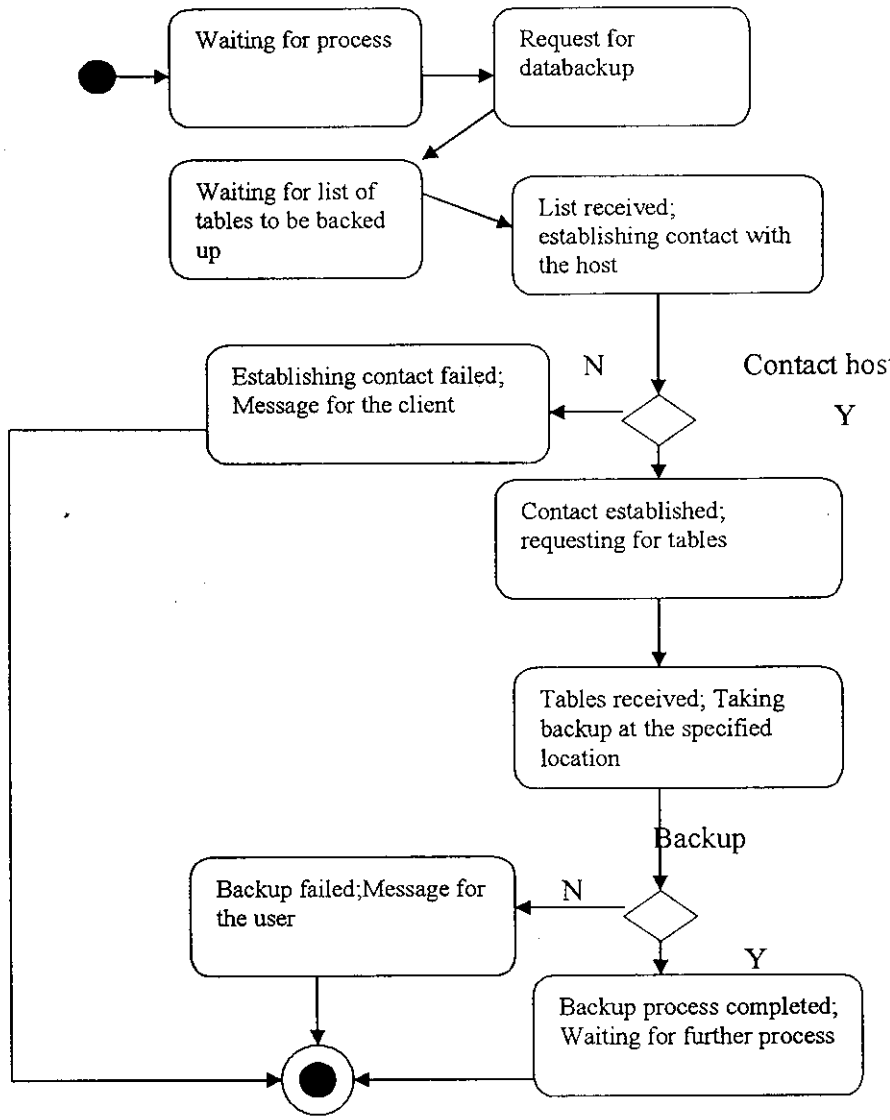
2.4.8 Alter



User need to alter the table schema

- system establishes connection
- request for modification is sent
- table altered message is sent to user after successful modification
- if modification or connection failed message is sent to user

2.4.9 DataBackup



User needs to make backup of data available in the database

- system establishes connection
- request for backup is sent
- user needs to select the list of tables for backup
- if connection failed message is sent to client
- connection is established, system requests for tables
- backup process completed

Programming Environment

3. Programming Environments

Project Initiation

Project Name	Remote web database administration tool	
Project type	Development	
Technical Environment	Hardware:	Software:
	Pentium III 850MHZ	JDK 1.3
	128 MB SDRAM	Swing
	10GB HDD 15" Color Monitor	Windows 2000 Server, Red Hat Linux 2.0, Windows Millennium Oracle 8I MySql 3.2

Project Description

Project name	Remote Web Database Administration
Project objectives	To Build Database tool which can administrate databases from remote system
Methodology	Java 1.3,Swing
List of interface systems	MM.MYSQL.DRIVER,ORACLE THIN DRIVER

3.1 Hardware Configuration

Hardware : Pentium III 850 Mhz

OS : WINNT, Windows Millennium, Red hat Linux

Database : Oracle8I,MySql3.2

Software:

SL.No	Software	Version
1.	JDK	1.3
2.	Swing	2.0

Resolutions

a. Risk Factor: Unstable requirements

Avoidance: Provide template for SRS.

Minimization: Highlight in status report.

Contingency: Escalate and Revise project schedule.

b Risk Factor: New Technology

Avoidance: Carry our prototyping

Minimization: Re-estimate effort

Contingency: Discuss with client on alternative solutions

c Risk Factor: Inadequate skills

Avoidance: Provide skilled manpower

Minimization: Provide training

Contingency: Escalate and Revise schedule

3.2 Description of software and tools used

3.2.1 About JAVA

Java is an object-oriented, multithreaded programming language developed by Sun Microsystems in 1991. It is designed to be small, simple and portable across both platforms as well as operating systems, at the source and binary level. The popularity of Java is due to its radically unique technology that is designed on a combination of three key elements. They are the usage of applets, powerful programming language constructs and rich set of significant object classes. When a program is compiled, it is translated into machine code that is processor specific. In the Java development environment, there are two parts: a Java compiler and Java interpreter. The compiler generates byte code instead of machine code and the interpreter executes it. Java is a technology that helps in building distributed applications, which are programs that can be executed across all platforms.

3.2.2 FEATURES OF JAVA

Java is:

- **Architecture neutral**

  Java compilers generate machine independent byte code instructions as the target, which can be efficiently interpreted on almost all existing platforms.

- **Distributed**

  Java applications can access objects across the internet using URLs with the same ease as when accessing a local file.

- **Dynamic**

  Java programs carry with them substantial amounts of run-time type information that is used to verify and resolve accesses to objects at run-time. The small fragments of byte code may be dynamically updated on running system.

- **Interpreted**

  The Java interpreter can run Java byte codes on any machine to which the interpreter has been ported.

- **Multithreaded**

  Java supports multithreading, which is necessary for interactive responsiveness and real-time applications.

- **Object-Oriented**

  Objects are instances of class, Java team gave a clean, usable, realistic approach to objects, the object model in java is simple easy to extend.

- **Portable**

  Binary data are stored in a fixed format and Strings are stored in a standard Unicode format. Therefore, Java is portable.

- **Robust**

  Java forces user to find mistakes in the early stages of program development. Java checks code at compile time and also at run time. Java rectifies problems of memory by providing garbage collection for unused objects.

- **Secure**

  One of Java's design goals is to enable the construction of virus-free tamper-free systems. A Java program cannot result in run-time stack overflow.

Java software works just about with everything from the smallest device to supercomputers. Java technology components (programs) do not depend on the kind of computer, telephone, television or operating system they run on. They work on any kind of compatible device that supports Java platform.

3.2.3 Java Technology Components

This RWDBA is a client side tool which is programmed using swings. An application program is one that you can execute on any operating system prompt. Stand-alone applications can either be window-based or console-based. They use features that are supported by platforms like Microsoft windows, Motif and OS/2. Console applications are character-based applications that do not have a graphical user interface. A stand-alone application uses the resources of a single computer.

Networked applications can use resources that are available over a network. Distributed applications can access objects that execute across many machines over a network.

Applications are allowed to read from and write to the files on the local computer. They have more security privileges than applets. Applications can also establish network connections, access resources across a network and launch applications over a network.

A stand-alone application resides on the hard disk of a local machine. When the application needs to be executed, it is fetched from the hard disk in to the internal memory and executed.

System Design & Development

4. System Design & Development

4.0.1 Purpose

This document describes the Screen design for **"Remote web database administration"**.

4.0.2 Scope

In today's world of e – technology we find lot of data transactions going around with huge databases and unlimited users. It becomes very important that each data transaction Unit (database) needs a database administrator to keep the database up and running .The administrator who has to maintain huge databases need to work round the clock, which is very tedious and lingering job. This is where our software **Remote web database administration** comes in to picture. This software can help the administrator to login and connect to a remote database and administrate with good GUI, which makes job of the administrator effortless. We don't find many remote web database administration tools in the market today. Even though this tool is going to be used by administrators of database we can estimate that it has got a good scope at the market.

4.0.3 Legends and Abbreviations

S.no	Legends	Stands for
1	DB	Database
2	SQL	Structural Query language
3	PL	Procedural Language

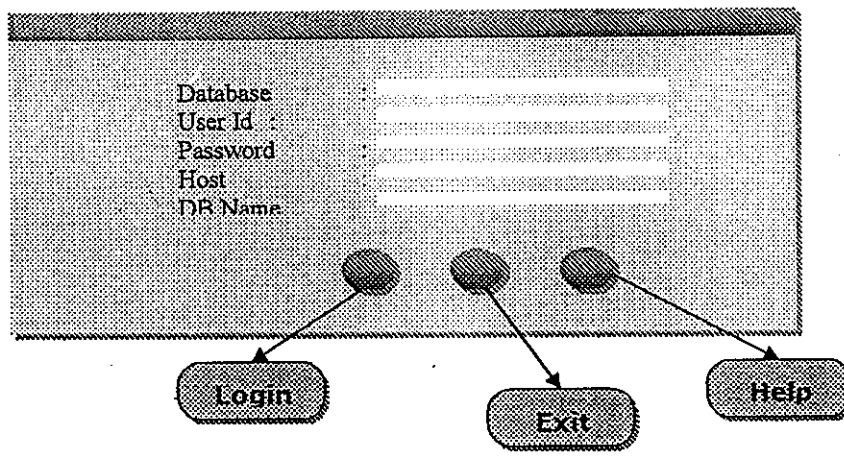
4.1 I/P and O/P Design

4.1.1 Login and Connect

Functionality

This screen is the first screen of "Remote Web Database Administration" tool. It gets all the parameters required for making connection from the user. After getting all the parameters, it connects to the remote database server and returns connection object.

Screen Design



Component Description

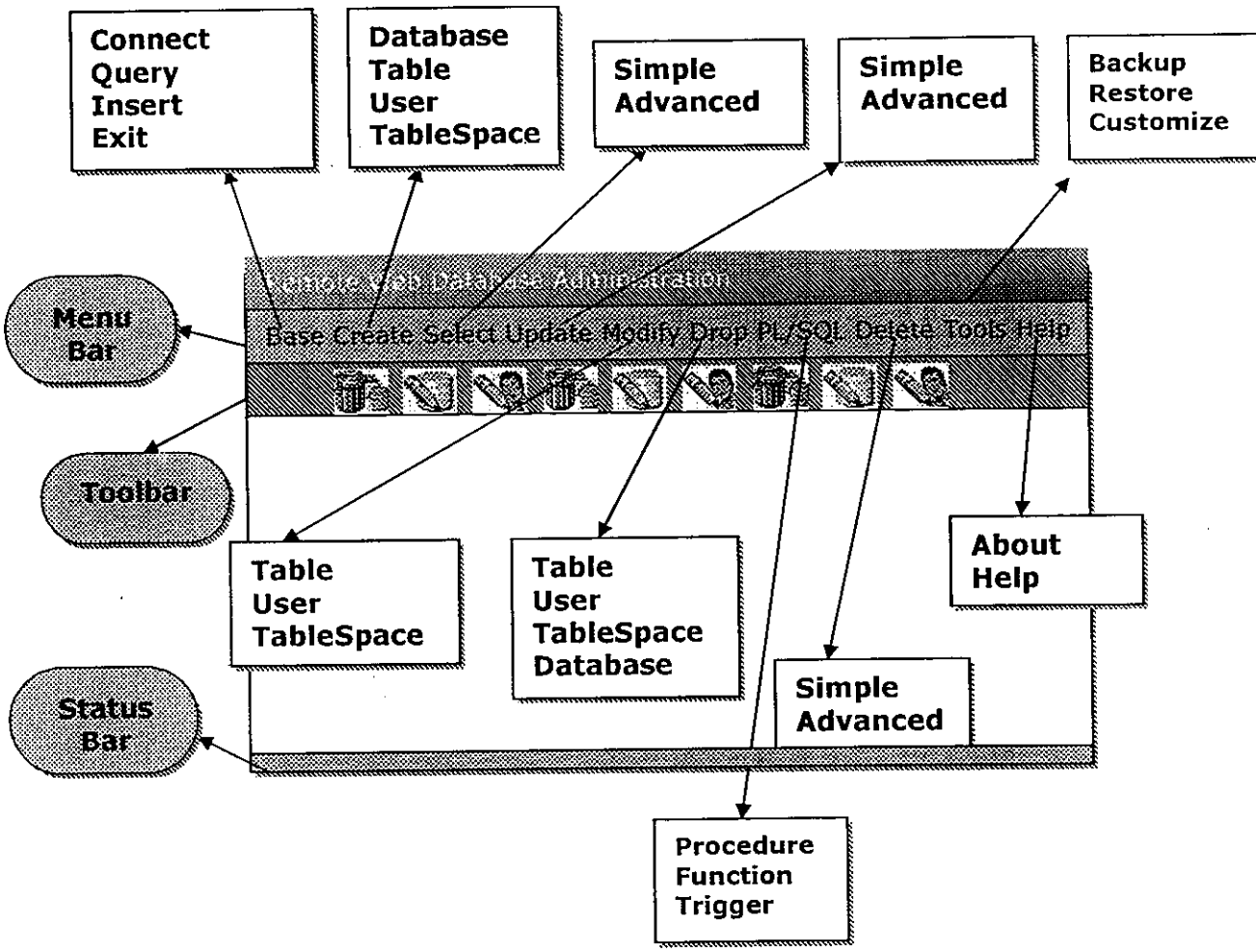
S.No	Component Name	Component Type		Description
1	Database	Combobox	**Options**	Allows the user to select the type of database to which connection is to be established
			Oracle	
			MySQL	
2	User Id	Text field		Gets user id for the database
3	Password	PasswordField		Gets password for the database
4	Host	TextField		Gets host name on which database is up and running
5	DB Name	TextField		Gets name of the database
6	Login	Button		Logins in
7	Exit	Button		Exists the application
8	Help	Button		Displays help for the screen

4.1.2 Main Screen

Functionality

After establishing the connection with the Database server this screen will be displayed. This screen will be mother screen for all the functionalities of the "Remote Web Database Administration".

Screen Design



4.1.3 Component Description

S.No	Component Name	Component Type		Description
1	MenuBar	MenuBar	**Menu** Base Create Select Update Modify Drop PL/SQL Delete Tools Help	Embeds Menus for various functionalities of the software
2	Base	Menu	MenuItems Connect Query Insert Exit	This menu will contain the specified menu items
3	Create	Menu	MenuItems Database Table User	This menu will contain the specified menu items
4	Select	Menu	MenuItems Simple Advance	This menu will contain the specified menu items
5	Update	Menu	MenuItems Database Table User	This menu will contain the specified menu items
6	Modify	Menu	MenuItems Table User	This menu will contain the specified menu items
7	Drop	Menu	MenuItems Table User Database	This menu will contain the specified menu items

8	PL/SQL	Menu	MenuItems	This menu will contain the specified menu items
			Procedure	
			Function	
			Trigger	
9	Delete	Menu	MenuItems	This menu will contain the specified menu items
			Simple	
			Advanced	
10	Tools	Menu	MenuItems	This menu will contain the specified menu items
			Backup	
			Data transfer	
			Customize	
11	Help	Menu	MenuItems	This menu will contain the specified menu items
			Help	
			About	
12	Connect	MenuItem		Makes connection with the specified database
13	Query	MenuItem		Opens a dialog box for entering Queries
14	Insert	MenuItem		Gets the data of the selected table and allow the user to insert the data into the table
15	Exit	MenuItem		Quits the application
16	Database (Create)	MenuItem		Starts Database creation process
17	Table (Create)	MenuItem		Starts table creation process
18	User (Create)	MenuItem		Starts user creation process
19	Simple (Select)	MenuItem		Allows the user to select all data from the database
20	Advanced (Select)	MenuItem		Allows the user to select specified data from the database
21	Database (Update)	MenuItem		User can update the database through this menuitem
22	Table (Update)	MenuItem		Starts Updation of table
23	User (Update)	MenuItem		Starts updation of user
24	Table (Modify)	MenuItem		Allows the user to modify the table
25	User (Modify)	MenuItem		Allows the user to modify the user

26	Table (Drop)	MenuItem	Link for dropping the table
27	User (Drop)	MenuItem	Through this menuitem user can drop the user
28	Table Space (Drop)	MenuItem	User can drop the tablespace through this option
29	Database (Drop)	MenuItem	User can drop the database
30	Procedure	MenuItem	Allow the user to write procedures and execute
31	Function	MenuItem	Allows the user to write the function and execute/store
32	Trigger	MenuItem	Allows the user write Triggers and execute/store the same
33	Simple (Delete)	MenuItem	Through this link user can delete all the data from a table
34	Advanced (Delete)	MenuItem	Through this link user can delete selected data from the table
35	Backup	MenuItem	Allows the user to start the process of Data backup
36	Customize	MenuItem	Opens a dialog box through which user can customize this tool
37	Help	MenuItem	Open help of the tool
38	About	MenuItem	Tells about the tool

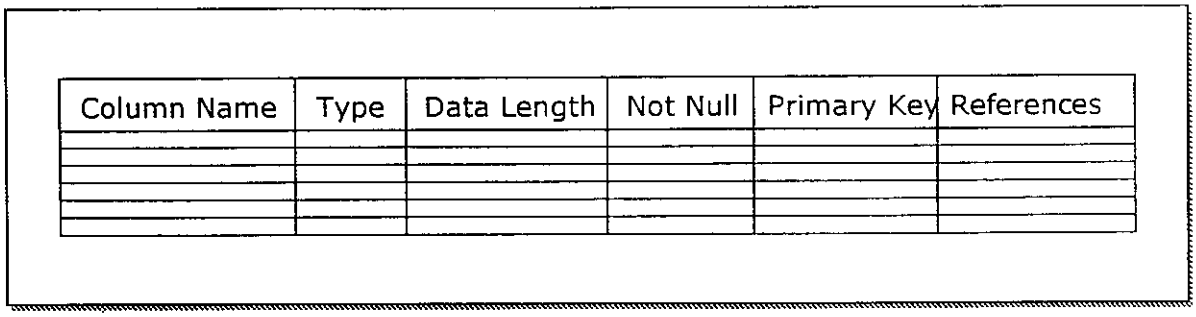
4.1.3 Create

4.1.3.1 Create Table

Functionality

This screen will be displayed when the user chooses create option from the menu or from the toolbar. It allows the user to create new table.

Screen Design



Component Description

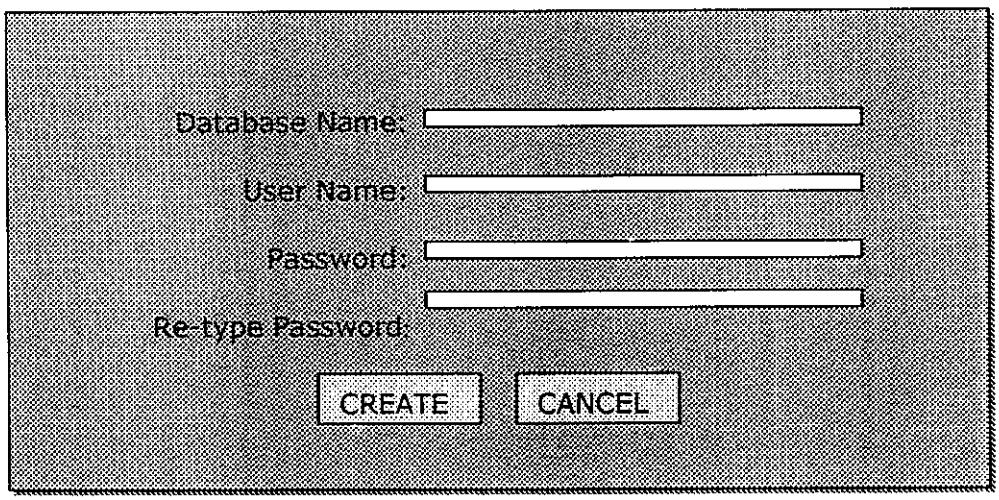
S.No	Component Name	Component Type		Description
1	Column Name	Text field		Gets name of the column
3	Data Length	Text field		Gets length of the selected data type for the column
4	Not Null	Combobox	Option Null Not Null	Gets whether column should be null or not null
5	Primary Key	Combobox	Option Primary Key No	Gets whether column is going to be primary key or not
6	References	Text field		Gets whether the column is foreign key for any other column of another table
7	Type	Combobox	Options Integer Character VarChar LOB(Oracle) Type(Oracle) Varchar2(Oracle)	Gets type of data for the column

4.1.3.2 Create Database

Functionality

Through this screen the user of this tool can create a new database

Screen design



Note: This screen will appear in the scroll pane of the main screen

Component Description

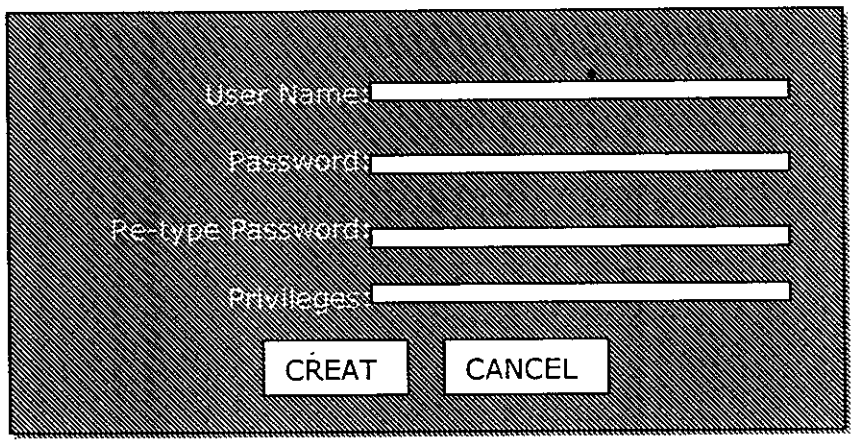
S.No	Component Name	Component Type	Description
1	Database Name	Text field	Gets name of the database to be created
2	User Name	Text field	Gets User name for the database
3	Password	Password	Gets password
4	Re-type Password	Password	Gets password for re confirmation
5	Create	Button	On click starts the process of database creation
6	Cancel	Button	On click Cancels and disposes the current screen

4.1.3.3 Create User

Functionality

This functionality of the tool allows the user to create new user for the database

Screen design



Component Description

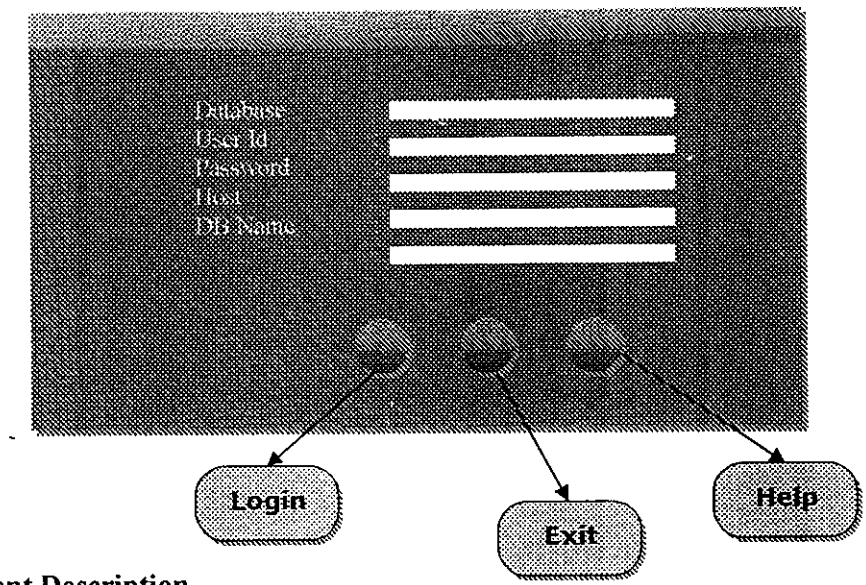
S.No	Component Name	Component Type		Description
1	User Name	Text field		Gets name of the user
2	Password	Password		Gets password for the user
3	Re-type Password	Password		Gets password for confirmation
4	Privileges/Role	Combobox	Option	Gets what kind of privileges can user enjoy
			DBA	
			Connect	
			Resource	
5	Create	Button		Creates user
6	Cancel	Button		Cancels creation of user and disposes the screen

4.1.4 Connect

Functionality

This screen allows the user to establish connection with remote/local database

Screen Design



Component Description

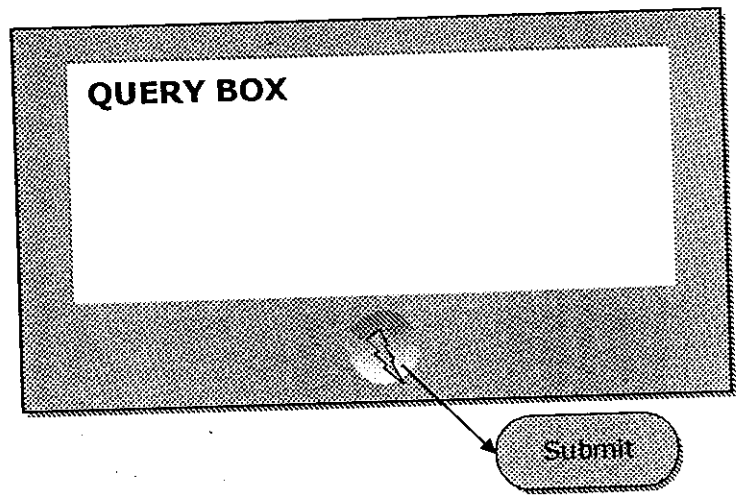
S.No	Component Name	Component Type		Description
1	Database	Combobox	**Options**	Allows the user to select the type of database to which connection is to be established
			Oracle	
			MySQL	
2	User Id	Text field		Gets user id for the database
3	Password	PasswordField		Gets password for the database
4	Host	TextField		Gets host name on which database is up and running
5	DB Name	TextField		Gets name of the database
6	Login	Button		Logins in
7	Exit	Button		Exists the application
8	Help	Button		Displays help for the screen

4.1.5 Query

Functionality

This screen allow the user to enter a SQL query and submit it for further processing

Screen Design



Component Description

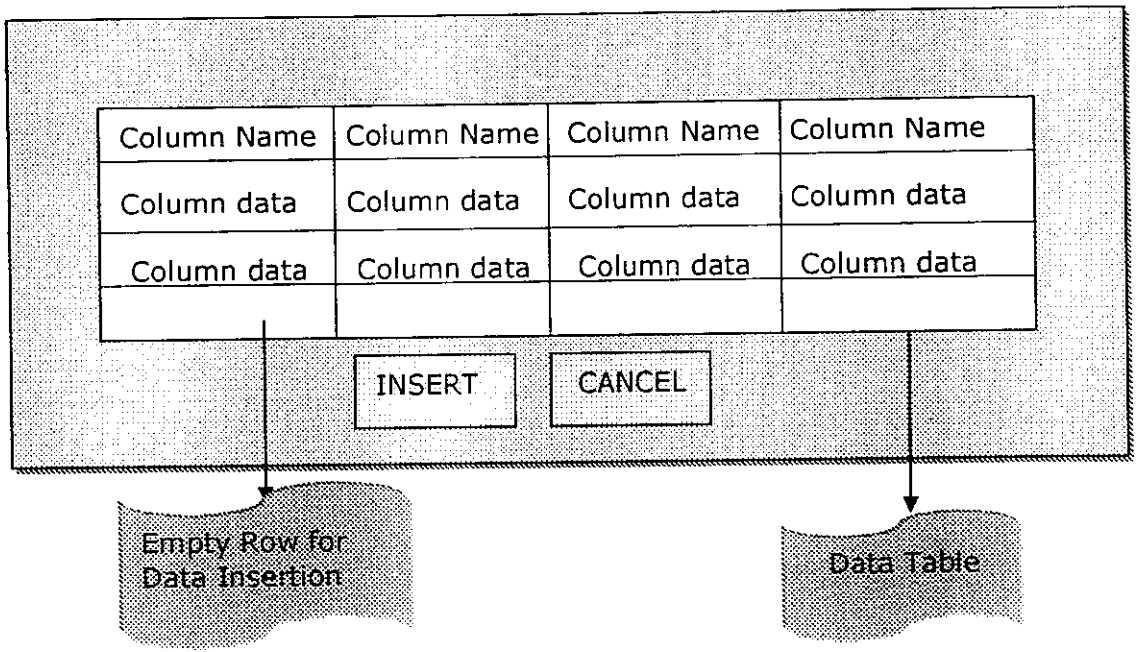
S.No	Component Name	Component Type	Description
1	Query Box	Text Area	Gets SQL Query
2	Submit	Button	Submits query for further process

4.1.6 Insert

Functionality

Using this functionality of the tool user can enter data into the tables.

Screen Design



Component Description

S.No	Component Name	Component Type	Description
1	Data Table	Table	Displays data in the table and gets inserted data
2	Insert	Button	Commets the insertion of the data into the table
3	Cancel	Button	Cancels the inserted data

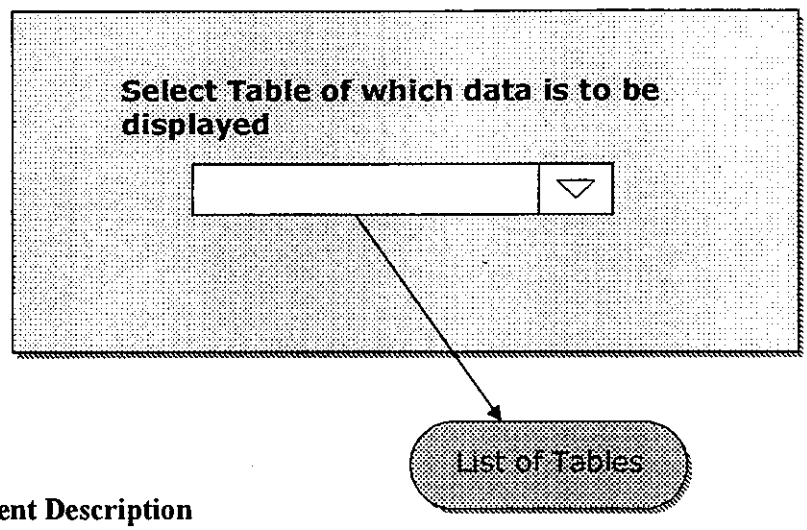
4.1.7 Select

4.1.7.1 Simple Select

Functionality

Allows the user to select all the data from the table

Screen Design



Component Description

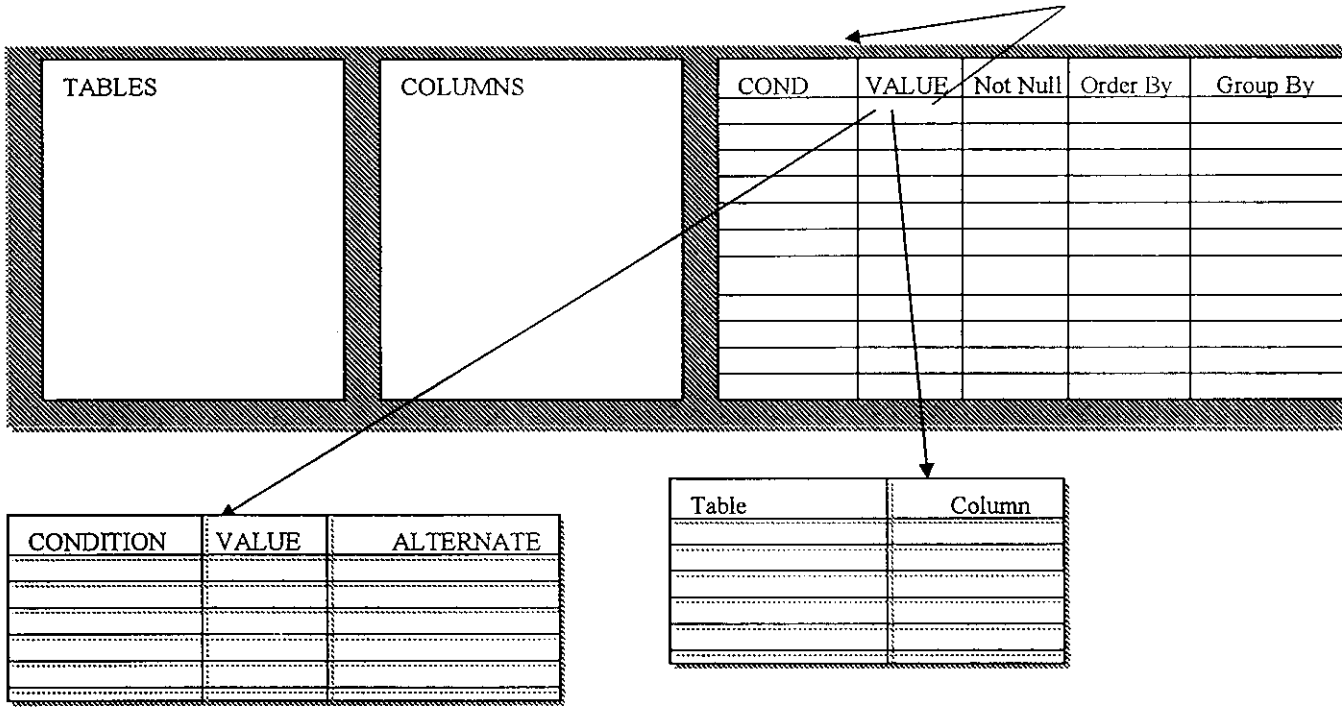
S.No	Component Name	Component Type		Description
1	List of Tables	Combobox	Options	Gets the data of the selected table and displays
			Table Names	

4.1.7.2 Advanced Select

Functionality

This screen allows the user to select the data from the table using advanced queries, "where" condition and joins.

Screen Design



Component Description

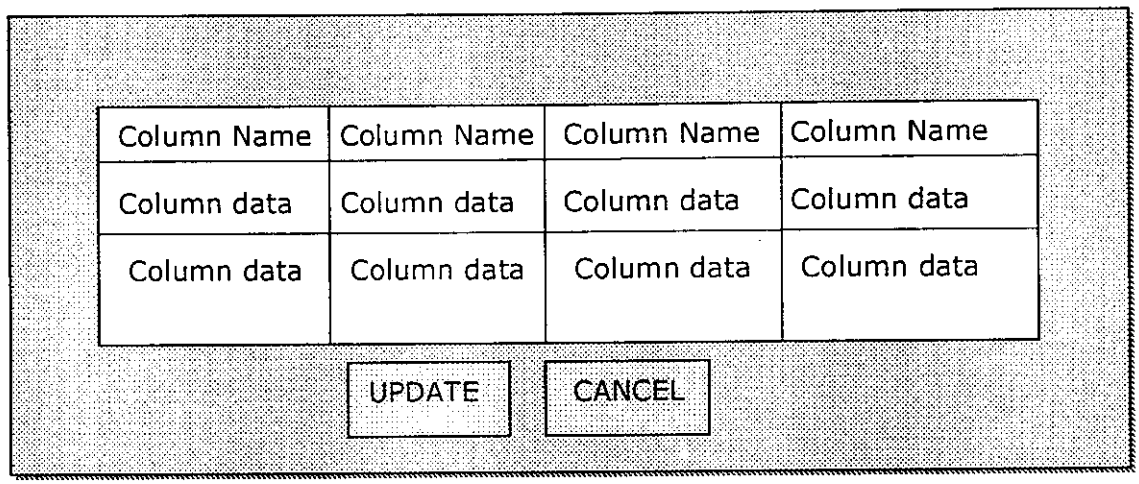
S.No	Component Name	Component Type	Description
1	Tables	List	Displays name of the table and allows the user to select table from which data is to be selected
2	Column	List	Displays column names for selection
3	Condition	Combo box	Displays set of conditions
4	Alternate	Checkbox	Checks whether condition is alternate of not

4.1.8 Advanced Update

Functionality

This screen allows the user to update the data from the selected table using conditions.

Screen Design



Component Description

S.No	Component Name	Component Type	Description
1	Table	Combobox	Shows and Gets data to be updated

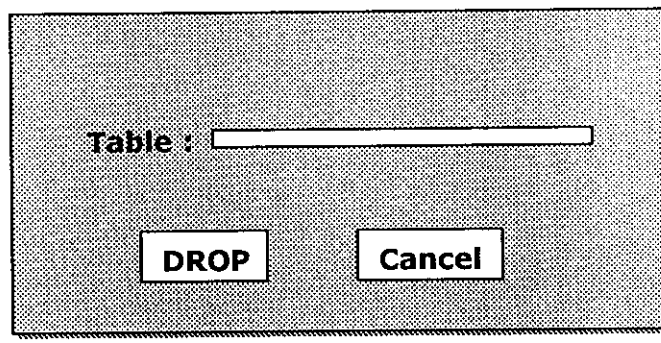
4.1.9 Drop

4.1.9.1 Drop Table

Functionality

This functionality of the software allows the user to drop table from the database.

Screen Design



Component Description

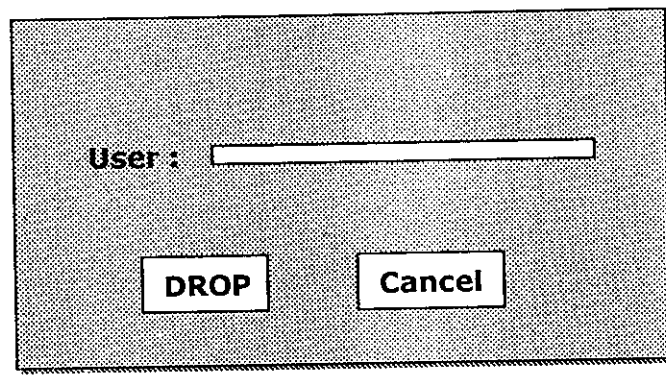
S.No	Component Name	Component Type	Description
1	Table	Combobox	Gets name of the table, which is to be dropped
2	Drop	Button	Drop's the table
3	Cancel	Button	Cancels the processing of dropping and terminates the screen

4.1.9.2 Drop User

Functionality

The user of the database can be dropped using this screen

Screen Design



Component Description

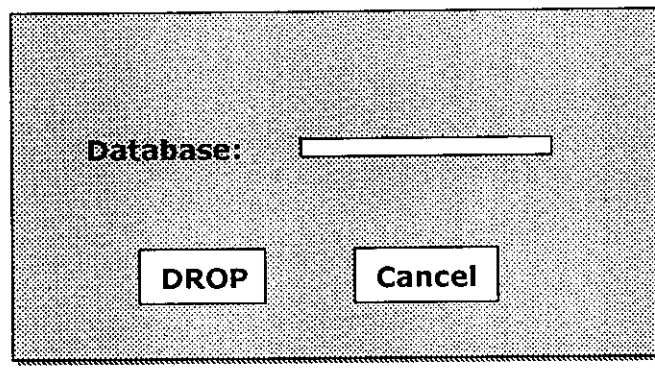
S.No	Component Name	Component Type	Description
1	User	Combobox	Gets name of the users, who are to be dropped
2	Drop	Button	Drop's the user
3	Cancel	Button	Cancels the processing of dropping and terminates the screen

4.1.9.3 Drop Database

Functionality

This screen can be used to delete database

Screen Design



Component Description

S.No	Component Name	Component Type	Description
1	Tablespace	Combobox	Gets name of the tablespace,which is to be dropped
2	Drop	Button	Drop's the user
3	Cancel	Button	Cancels the processing of dropping and terminates the screen

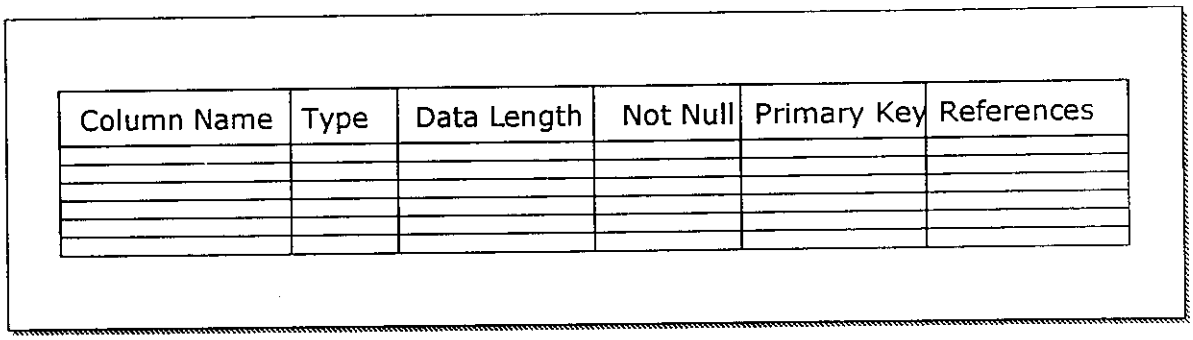
4.1.10 Alter

4.1.10.1 Alter Table

Functionality

Through this screen user can modify the table or table column

Screen Design



Component Description

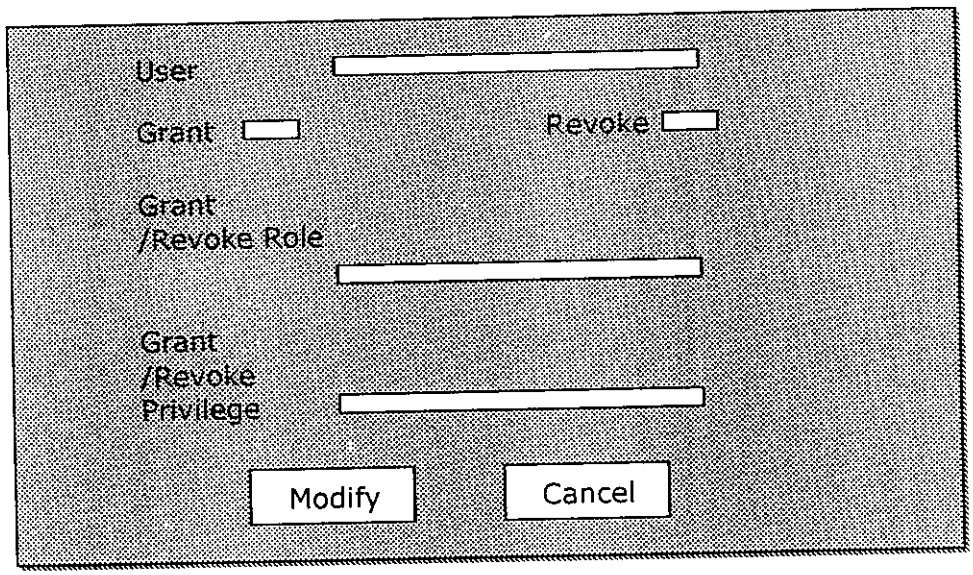
S.No	Component Name	Component Type	Description
1	Table	Table	Gets Data to be altered

4.1.10.2 Modify User

Functionality

Through this screen user can modify the user and his privileges

Screen Design



Component Description

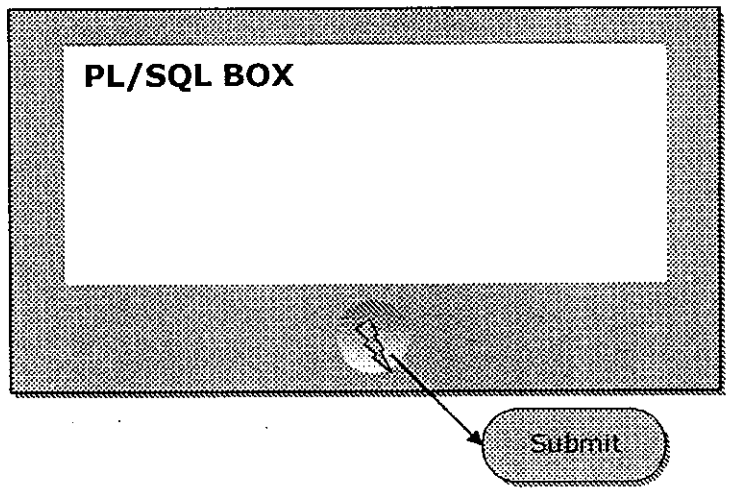
S.No	Component Name	Component Type	Description
1	User	Combobox	Gets name of the user to be modified
2	Grant/Revoke Role	Combobox	Gets role which is to be granted/Revoke to user
3	Grant/Revoke Privilege	Combobox	Gets privilege which is to be granted/revoke to user
4	Modify	Button	Modifies the user
5	Cancel	Button	Cancels the process and

4.1.11 PL/SQL

Functionality

This screen allows the user to enter,PL/SQL statements

Screen Design



Component Description

S.No	Component Name	Component Type	Description
1	Pl/Sql Box	TextArea	Gets PL/SQL Query
2	Submit	Button	Submits query for further process

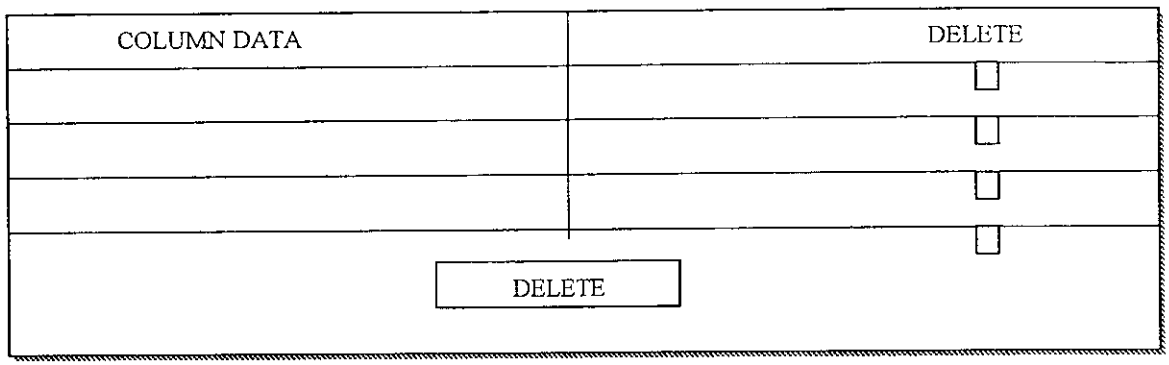
4.1.12 Delete

Delete

Functionality

This screen allows the user to delete all the data from the table

Screen Design



Component Description

S.No	Component Name	Component Type	Description
1	Data	Table	Display's data from the database
2	Delete	Checkbox	Gets whether to delete the row
3	Delete	Button	Deletes the selected rows

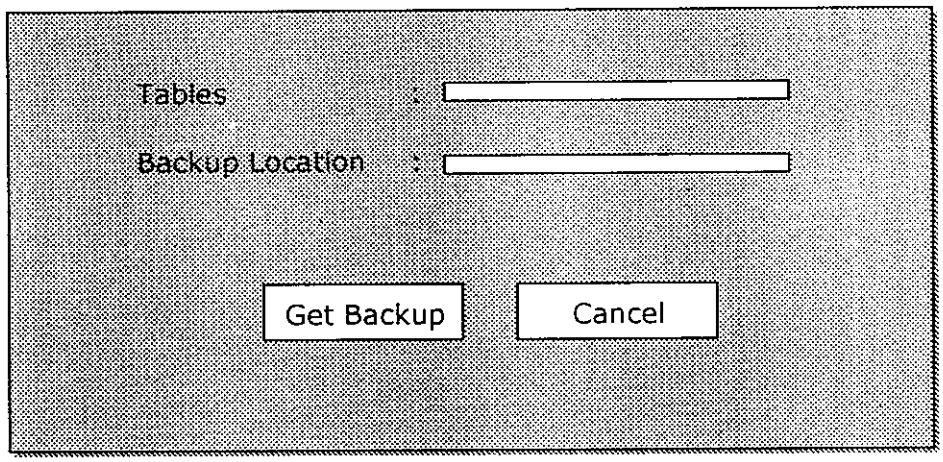
4.1.13 Tools

4.1.13.1 Data Backup

Functionality

This screen helps the user to take back up of data to the specified location

Screen Design



Component Description

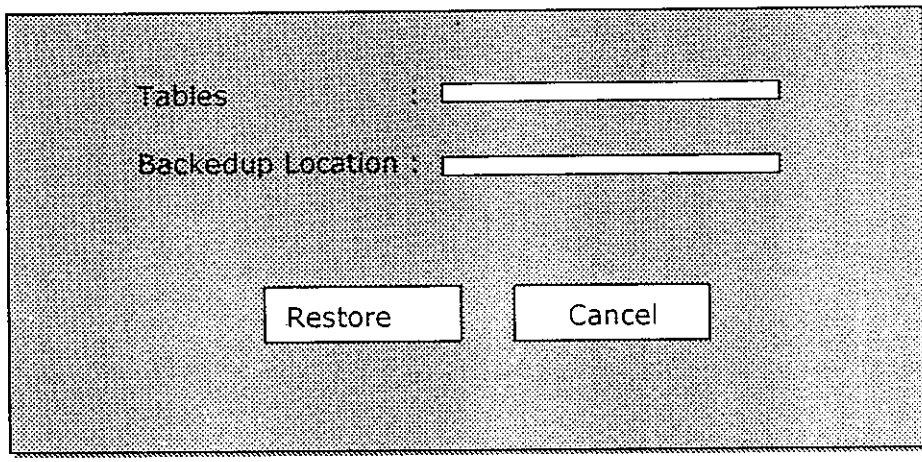
S.No	Component Name	Component Type	Description
1	Tables	List	Gets names of the tables, which are to be backed up
2	Backup Location	Text field	Gets the location where the backup is to be taken
3	Get Backup	Button	Starts backing up the data from the selected table
4	Cancel	Button	Cancels the backup process

4.1.13.2 Restore Data

Functionality

This screen helps the user to take restore the data from the specified location

Screen Design



Component Description

S.No	Component Name	Component Type	Description
1	Tables	List	Gets names of the tables, which are to be backed up
2	Backup Location	Text field	Gets the location where the backup is to be taken
3	Get Backup	Button	Starts backing up the data from the selected table
4	Cancel	Button	Cancels the backup process

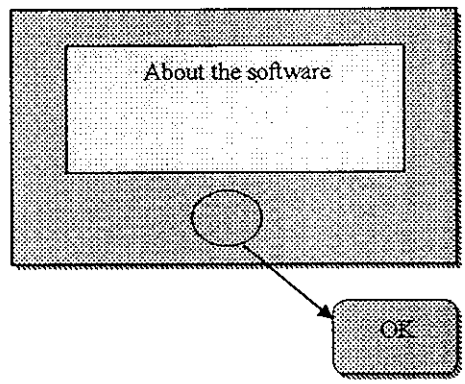
4.1.14 Help

About

Functionality

Tells about the software

Screen Design

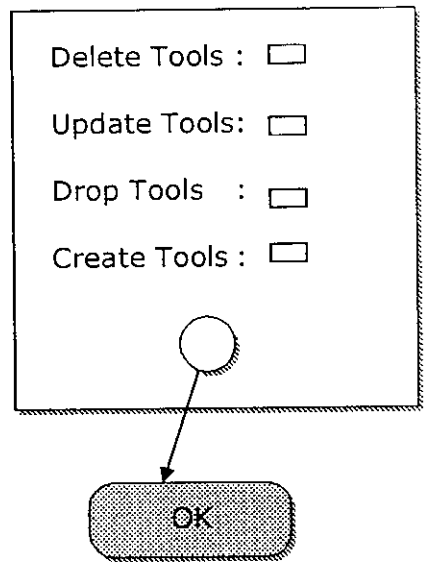


4.1.13.3 Customize

Functionality

Allows the user to customize the tool

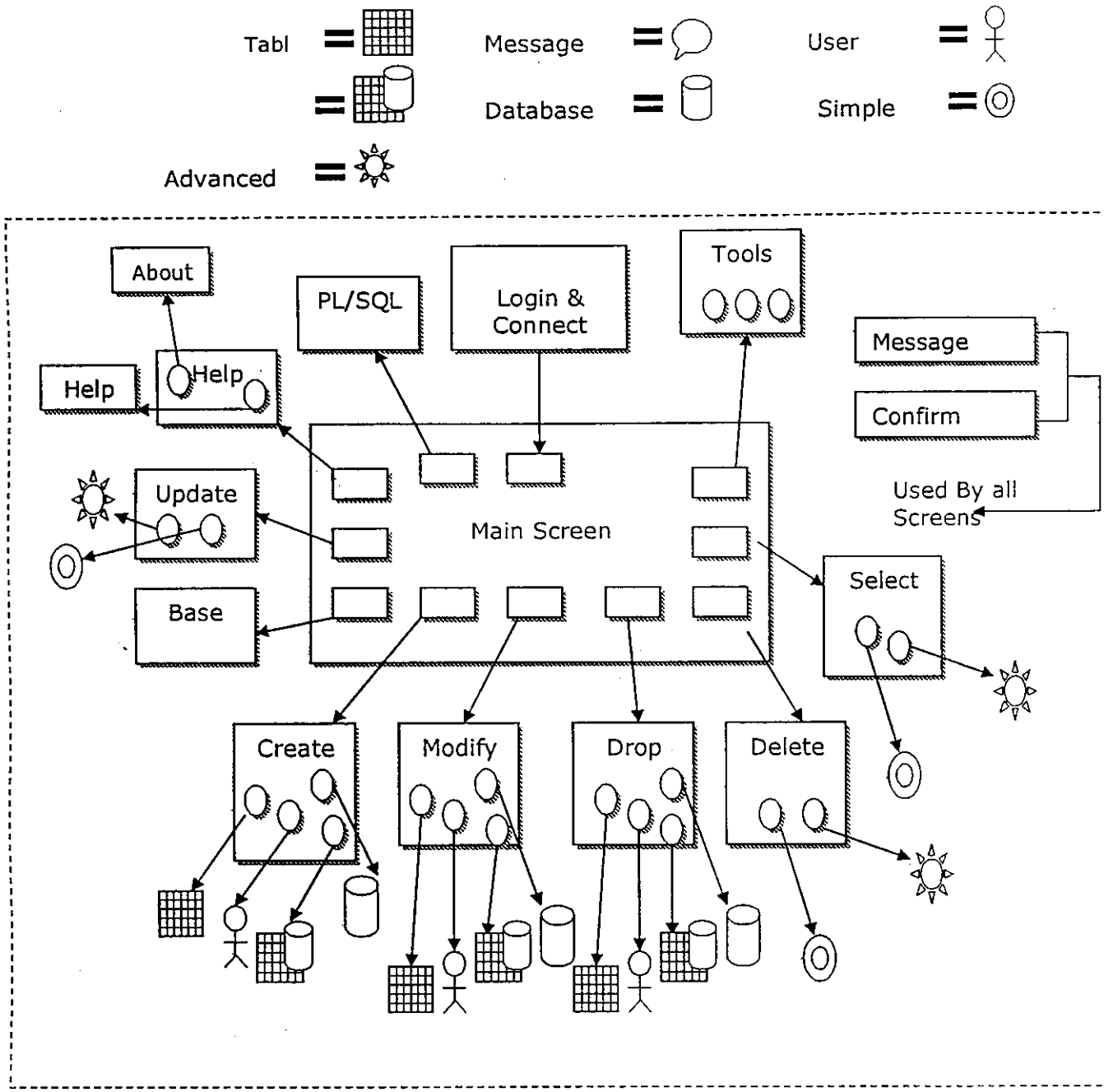
Screen Design



Component Description

S.No	Component Name	Component Type	Description
1	Delete Tools	Checkbox	Shows/Hides delete tools
2	Update Tools	Checkbox	Shows/Hides update tools
3	Drop Tools	Checkbox	Shows/Hides drop tools
4	Create Tools	Checkbox	Shows/Hides create tools
5	Ok	Button	Disposes the dialog

Remote Web Database Administration Screen Navigation



4.2 Process Design

Operational Process

Project Start-up

In this phase a project plan is prepared which gives a phased realization based on the prioritization of requirements. It will include the quality assurance plan, configuration management plan, risk management measures, change management procedure and deliverables with associated schedule.

Entry Criteria

- Proposal is accepted and the project has been awarded
- Project is initiated

Tasks

- Prepare the project schedule
- Define project organization, monitoring, control and reporting procedures.
- Define development methodology and environment
- Prepare the overall project plan

Validation and Verification

- Review project plan

Exit Criteria

- Approved project plan

Work Items

- Project Plan

Requirements Gathering and Analysis

In this activity the identified project team will work .The careful scheduling of these requirement gathering and analysis would help to utilize the time effectively and would thus maximize the productivity of the e-Plexus team

Entry Criteria

- Project plans are approved
- Hardware/Software and other resources required are in place

Tasks

- Understand the requirements for the specified systems from the existing documentation
- Document the extensions in existing functionality
- Analyze and define requirements
- Compile the System Requirements Specification
- Revisit the schedule and fixed price quote to verify if the scope has changed
- Revise the plan

Validation and Verification

- Review Project Plan
- Review System Requirements Specification

Exit Criteria

- System Requirements Specification approved by client
- Revised schedule and fixed price quote approved by client

Work Item

- Revised fixed-price quote for project development (if the scope is found to have changed)
- Software Requirements Specification (SRS)

Design

During this phase the e-Plexus consultants will be involved in object-oriented design modeling and refining the existing design model for various components and designing of the database. A Technical Prototype will be developed for one of the functions to prove the architecture proposed.

Entry Criteria

- Signed off SRS available
- Approved design standards and guidelines are available
- Updated Project plan is available
- Hardware/Software and other resources required are in place

Tasks

- Identification of components and their interfaces
- Building of the Object Models and the interaction diagrams
- Determine the physical characteristics in terms of how the design will be implemented in Java, MY SQL
- Design the database
- Compile the system design document

Validation and Verification

- Review detailed plan for the design phase
- Review the system design document

Exit Criteria

- System Design document approved
- Project Plan reviewed and revised

Work Item

- System Design document
- Project Plan

System Testing &Implementation

5. System Testing & Implementation

5.1 Coding and Unit Testing

During this activity the individual components will be coded and tested. Each component, after it is developed, will be subject to a walkthrough process, to be done by e-Plexus, to ensure that it meets the technical specifications, contains no obvious errors or inefficient processing and is written as per the standards. The concerned developer will be responsible for arranging these walkthroughs which will be attended by himself, the project leader, the QA coordinator assigned to the team . The unit test specification will also be reviewed during these sessions. If necessary several such sessions will be arranged until the approval from the QA group is obtained. The programmer will then proceed to test the program and will document the actual test results against the expected results. This process will be iterative until the result match or differences can be satisfactorily explained.

All changes that may have to be incorporated during this stage will be controlled through the established change control procedures. The development team will maintain a change control register with all relevant details for a change request such as which programs are affected, who is responsible, status of the programs, etc. The responsibility for ensuring that the Change Log is current will lie with the off-site Project Manager. The project leaders from the development team will maintain the Log.

Entry Criteria

- Approved System design document is available
- Standards and guidelines for coding and testing are available
- Hardware/Software and other resources required are available
- Updated project plan is available

Tasks

- Prepare plan for coding and testing phase
- Prepare Unit Test specifications
- Code Components.
- Conduct Program Code Walkthrough
- Test the Components
- Maintain Change Control Register
- Update Component Documentation
- Prepare User Manual
- Update Project plan

Validation and Verification

- Review code
- Review User Manual
- Review the updated Project plan

Exit Criteria

- Reviewed by QAG

Work Items

- Code
- User Manual
- Project Plan
- Acceptance Test Plan, Specifications and Test Data from client

5.2 System and Integration Testing

During this phase the unit-tested software will be tested by grouping functions into systems. It is expected that during this testing stage, incompleteness and deficiencies in design will become apparent. Acceptance test plan, Acceptance Test Specifications and Test Data should be delivered by client before the start of this phase. e_plexus will prepare the system test plan based on the system functionality and the acceptance test plan provided by client. After the individual testing of the systems they will then be integration tested where all the systems will be synchronized, integrated and tested as per the integration test plan.

Entry Criteria

- Testing standards and Guidelines
- Acceptance test plan, specifications and test data
- Unit tested and base-lined code
- Updated project plan

Tasks

- Prepare System Test plan and specifications
- Prepare Integration test plan and specifications
- Carry out system test of the components to be delivered
- Carry out integration test
- Refine User Manual
- Package system for delivery
- Update project plan

Validation and Verification

- Review system test specifications
- Verify test coverage
- Log defects and track them to closure
- Review test results
- Review the updated User Manual
- Review the updated Project plan

Exit Criteria

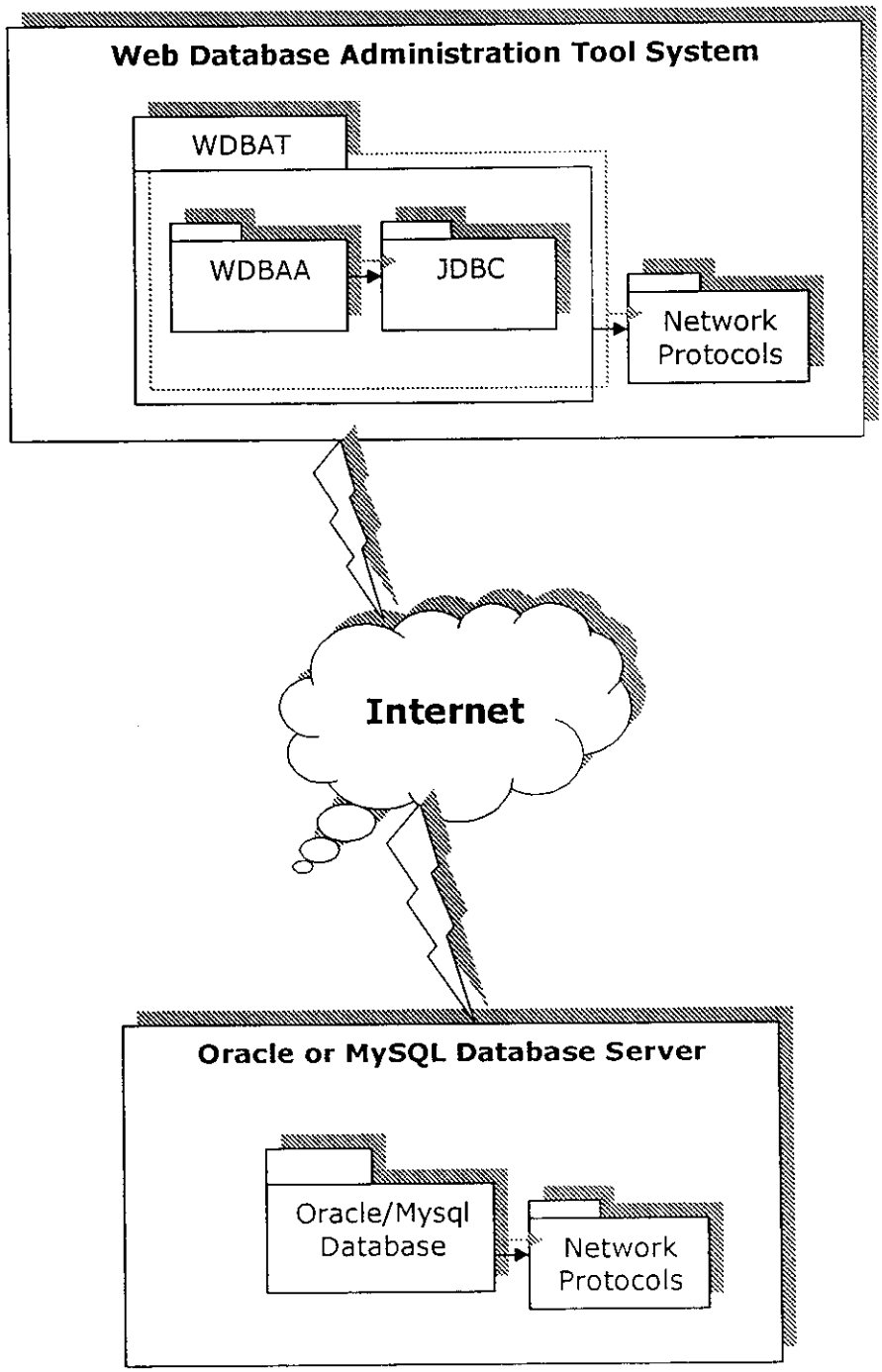
- Reviewed and inspection certificate obtained from e-Plexus QAG on system and integration testing.

Work Item

- System and Integration tested software
- User Manual

5.3 System Implementation - Deployment Diagram

The system is developed in such away that the combination of web database administrator (WDBA) and java database connectivity (JDBC) forms WDBAT. This is connected through the internet using the network protocols. The connection is made with the oracle or Mysql database server.

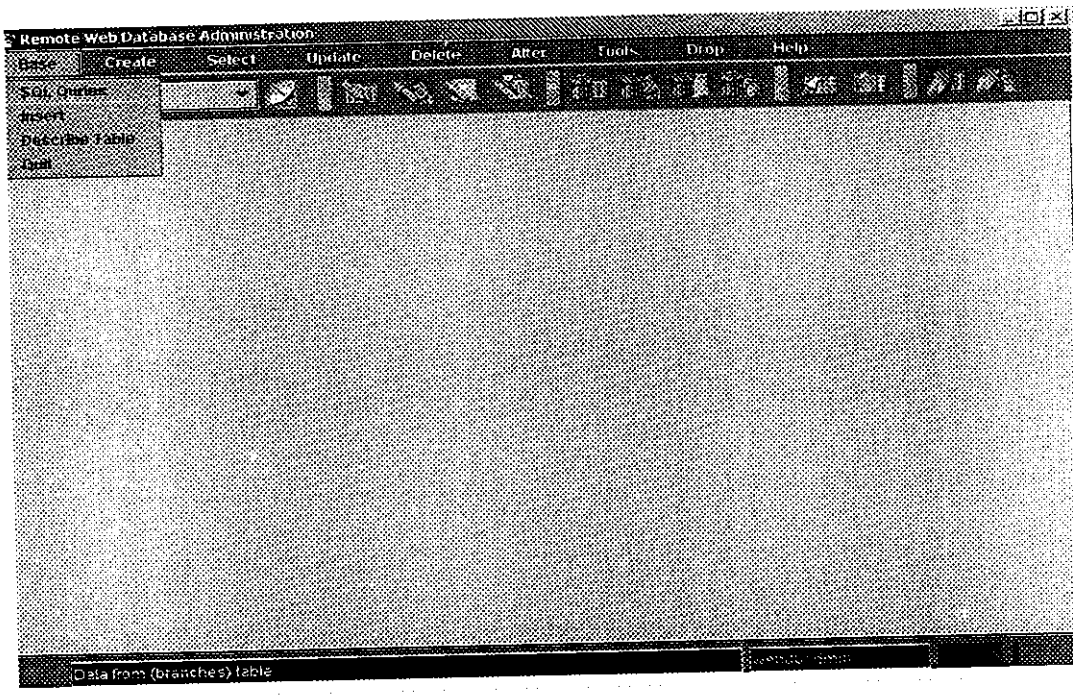


5.3.1 User testing

BASE

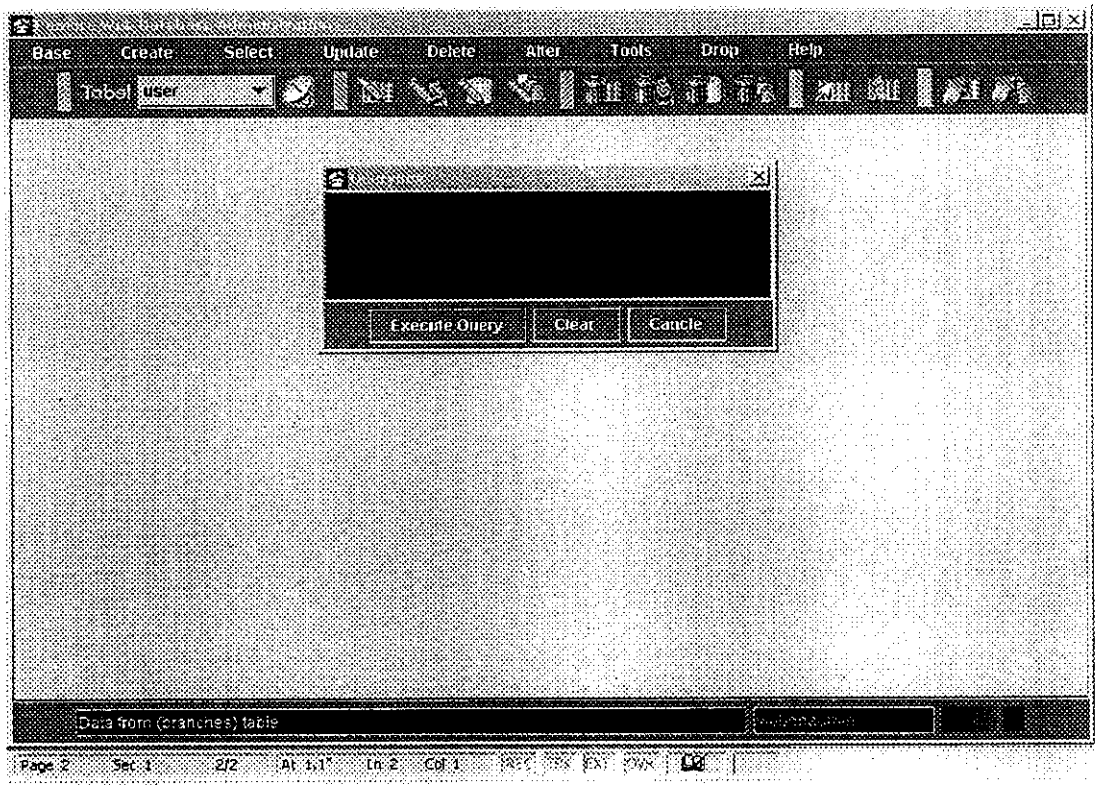
This is the startup menu which has the basic submenu options such as

1. SQL Queries
2. Insert
3. Describe Table
4. Quit



SQL Queries

This option gives a popup window in which we can give all the basic SQL queries which will be manipulated by the tool, This menu is given in such a way that when we need to give some manually typed in queries



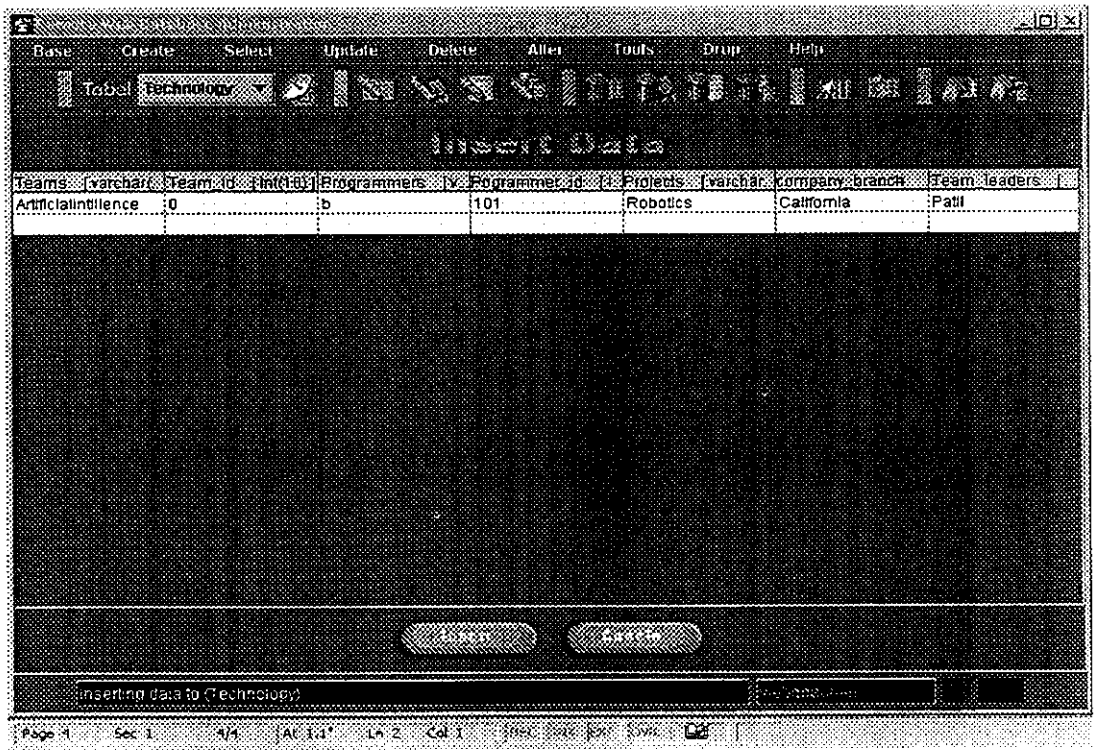
The query box projects from the center of the screen where we can type in the queries, immediately after the queries we can execute the queries by clicking the **Execute Query.** By clicking the **Clear** button the query box will be cleared

For canceling the process the **Cancel** button is clicked

Insert data:

The Insert sub menu is available in the Base Menu and it is used for insertion of data into the table. The Table into which data is to be inserted is selected from the Combo box in the Menu bar, which is available on the screen

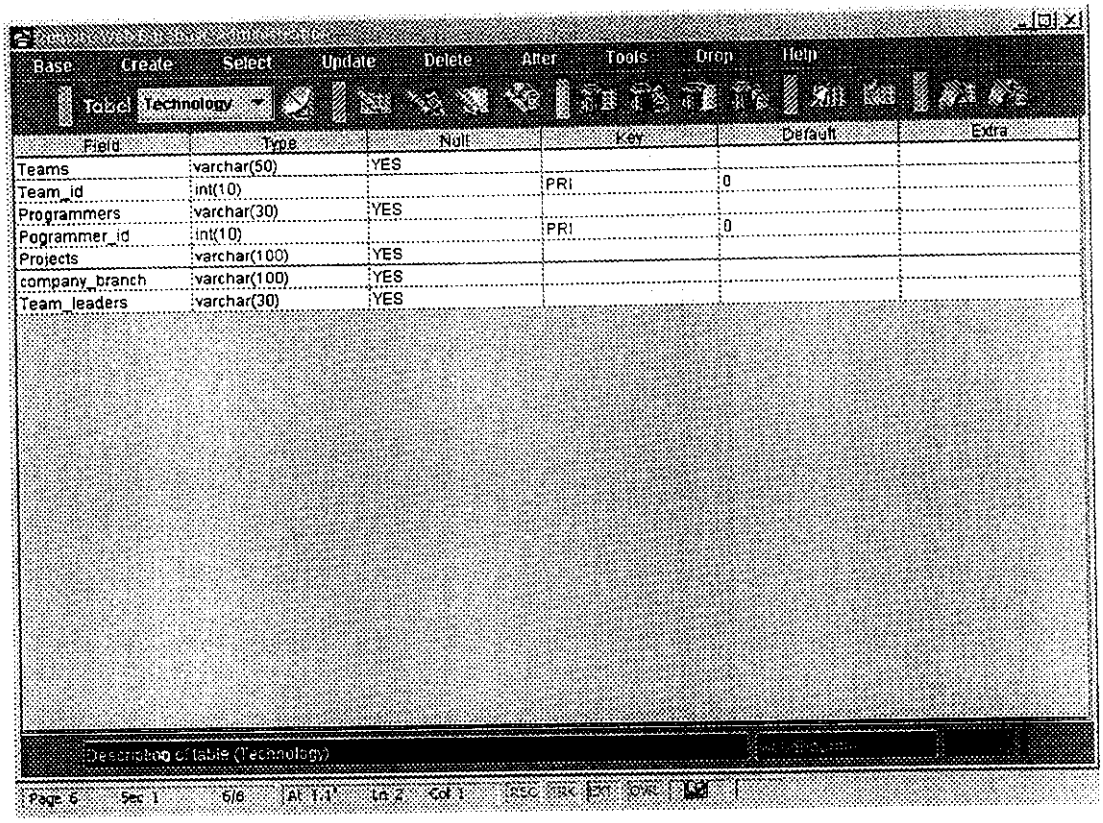
1. Select the Base Menu and click the Insert submenu.
2. Select the Table into which data is to be inserted.
3. Enter the data in each row according to the requirements.
4. Click the Insert button, which is available at the bottom of the screen.
5. For cancellation of the Insertion process click the cancel button in the bottom of the screen.
6. After successful insertion of the data the Message is displayed in the Status bar. **Data Inserted.**



Describe Table:

This Menu gives the Description of the table

1. Click the Combo box which is available on the Menu bar.
2. Select the Table which is to be described.
3. Select the Base menu and click the Describe Table submenu.



CREATE

This Menu gives the following option for Creation

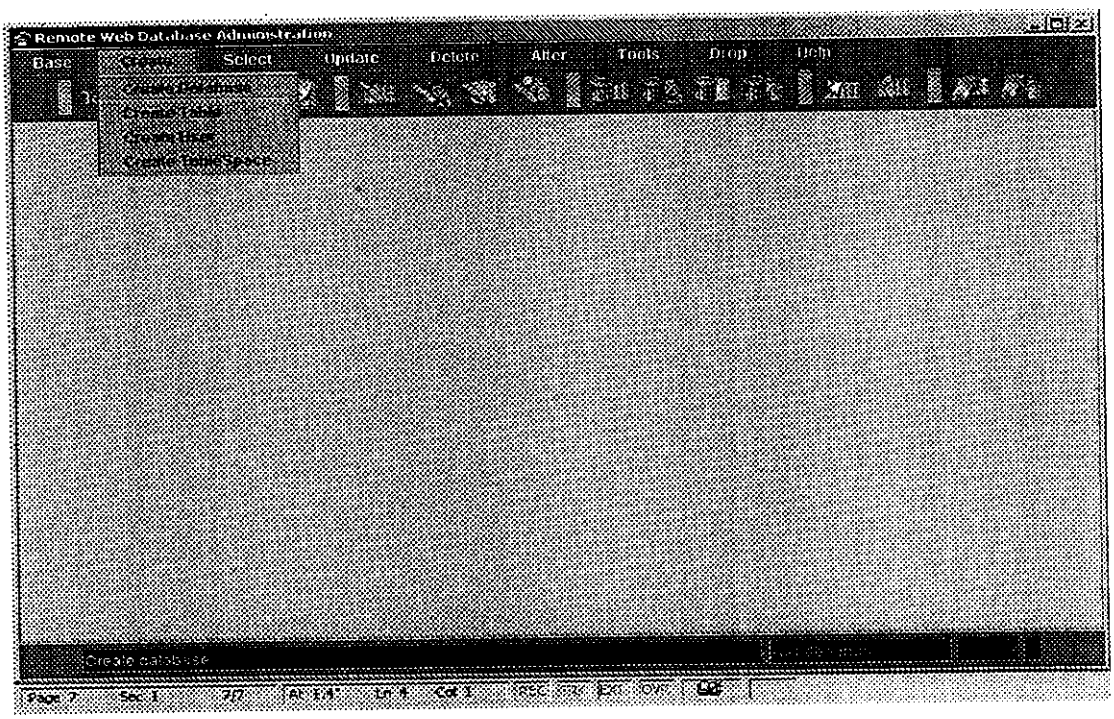
1. **Create Database.**
2. **Create Table.**
3. **Create User.**

When the user wants to Create Database, Table or Table space you have to select the Menu above and click the options required

For creation of new user and privileges the Create New user is clicked

Steps to Create

1. Select the Create Menu.
2. Select the submenu options.
3. Create the Required Database, Table, user.

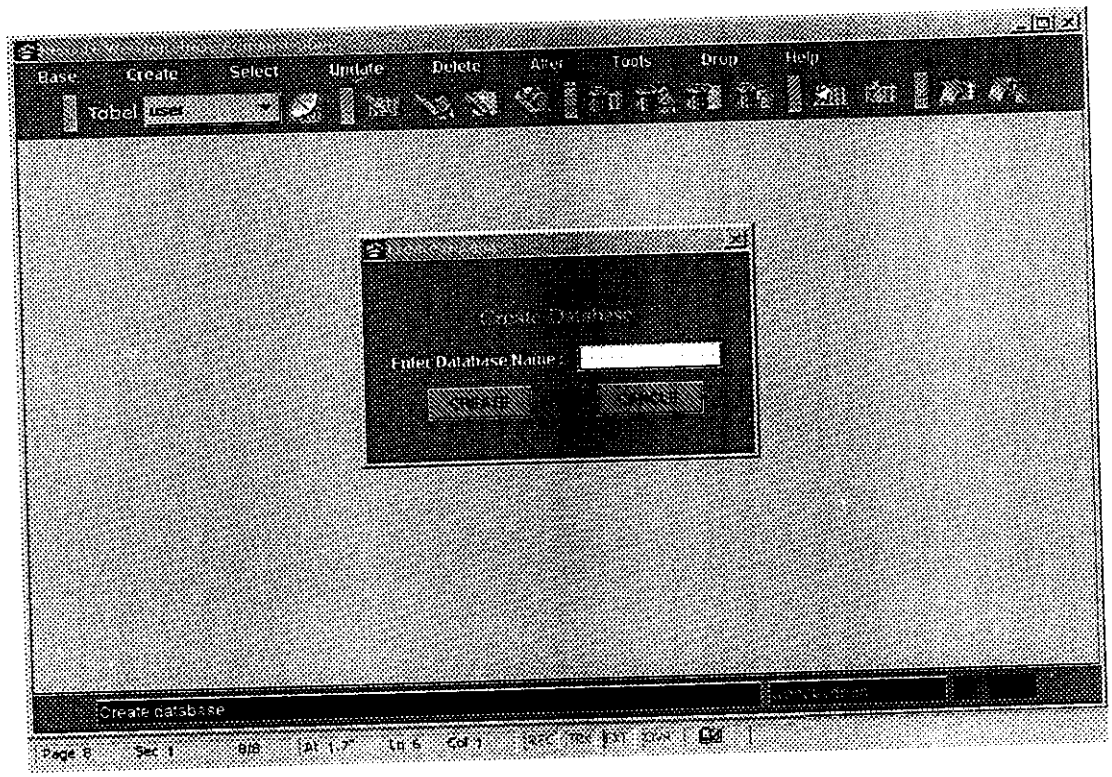


Create Database:

Click the **Create Database** sub menu, a new popup window projects from the center of the screen and the Following options are displayed

1. Enter the Database name.
2. After entering data press the create button in the window.
3. For cancellation of the process press the cancel button.

After creation of the database the message **Database Created** is displayed in the status bar.



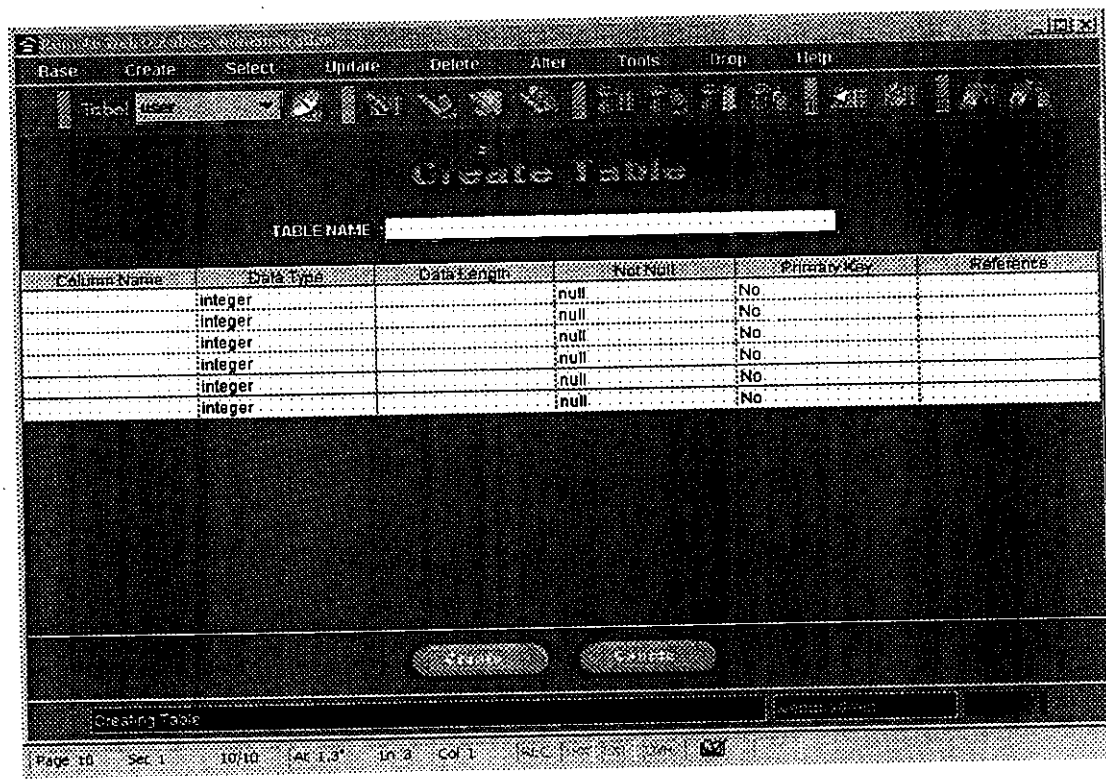
Create Table:

Click the Create Table Sub menu, a new popup window projects from the center of the screen and the following options are displayed

1. Select the combo box View the database names for uniqueness.
2. Enter the Table name.
3. Enter the Attribute values for that particular table.
4. Click the **Create** button at the bottom of the screen.
5. For cancellation of the process click the **Cancel** button.

For each column give the a valid column name with its data type, length Specification of Not Null, primary key identifier, Reference

After the successful creation of the tables the message Table created is displayed in the status bar



Create User:

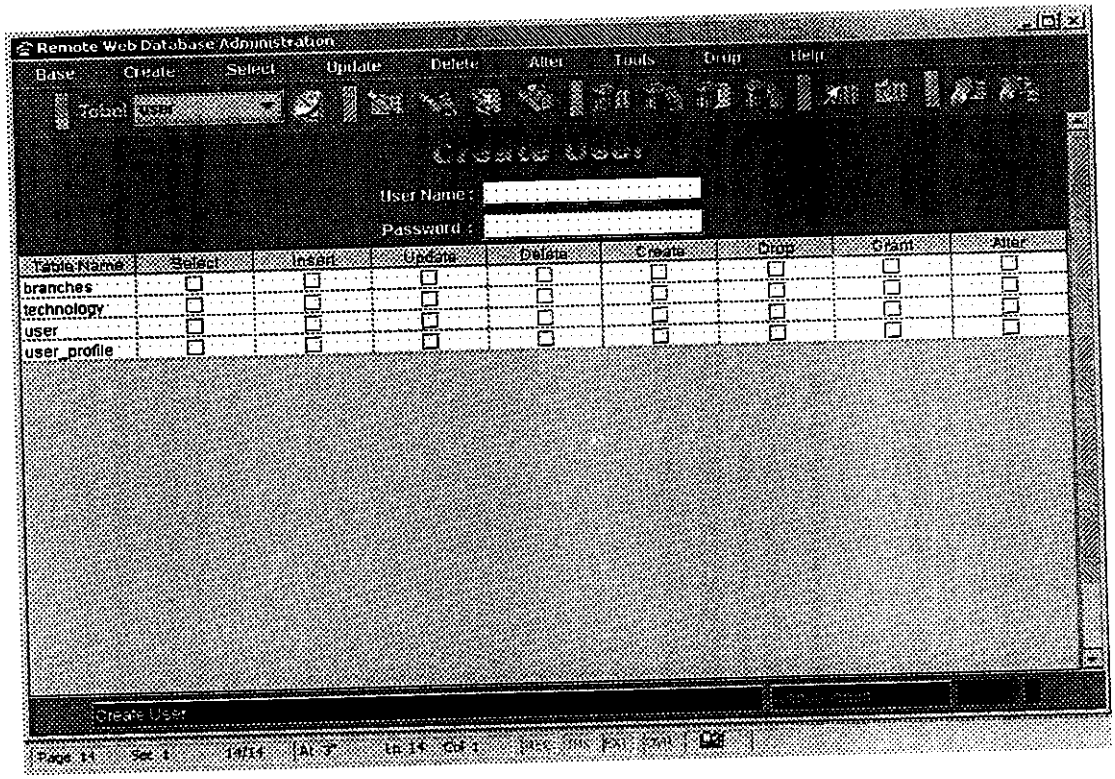
Click the **Create user** sub menu, a new popup window projects from the center of the screen and the Following options are displayed

1. Enter the new User name.
2. Enter Password for user.

There are options for the user for permissions for each individual table
The options are

Select Insert Update Delete Create Drop Grant Alter

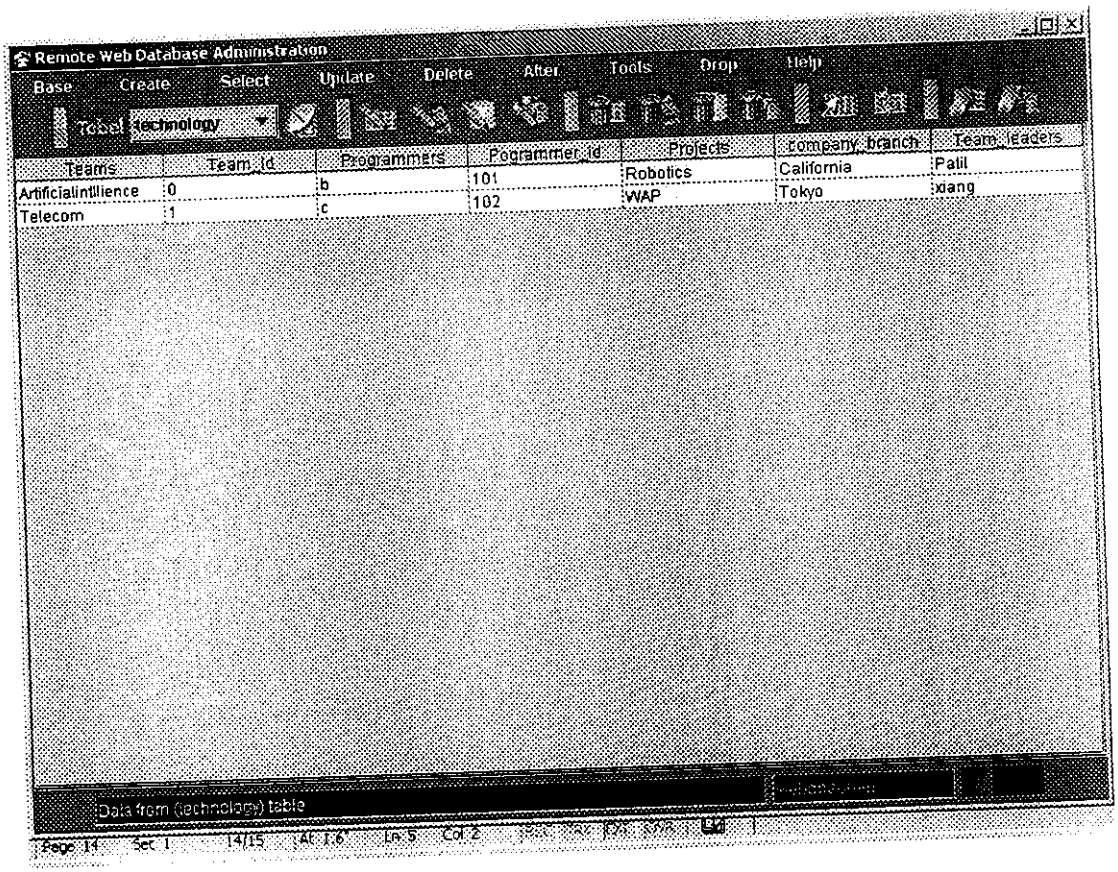
There are check boxes for all these options and the user is given permission by the DBA who is the authorized user of the database



Select data:

To select the data from the appropriate table

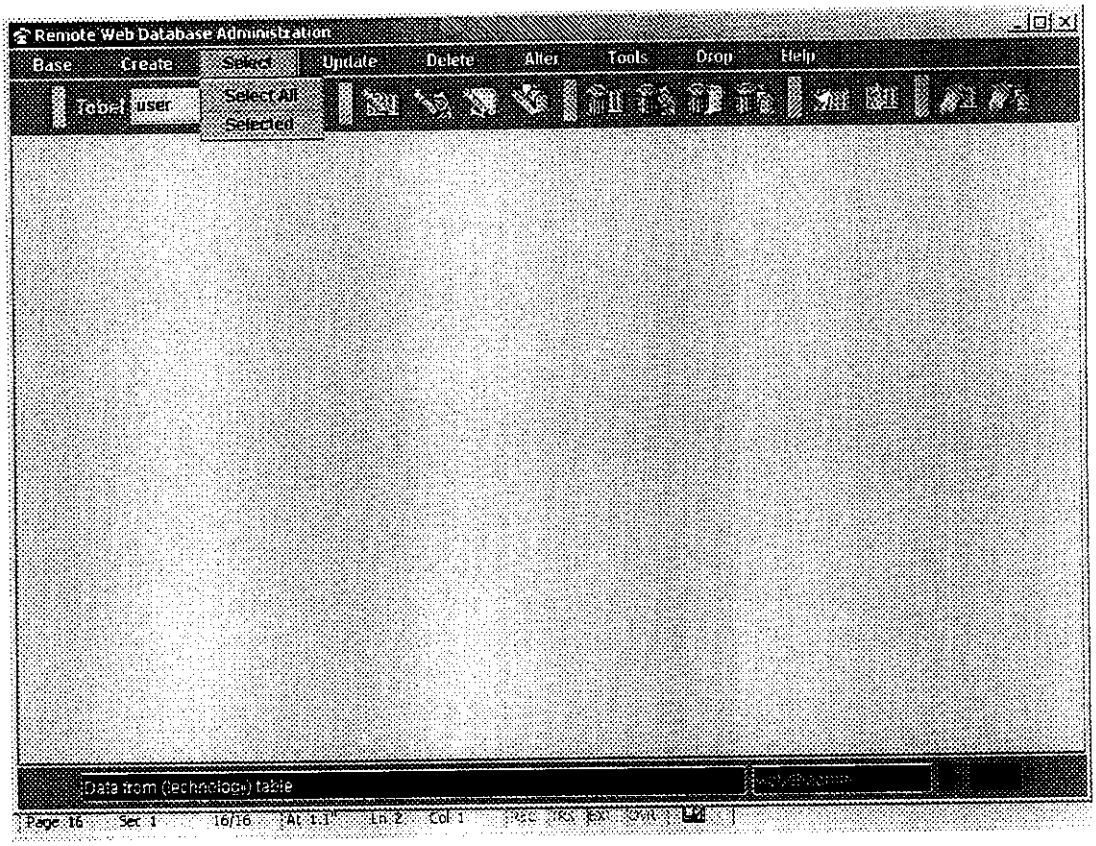
1. Select the Tables from which data are to be viewed.
2. Click the Select all sub menu.
3. All the Entity, Attribute and Attribute values are displayed on the screen.



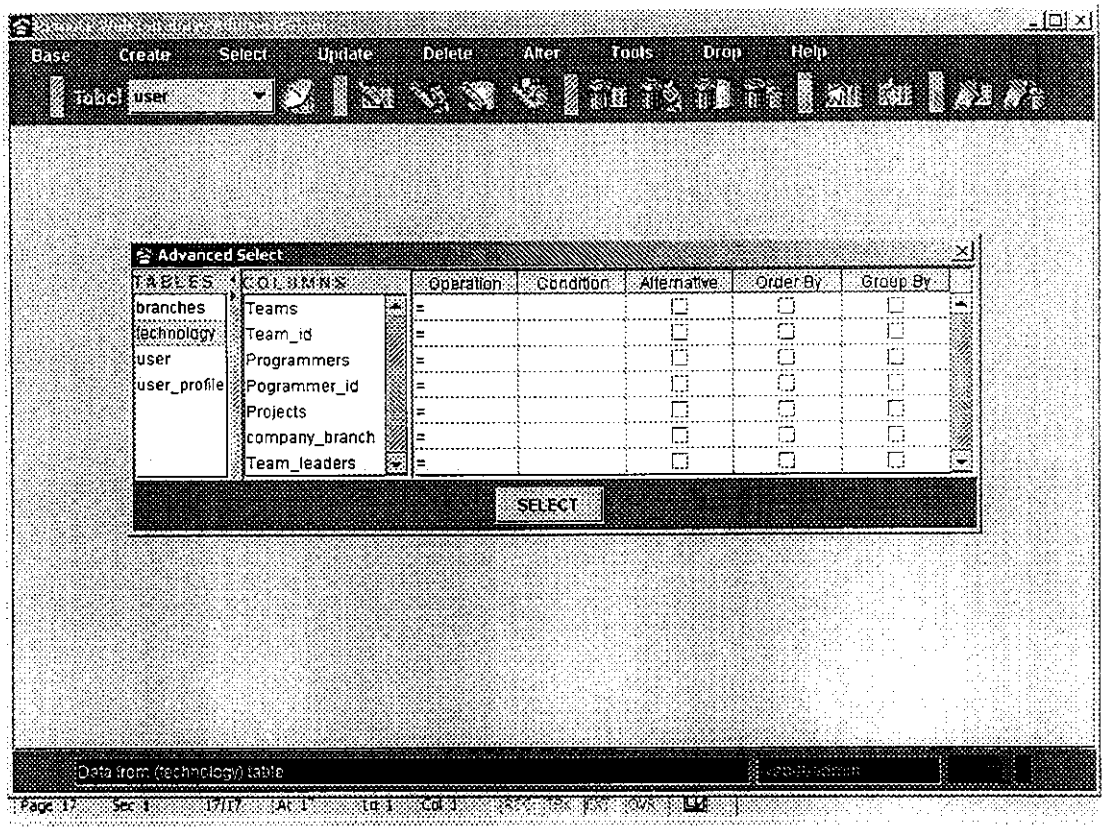
Advanced select:

To select the data from the appropriate table with Advanced queries

1. Select the Tables from which data are to be viewed.
2. Click the Selected sub menu.
3. All the Entity, Attribute and Attribute values are displayed on the screen.



The advanced selection option is used in such a way that it uses Operators and Conditions for selection further it is classified as selection of data using sub queries with **Alternate conditions, Order by, Group by .**



In Advanced selection All the Tables and Columns are available in the Database is displayed in a column in such a way that it makes the user more easy to select the values according to their own conditions

You have to select the operators, Give the conditions, click the check boxes to specify condition Alternative, Order by, Group by

1. Select the table column in such a way that which table data are needed to be selected.
2. Select the columns for checking with conditions.
3. Click the check boxes for the conditions.
4. Click the select button in the popup window.

Result is provided with the Message Tables selected

Update Table:

The Update menu gives the option for updating the Table which is already available in the Database, when we have to change the data which are already available in the Database

1. Select the Update menu on the menu bar.
2. Select the sub menu Update table.

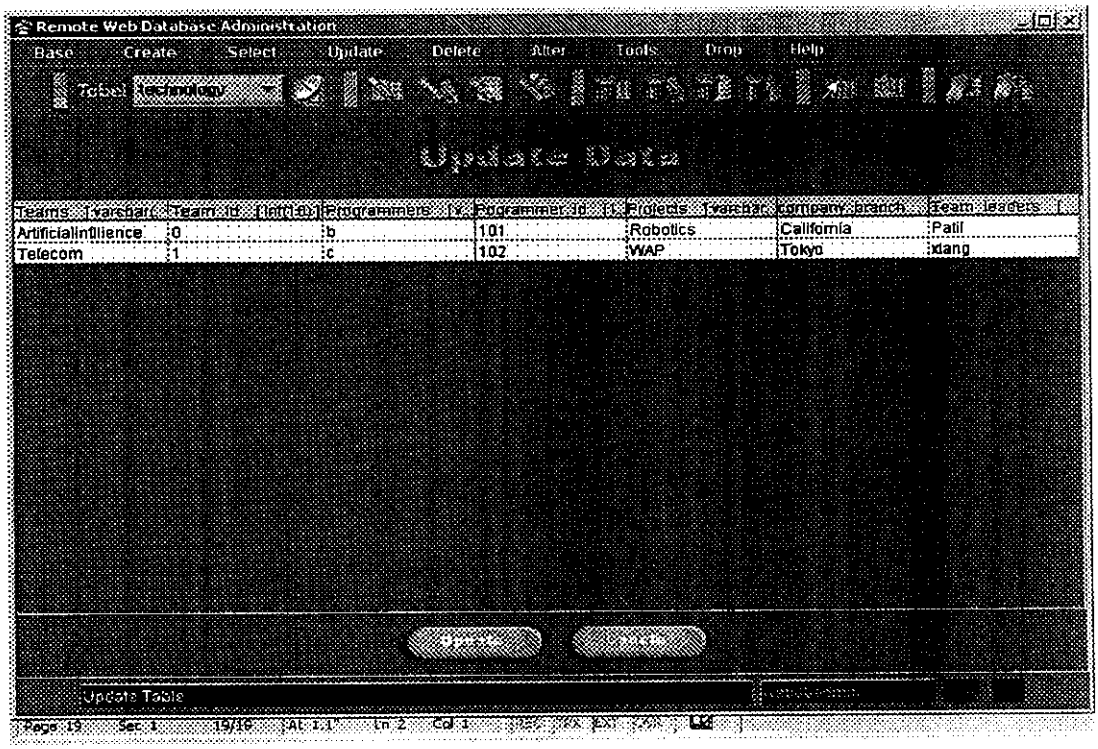
After selection of table all the data available in that table are displayed

The data are available in its respective column values

To update the column values

1. Select the column in which you have to update the data.
2. Enter the new data, which is to be available in the table.
3. After completion of updating the data Press Return key.

After successful completion of the Updating of data. The message **Table updated** is displayed in the status bar



Delete rows:

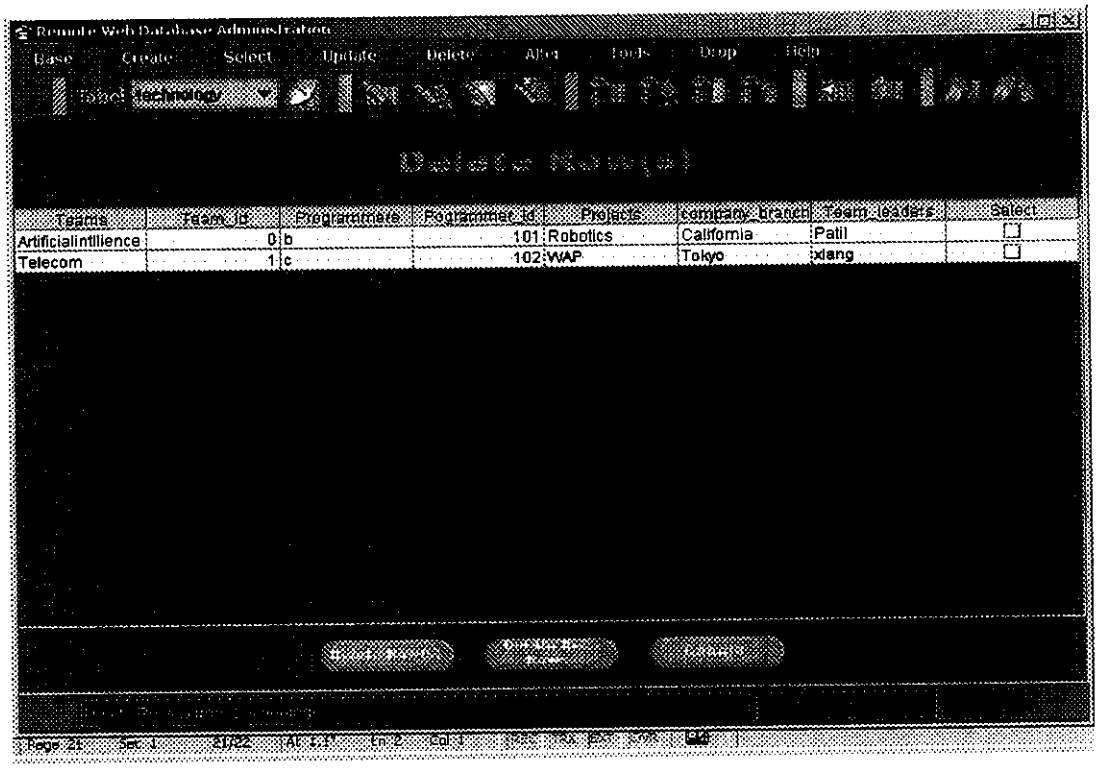
The data available in the tables can be deleted by selecting the particular rows which are to be deleted, each row can be selected individually or more than 1 rows can be selected and deleted

Steps involved in deletion process

1. Select the table from the combo box in the main menu.
2. Select the Delete Menu in the menu bar.
3. Select the Delete rows sub menu.

The Table with its data is displayed on the screen

4. Select the rows, which are to be deleted.



Alter:

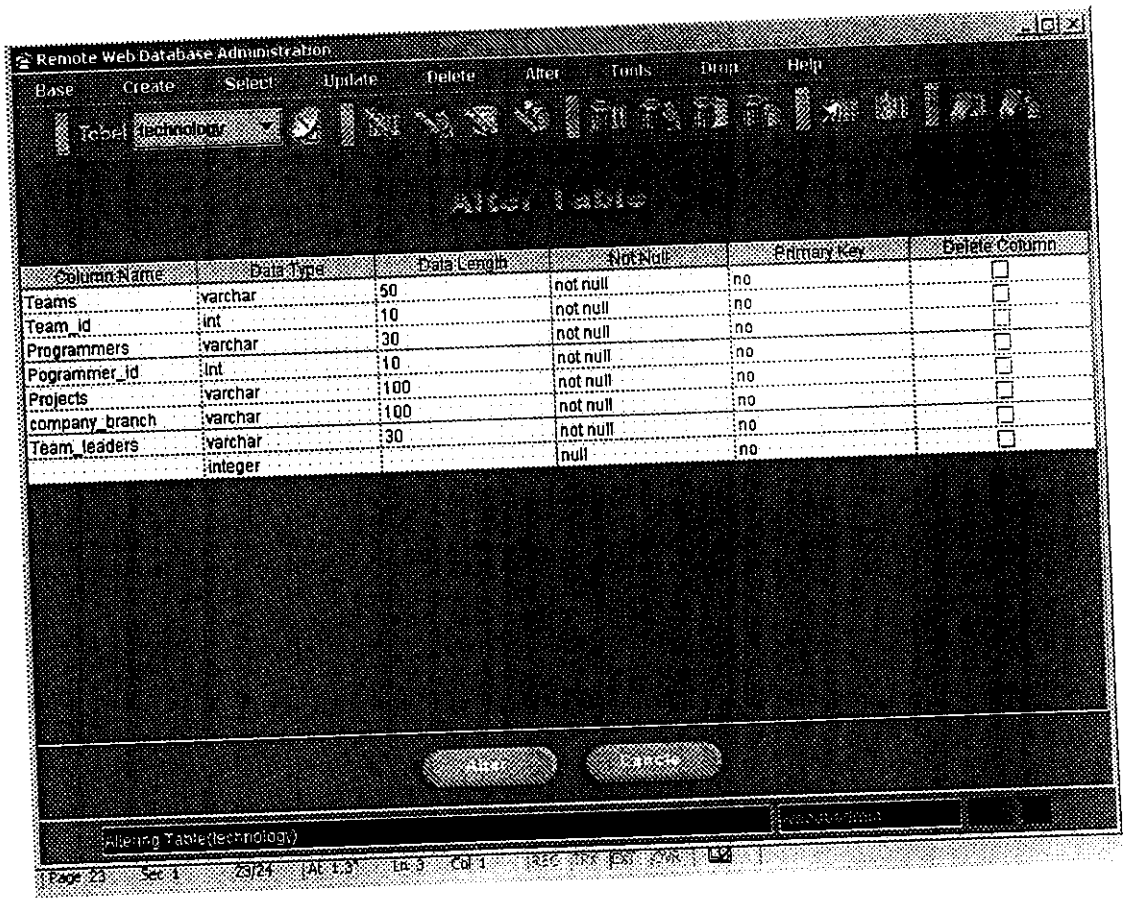
To alter the table in such a way to add new columns or alter the available Field name of the tables

1. Select the table from the combo box in the menu bar.
2. Select the Alter menu from the menu bar.
3. Select the Alter Table sub menu.

The Table is displayed with all its column values you can alter the values by selecting the cursor in each rows and entering the new values

There are options for delete columns; this is a special option for deleting the entire column

4. Click the Alter button, which is available at the bottom of the screen.
5. For cancellation of the process click the cancel button



Alter Table name:

The table names are in need of alteration at some time such that there are requirements for renaming the tables

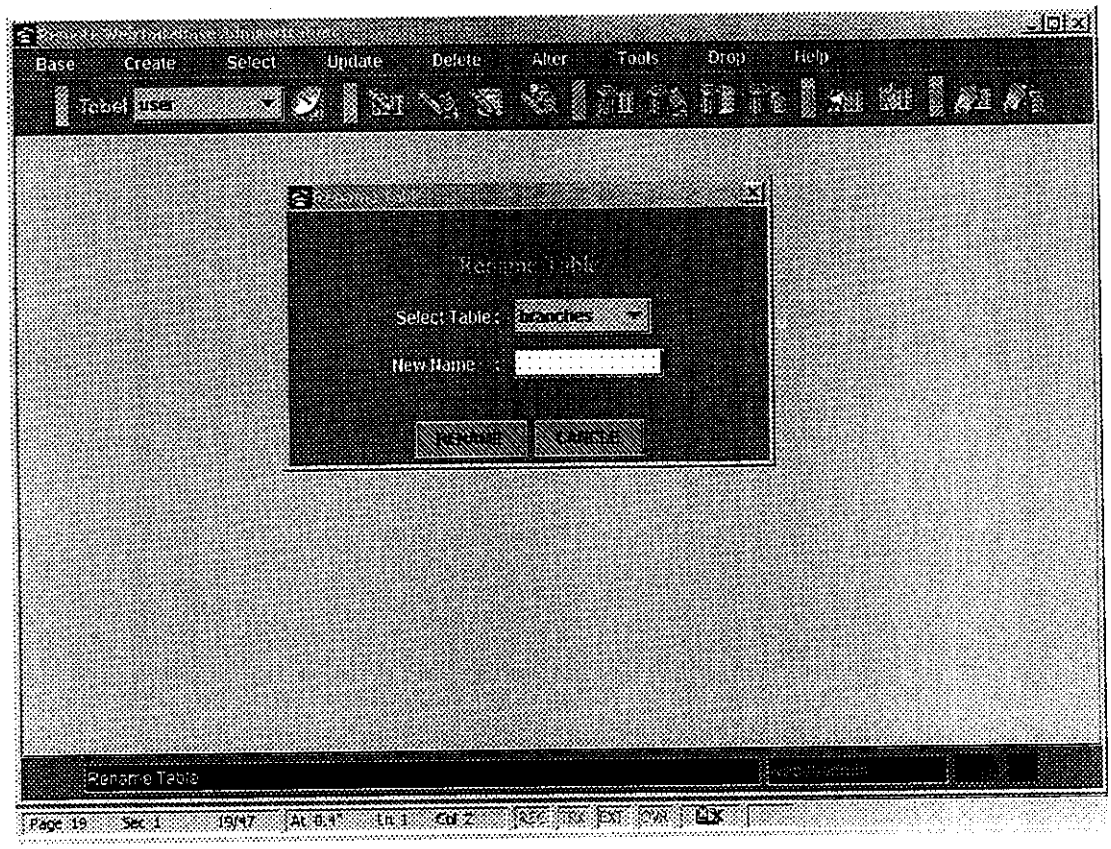
The Alter table name option is available in the menu bar

1. Select the Alter menu in the menu bar.
2. Select the Alter table name in the submenu.

A popup menu is displayed in the middle of the screen

3. Select the Table name which is to be altered.
4. Enter the new Table name.
5. Click Rename button in the popup window.
6. For cancellation of process click the cancel button.

After successful completion of the Renaming the message **Table name altered** is displayed in the status bar

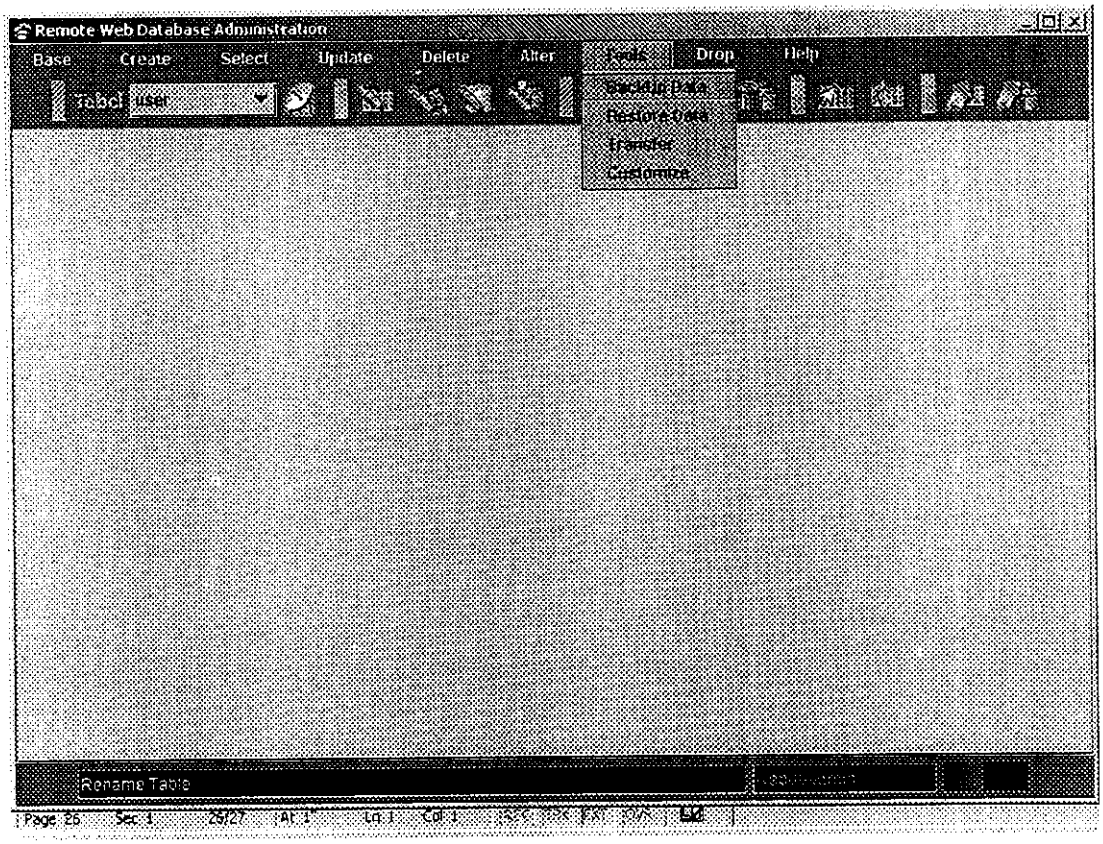


TOOLS:

Backup Data:

To store the data in another memory location this may be located in a remote server or in the same computer

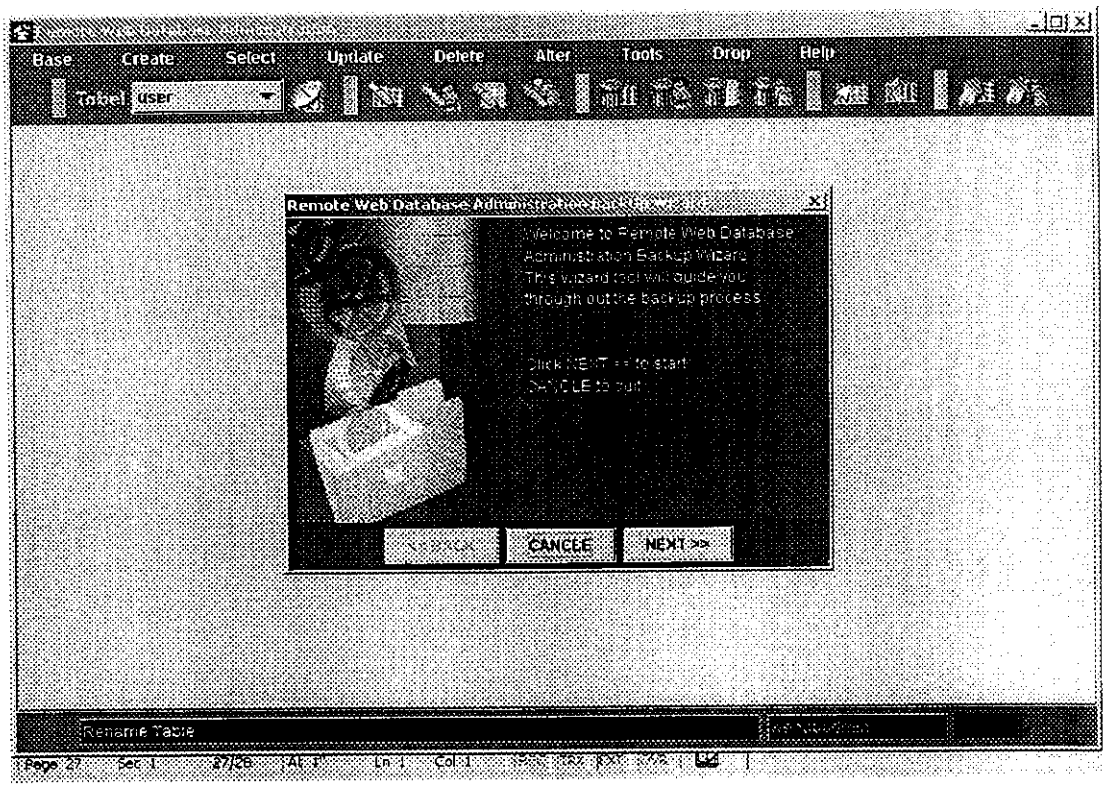
1. Select the Tools.
2. Select Backup Data sub menu.

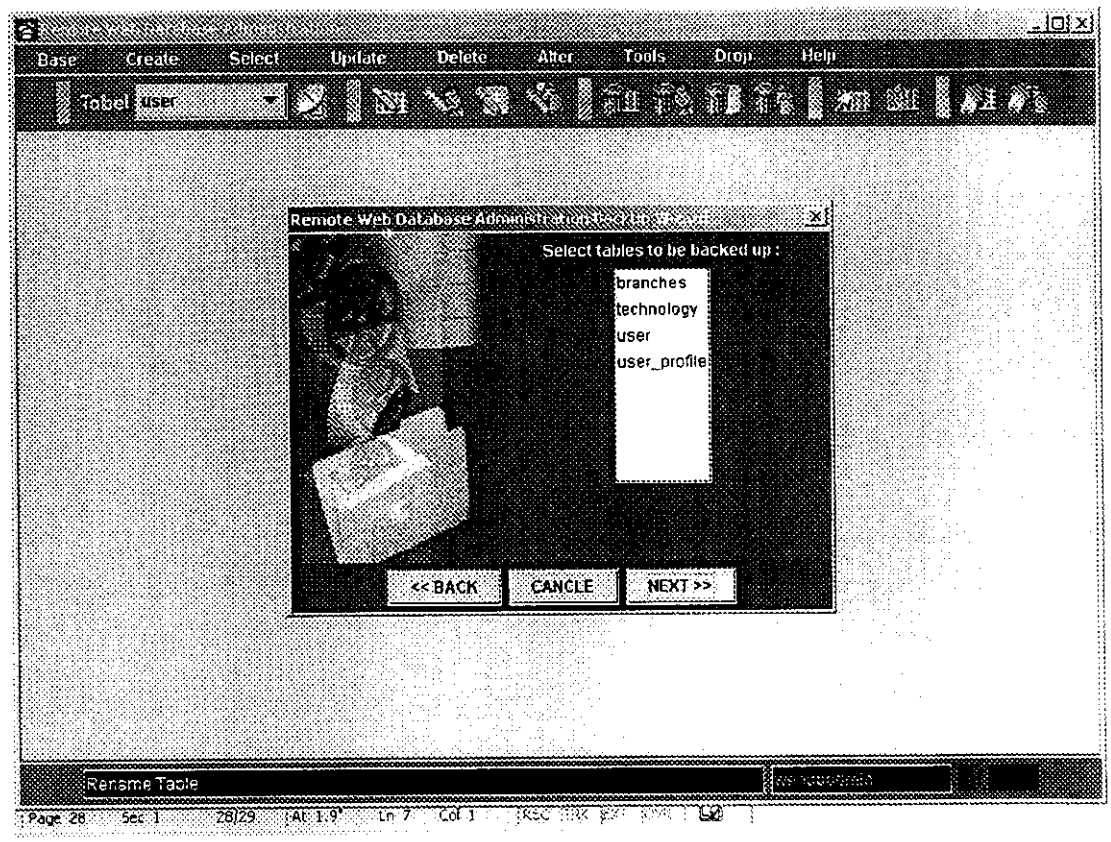


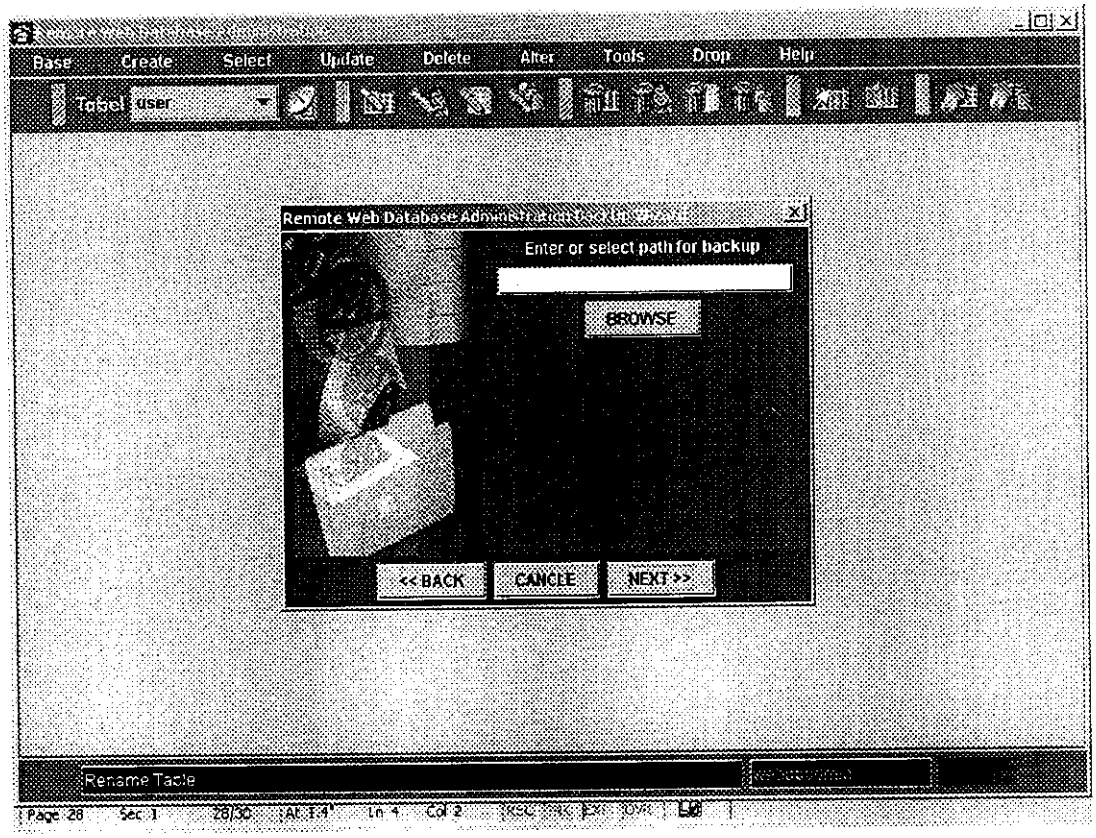
A popup window is displayed with the title

Remote web Database Administration backup wizard.

3. Click the next button for taking a backup.
4. Click the cancel button for cancellation of the process.


Base
Create
Select
Update
Delete
Alter
Tools
Drop
Help
Tobel
user
Remote Web Database Administration Backup Wizard
Welcome to Remote Web Database
Administration Backup Wizard
This wizard tool will guide you
through out the backup process
Click NEXT >> to start
CANCLE to quit
CANCLE
NEXT >>
Rename Table


Base
Create
Select
Update
Delete
Alter
Tools
Drop
Help
Tobel
user
Remote Web Database Administration Backup Wizard
Select tables to be backed up :
branches
technology
user
user_profile
<< BACK
CANCLE
NEXT >>
Rename Table



5. Select the tables, which are to be backed up and then click the next button.

6. Enter or select path for backup by clicking the browse button.

7. A new popup window is displayed in the center of the screen in which the location for Back up can be selected

8. Select the location and give a file name for the backup.

9. Click the save button in the Popup window.

10. Click the cancel button for cancellation of the Save process.

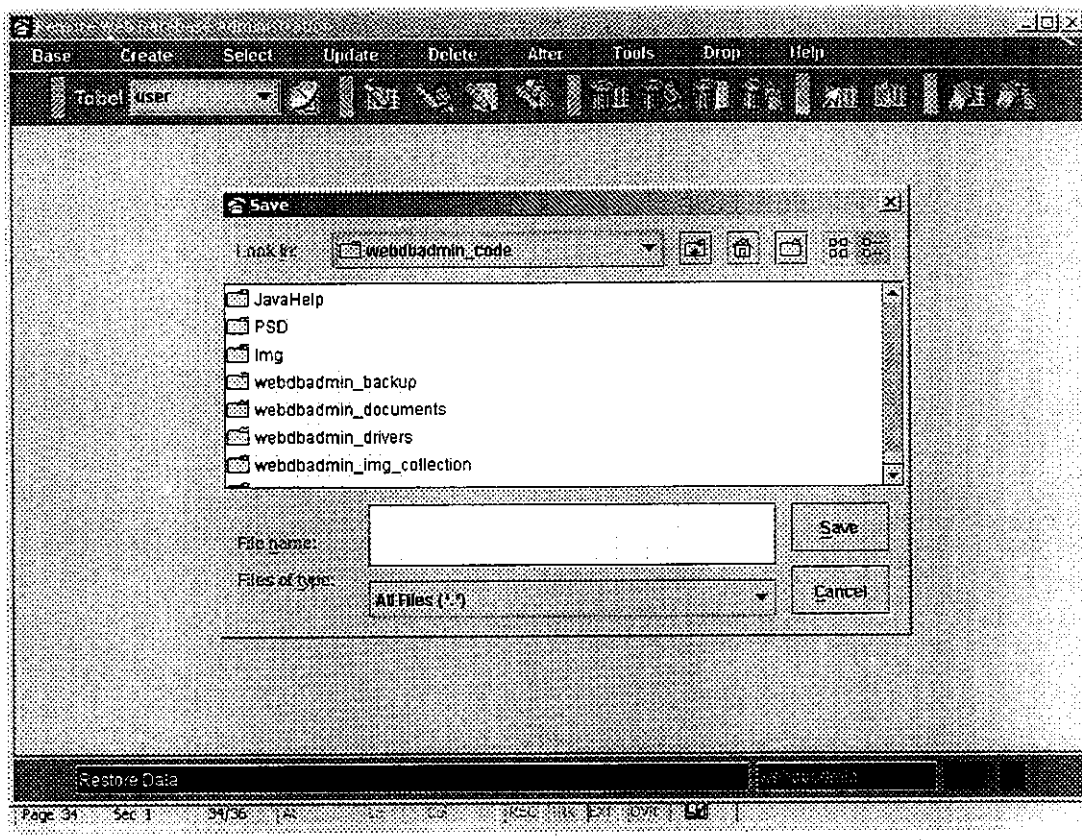
For Backup there are two options

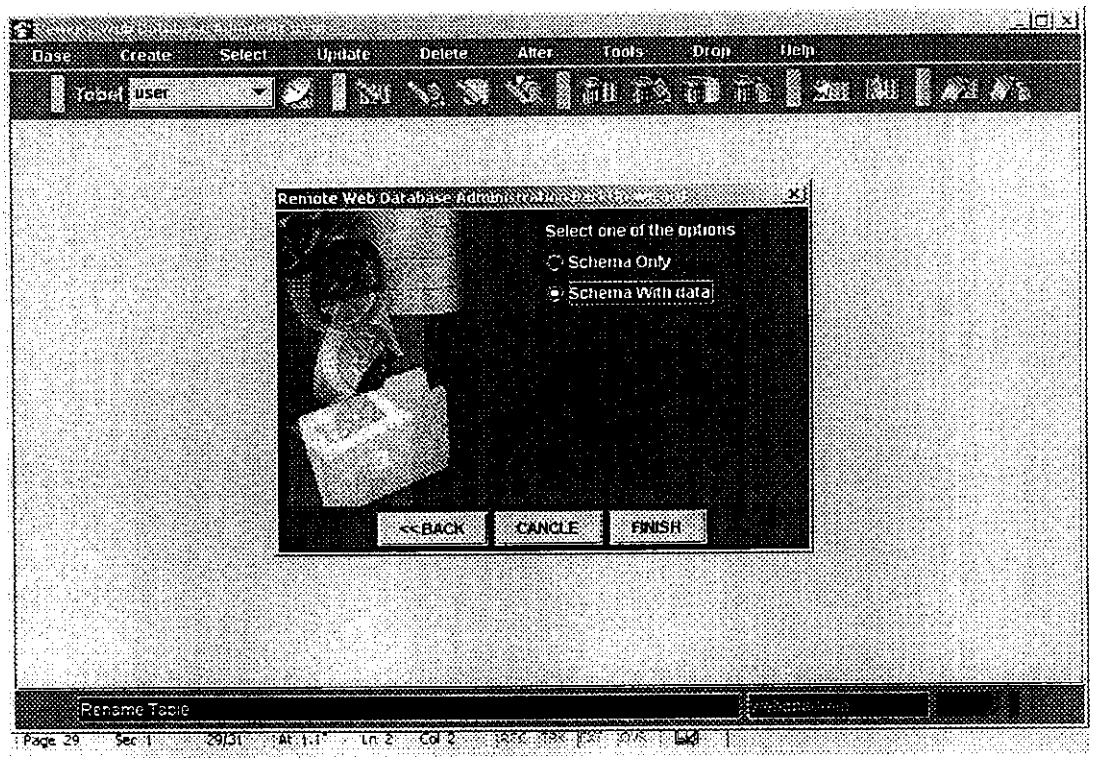
1. Backup of Schema only.

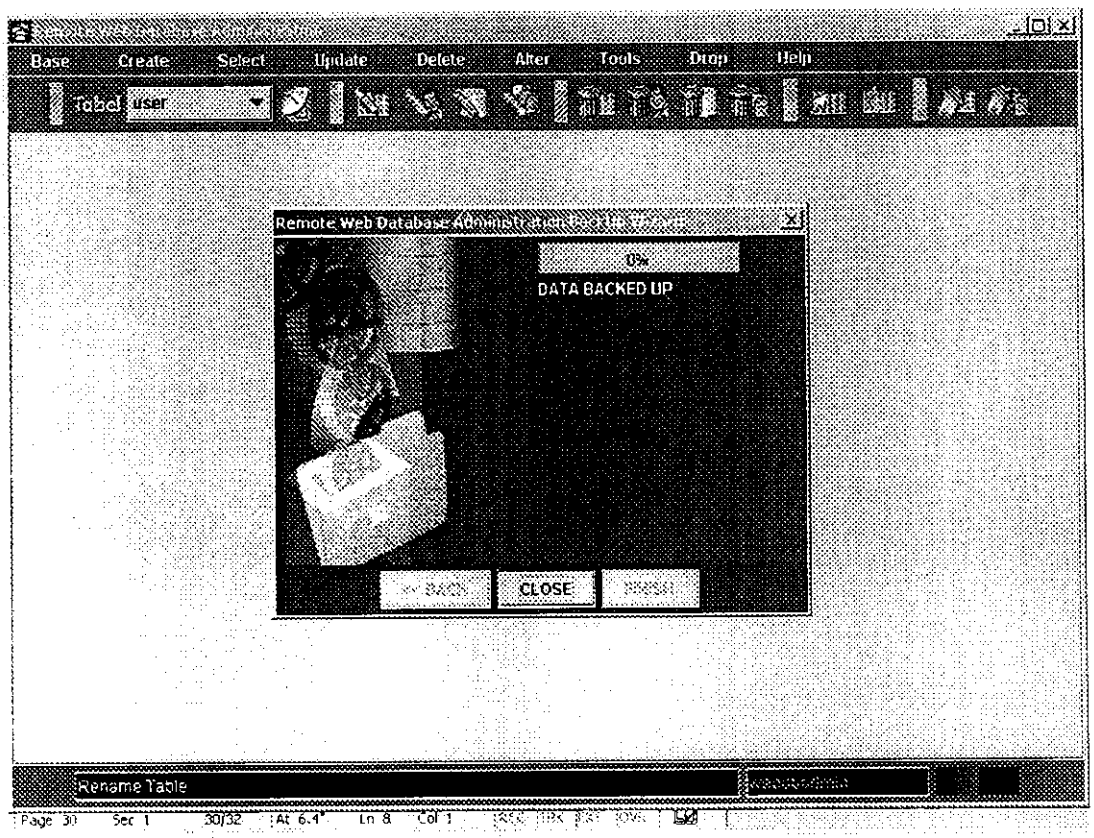
2. Backup of Schema with Data.

Click the **Finish** button for completion of the Backup

After successful completion the message **Data Backed up** is displayed in the status bar




Base
Create
Select
Update
Delete
Alter
Tools
Drop
Help
Tabel
user
Select one of the options
Schema Only
Schema With data
<<BACK
CANCLE
FINISH
Rename Table
Page 29
Sec 1
Ln 2
Col 2


Base
Create
Select
Update
Delete
Alter
Tools
Drop
Help
Tabel
user
0%
DATA BACKED UP
CLOSE
Rename Table
Page 30
Sec 1
30/32
Ln 8
Col 1

Restore Data:

To restore the data from the location where the data is backed up

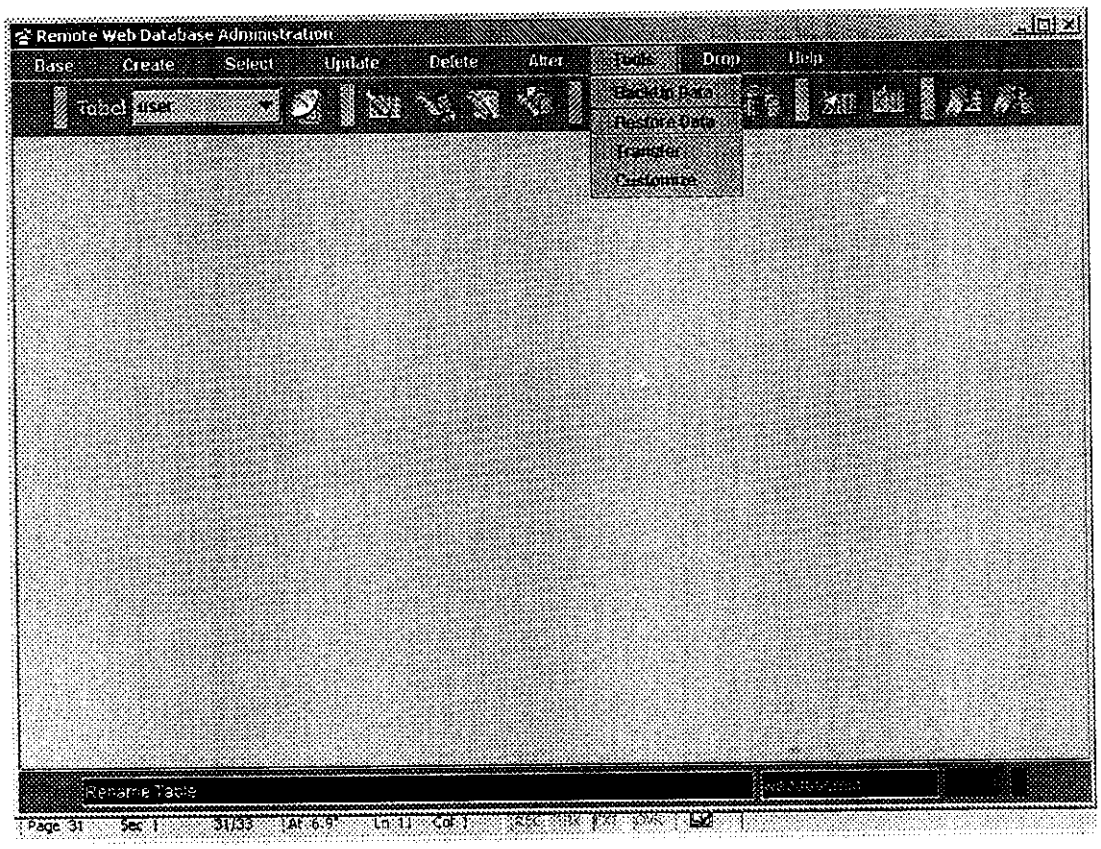
1. Select the Tools menu in the menu bar.
2. Select the Restore data submenu.

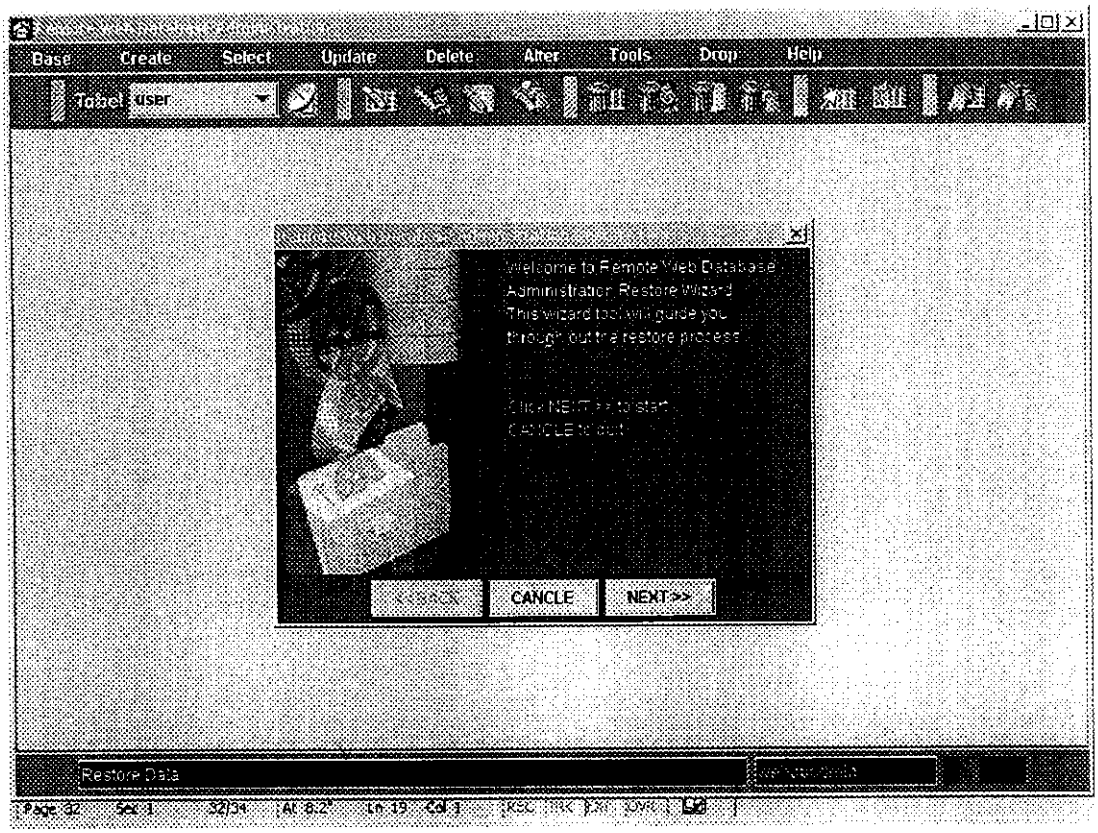
A new window projects from the center of the screen with the options for restoring the data

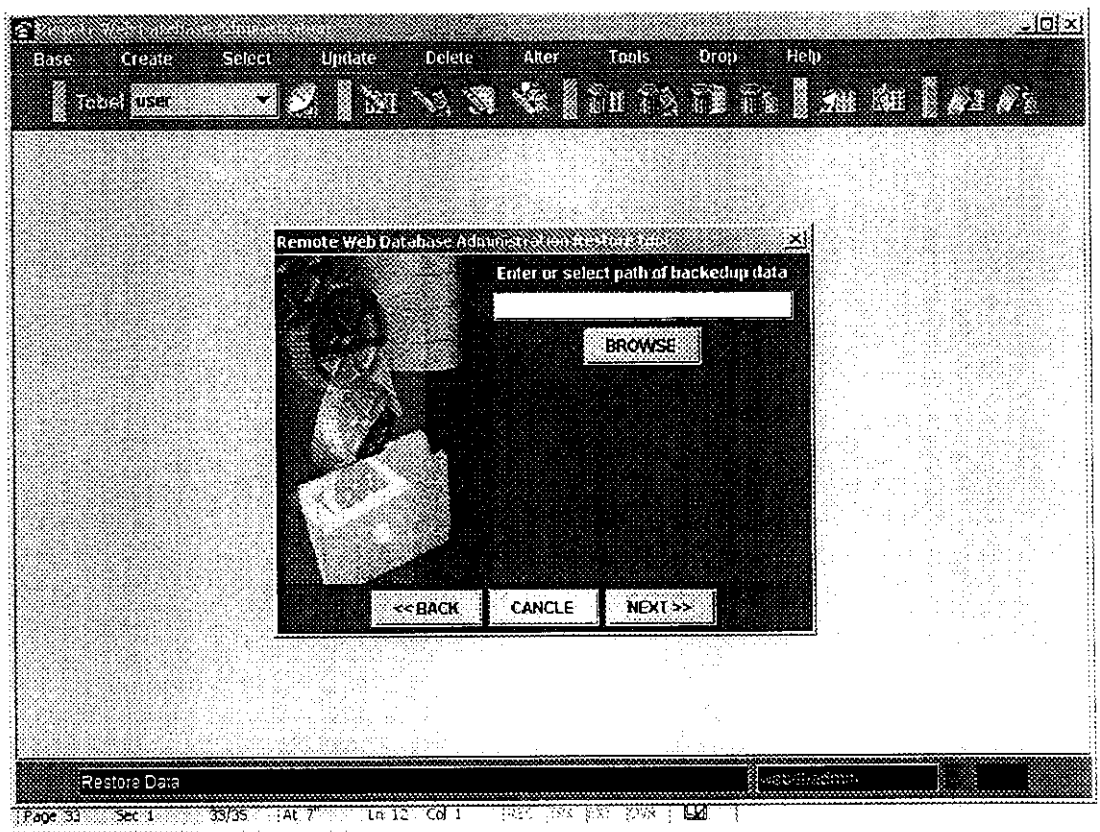
3. Click the next button.
4. Click the Browse button and Enter or select path of backed up data.
5. Click Open the file for retrieval of backed up data.

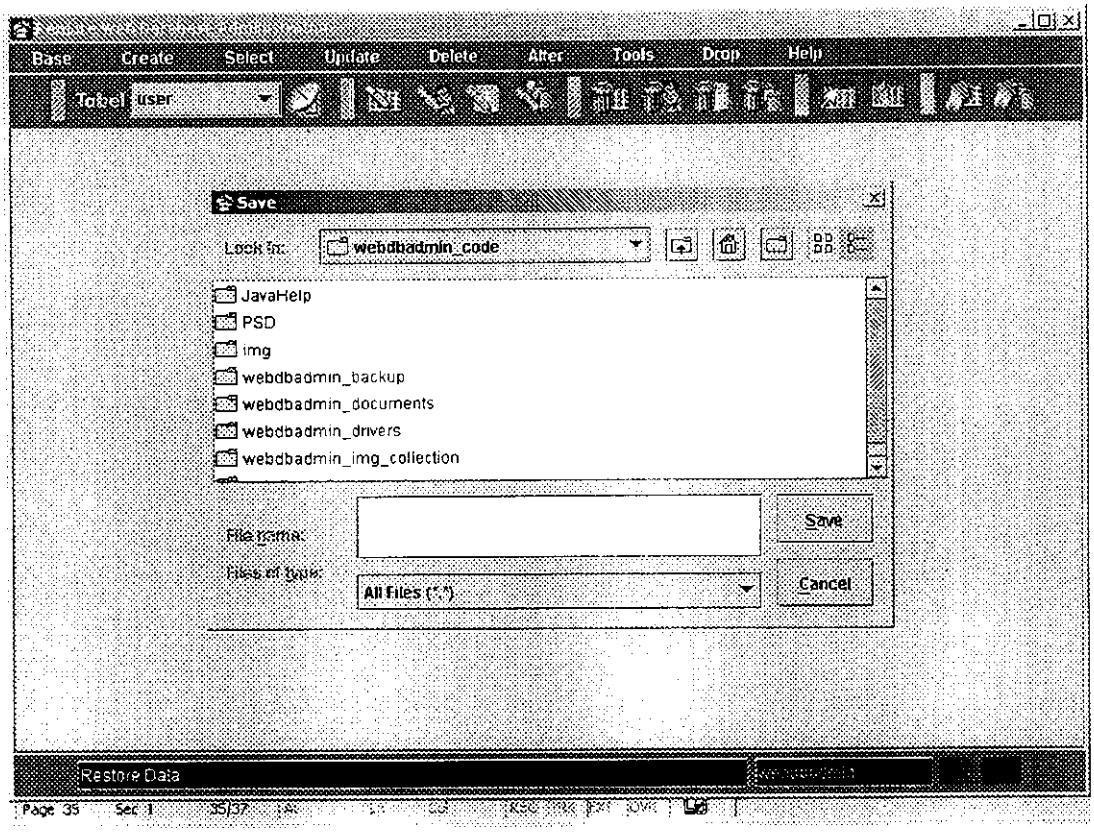
After successful completion of restoring data the Message **Backup restored**

Is displayed in the status bar




Base
Create
Select
Update
Delete
Alter
Tools
Drop
Help
Tabel
user
Welcome to Remote Web Database Administration Restore Wizard
This wizard tool will guide you through out the restore process
CANCLE
NEXT>>
Restore Data


Base
Create
Select
Update
Delete
Alter
Tools
Drop
Help
Tabel
user
Enter or select path of backedup data
BROWSE
<<BACK
CANCLE
NEXT>>
Restore Data


Base
Create
Select
Update
Delete
After
Tools
Drop
Help
Tabel
user
Save
Look in:
webdbadmin_code
JavaHelp
PSD
img
webdbadmin_backup
webdbadmin_documents
webdbadmin_drivers
webdbadmin_img_collection
File name:
Files of type:
All Files (*.*)
Save
Cancel
Restore Data
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Customize Tools:

The tools, which are available, can be displayed on the screen in such a way that the user can have options by selecting the tools to be displayed on the screen

1. Select the Tools Menu from the menu bar.
2. Select the Customize sub menu.

A new window projects from the center of the screen with the following options

General tools

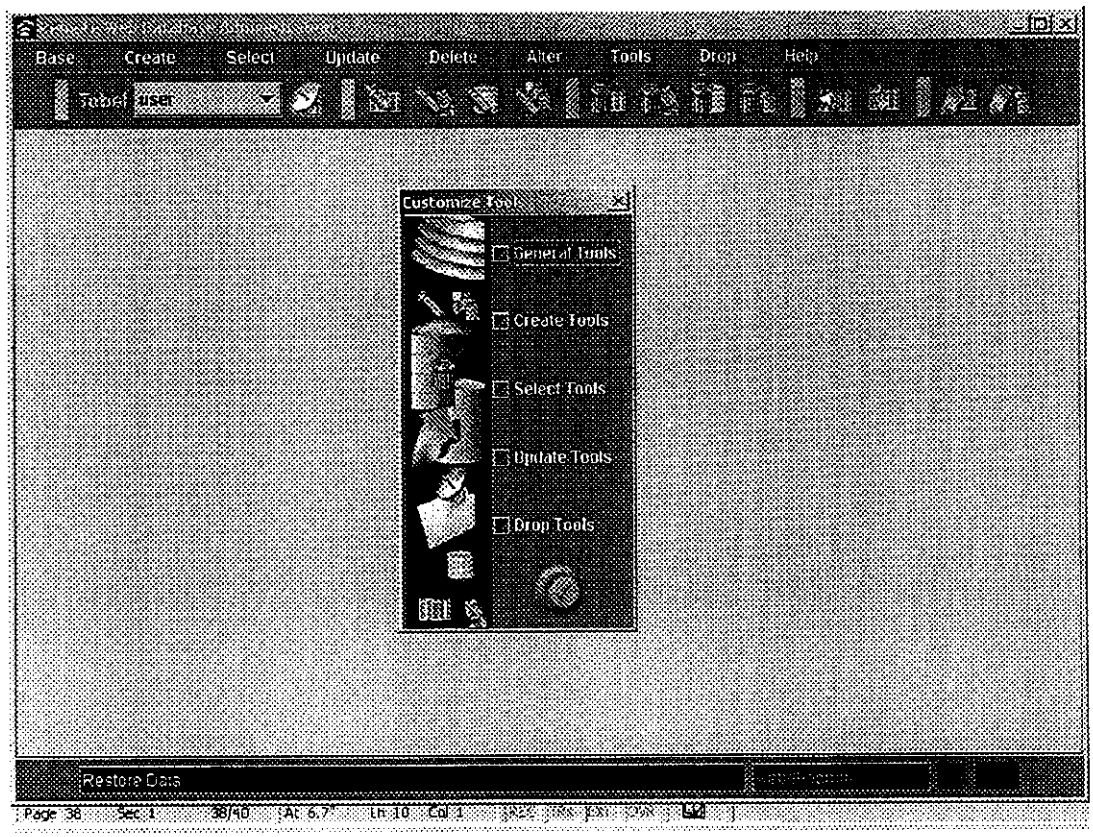
Create tools

Select tools

Update tools

Drop tools

3. Click the check box for the options, which are required by the user to be displayed on the screen.



Drop

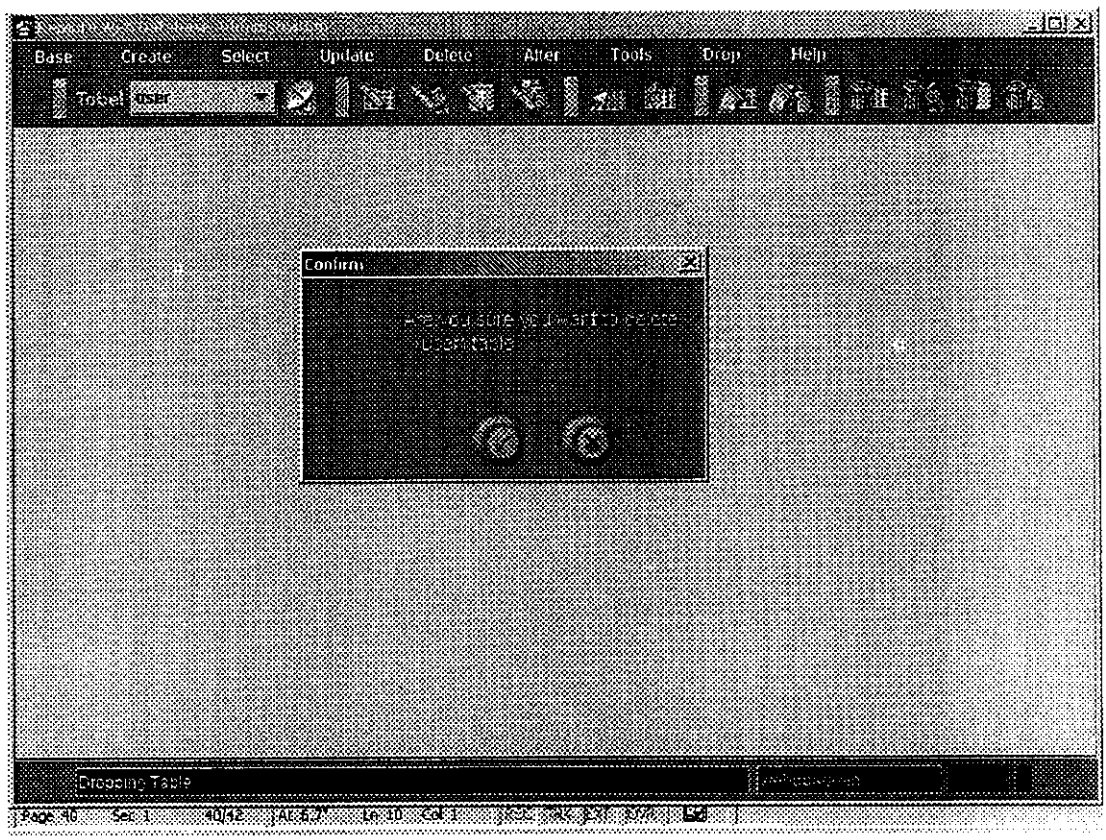
Drop Table

To drop the particular tables, which are, not in need this tool uses the Drop table option available in the Drop menu

1. Select the Table from the list of tables available in the combo box.
2. Select the Drop Menu fro the menu bar.
3. Select the Drop table sub menu.

A window is displayed in the screen with the message **Are you sure you want to delete (table name) Table**

4. Click the yes button in such a way that the selected table will be deleted.
5. To cancel the process click the cancel button in the window.



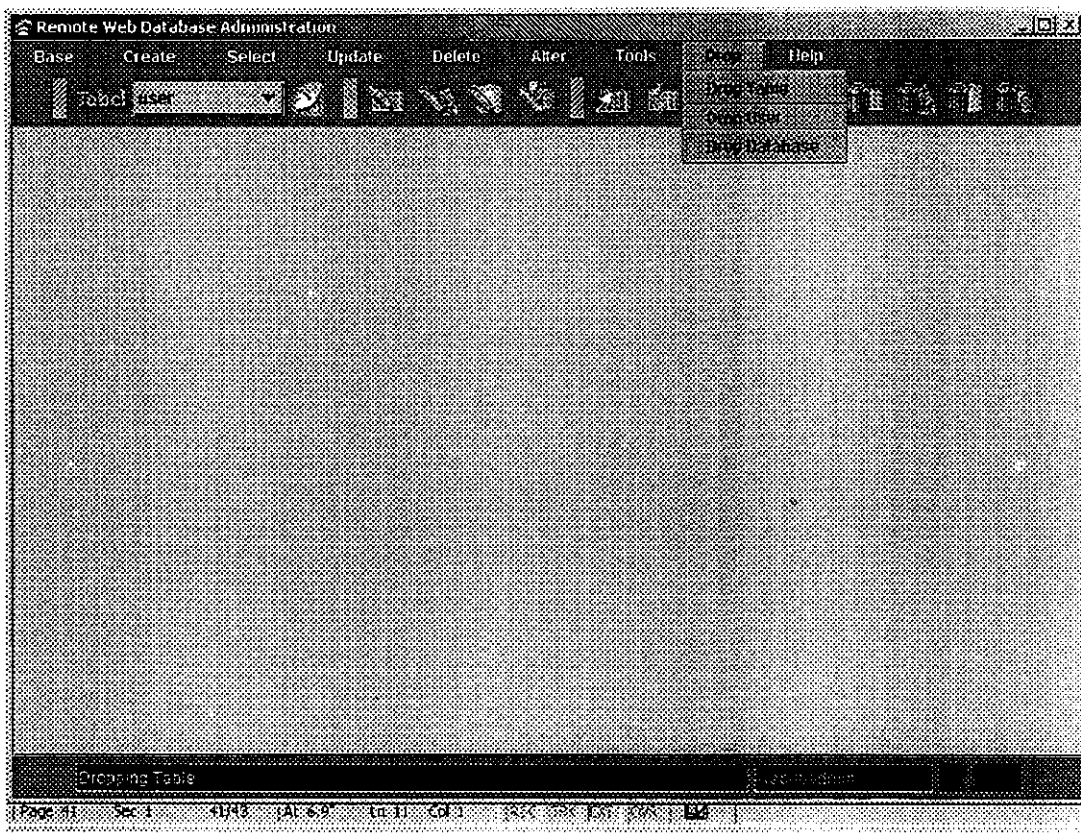
Drop user

To drop the particular user, which is, not in need this tool uses the Drop user option available in the Drop menu

1. Select the user name or enter the user name.
2. Select the Drop Menu fro the menu bar.
3. Select the Drop user sub menu.

A window is displayed in the screen with the message **Are you sure you want to delete (user name) user**

4. Click the yes button in such a way that the selected user will be dropped.
5. To cancel the process click the cancel button.



Help

The help menu give the user with all the necessary details of the software tool

1. Select the Help menu from the menu bar.

2. Select the about sub menu.
A new popup window is displayed on the screen with all the user option in such a way that you can have all the help about the software with

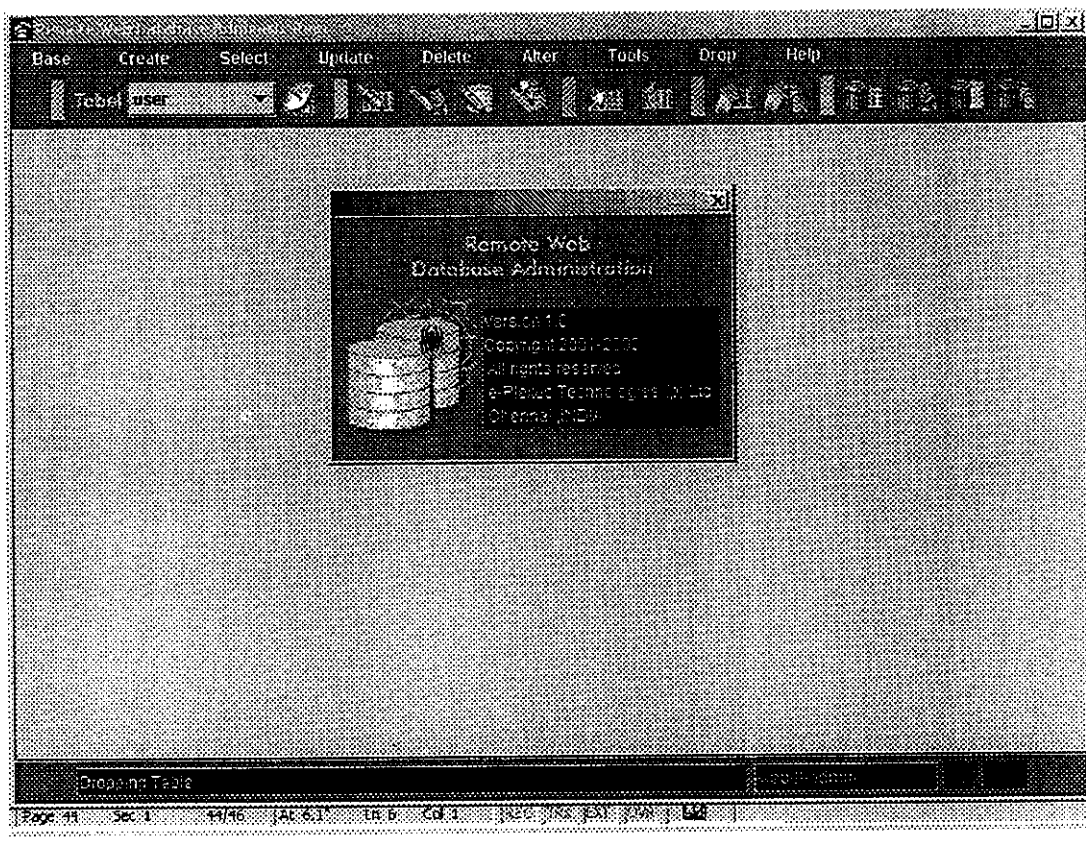
1. About the software.

2. Tips to operate the tool.

3. Help topics.

4. Search topics.

5. Software option.



Conclusion

6. Conclusion

The Project **Remote Web Database Administration** tool was successfully designed and developed for the client for their DBA activities

This tool is very user friendly and after successful testing and implementation the feedback was taken from the client users in such a way that the efficiency of the tool was fruitful

The Data transfer Module of this tool was not developed for the project fulfillment and this module will be the developed in the mere future for the advanced usage of this tool

At present this tool has access only to Mysql and Oracle databases. Further in the future this tool will have access to all databases available

Thus I conclude that this software tool has been developed satisfying the requirements put forth.

Scope for future development

Process

1. Select the data from source database.
2. The tool checks the validity of the data types in accordance to the destination database.
3. The changes needed to transfer the data are performed internally.
4. Data transfer is performed.

Remote web database administrator is connected in through the Internet and Al the DBA activities will be performed including the forth coming Data Transfer