

# **Information System for Liaison Company**

Submitted in partial fulfillment of the requirements

For the degree of

## **Bachelor of Engineering in Information Technology**

by

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(2015)



## Ramrao Adik Institute of Technology

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# CERTIFICATE

*This is to certify that, the dissertation titled*

“ Information System for Liaison Company ”

*is a bonafide work done by*

Manish Mahesh Mayekar

Salman Parvez Dangra

Raza Abbas Syed

*and is submitted in the partial fulfillment of the requirement for the*

*degree of*

Bachelor of Engineering

in

Information Technology

to the

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# Project Report Approval for B.E.

This is to certify that the project entitled "*Information System for Liaison Company*" is a bonafide work done by *Manish Mahesh Mayekar, Salman Parvez Dangra, and Raza Abbas Syed* under the supervision of *Prof. Nilima Dongre*. This project has been approved for the award of *Bachelor's Degree in Information Technology, University of Mumbai*.

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Supervisors :

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Date :

Place :

# Declaration

I declare that this written submission represents my ideas in my own words and where other's ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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Date :

## **Abstract**

The problem arise nowadays is the manual paper work is goes behind the time and results in waste of time, money and physical and mental efforts put by the company employee. This project implemented is to ensure the company management that the overall data storage process for the company data can be far more cheap, time saving and very easy and efficient to use than the current manual paper work system. The Information System for the Liaison Company uses the Client Server technology for the communication between the administrator of the company and its employees. The system is aimed at developing a software system that allows the administrator to view employee activities at the same time allowing employee to enter the data about company matter in the system. The system is hoped to help organization to increase the performance of the working environment among all the staff of the organization. This Information System for the Liaison company contain devices (hardware and software) which are Desktops with windows operating system at client side, SQL Server install at the server side, Graphical User Interface (GUI) and a database.

In conclusion at the end is to build an effective system that will easily store details about company matters and allow the administration to view the employee activity and control and manage the employee details.

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# **Chapter 1**

## **Introduction**

## **1.1 Introduction of Project**

Today computerized information systems are the nerve of any large or small scale business firm or the company. This computerized information systems are welcome by both company administrative and the executives of the company. They decrease the paper work in company and saves lot of time, space and cost involve in storing, managing and maintaining the data stored in the paper format. Such systems are helpful to company's administrations to receive immediate feedback and help them to control and manage their user in proper way.

The Information system for a Liaison company provides services for the Agri Chemicals Limited to store all necessary data related to their OPO's. The system will work in client-server environment so it incorporate all key benefits of client server technology such centralized control, secure communication, and data centralization.

As for system development and implementation, it should be able to help in managing their employees account systematically. The system must have database that contains employees information and it must be able to help employee to manipulate data, update database, alert manager accordingly, and also nice interface to make it easier to use. Finally, the Information system must be user friendly for commercial purpose.

This system will reduce the paper work, money, employee's efforts and the time during entire data transaction process in the company.

## **1.2 Problem Statement**

The purpose of this project is to overcome of the problem that arises in a company where company have to keep their all the historical data related to the transactions done by the system in the paper work format. If such paper data got missed or paper on which data is stored not treated carefully then recovering or regenerating such data is very difficult task.

This system implemented in order to decrease the time and money of the company spends on keeping the track of data in paper format. This problem is not productive for the big company as it is hard to ensure consistency within an organization. So our

system deals with the problem which are exist in the current system. The main problem faced by the current system is the time inconvenience. The existing makes use lot of paper which makes difficulties for the higher authorities to keep the track of the data and make any modification in the stored data. As the existing system works manually so it is not appropriate for the higher authority to deal with the existing system in tricky situation. Although another problem lies are storage and printing materials. The paper work method requires printing materials like ink, pen, printer, paper in order to store data on the paper. After storing the details on the paper we also required a sufficient physical space to store and maintain those papers.

So our main aim is to develop a system that will easily store such details in less time and uses no paper at all if possible. It must not harm the user privacy at the same time and provide a GUI that will allow user to easily deal with application.

### **1.3 Scope of the Project**

This system gives a possible, low cost and efficient solution for all the above mentioned problems. This system helps the company employee to easily enter the required information and administrator to manage and control employees.

This is client server based application where a desktop application at the server side allows the higher authority to easily manage the employee details and view their latest activities in the system. At client side each employee having their desktop allows them to enter the information about company supplier, Overseas Purchase Order details and etc. Each employee can generate a request to delete supplier details or the overseas purchase order details.

The main goal of this project to build a solution that demonstrate and produces a cost effective mechanism of using Information System for the Liaison Company for mentioned company so that individual in company can get their job done easily.

## **1.4 Relevance and Motivation of Project**

Now days, one of the major problems lies within organization is to track the historical of the organization without wasting any extra time and money. As the employees are permitted to gather and feed the information to the system at the same time administrator keep an eye on each employee activity. Therefore, we develop a computer solution which works in client-server environment with guarantee to solve all the mentioned problems.

Many types of software are available to store historical data of the company. But such softwares are too costly, so small scale companies can't afford it. So, our main goal is to build an application which will be easily available for all organization with small cost.

## **1.5 Organization of Report**

The focus of this report is to provide more information about Information System for the Liaison Company along with its working principles.

Chapter 01 (Introduction) gives idea about various concepts used in system before we are going to implement them. Chapter 02 (Review of Literature) specifies review about the system from literature point of view by comparing current and previous system. Chapter 03 (Planning and Formulation) deals with the chronological plan to be execute in order to implement the proposed system. Chapter 04 (Proposed Methodology) will explain the various components to be used in the system. Chapter 05 (Design of System) will give an overview of various types of design proposed for the current system.

# **Chapter 2**

## **Review of Literature**

## 2.1 Introduction to Agri Chemicals Pvt. Ltd.

Agri Chemicals Limited is fall under the category of a liaison company. Liaison means Communication or cooperation which facilitates a close working relationship between people or organizations. The company deals with variety of products and services like – Tiles, Machinery and part manufacturer, Agricultural inputs and fertilizers, Butyl Acetate, Chemicals, Paint chemicals and etc.

Agri Chemicals Limited's Foreign Company Registration Number is F04489. The company is established in year 2002. There are about 10 employees working in the company.

|  |  |
|--|--|
| <b>Company Name</b>                      | : Agri Chemical Limited  |
| <b>Date and Country of Incorporation</b> | : 01 December 2012, United Kingdom   |
| <b>Type of Office</b>                    | : Branch Office  |
| <b>Address</b>                           | : No. B/504, City point, Near<br>Kohinoor hotel, Andheri- Kurla road,<br>J. B. Nagar, Andheri(east), Mumbai -<br>400059, Maharashtra, India. |
| <b>Company Status</b>                    | : Active   |

## 2.2 Working of Existing System

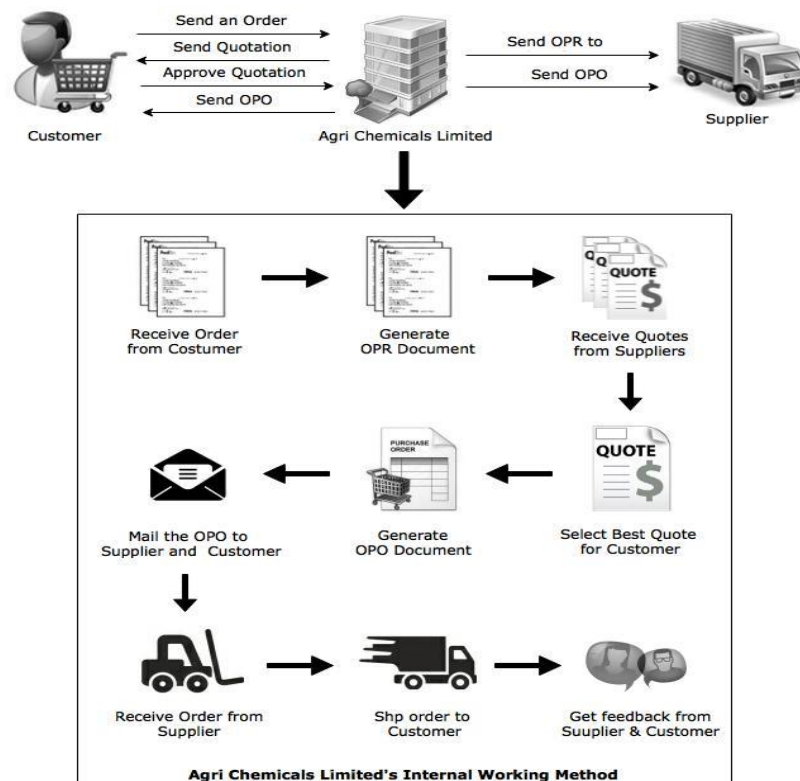
The Agri Chemical Limited is a Liaison company which provides variety of services to its customers. The manual paper work method is used to do all the data transaction done in the system. Customer requests for services toward company. Company then generates the OPR document against the customer request. Then the document is send to various suppliers attached to the company. Company employees choose the best quotation send by the supplier which will fulfill the clients need. When client confirm their request the OPO document is generated and the copies of OPO is send to both client and supplier. All the document generated and pass on in the company are in paper work format.

There are various terminologies used in the company working method are mentioned below along with their abbreviations:

- OPR : Overseas Purchase Requisition Order
- OPO : Overseas Purchase Order
- AGLPO : Agri Chemicals Limited Purchase Order
- LPO : Leasing Purchase Order

There are lots of disadvantages associated with the existing paper method utilized in the mentioned company as given below:

- Paper work method is requires paper and other printing material to store the data on paper which leads to extra money put by the company on printing materials such as – papers, printers, ink, etc.
- To maintain and keep track of data on regular basis with such system is very difficult task. Altering data requires the generation of entirely new document.
- The existing system is very time consuming and expensive.



**Figure 2.1 Block Diagram of the System**

## 2.3 Key Benefits of Computer Based Information System

Computer based information system provides a range of benefits to consumers and businesses, such as:

- Computerized systems allow users to store large amount of data in a little space like hard disk, external storage devices, etc. Where the earlier paper work method require healthy amount of space to store the data.
- It is easy to alter or dispose the previously stored information with the help of computerized information system. Where in paper work method we have to recreate a document if we want to make any changes in previously stored data.
- The computerized system stores the details with great precision and done it in less time frame unlikely to the old paper work method used in the company.
- As the data is stored in the electronic format allows company to decrease their spending of money on the printing materials while using the old paper work method.
- The computerized system is also beneficial from the environmental point of view as its basic principle is to use of paper as low as possible.

## 2.4 Application of Client-Server Computer Based Information System:

Client-Server computer systems can be split into two basic categories.

- **Server side application:** The Server side application provides the rich GUI towards higher authority of the company. The application allows the administration to track and monitor the employee activities.
- **Client side application:** The Client side application allow gathering of required information and afterwards transmitted towards the server side application. In, such case employee puts the information at the client side application after all the verification and validation is done at the client then the information is transmitted towards server.



# **Chapter 3**

## **Planning and Formulation**

### 3.1 Planning and Formulation Table

**Table 3.1 Planning and Formulation Table**

| <b>Sr. No.</b> | <b>Task</b>                                 | <b>Activity</b>   | <b>Duration<br/>(Weeks)</b> | <b>Resource<br/>Name</b>                    |
|----------------|---|---|-----------------------------|---|
| 1              | Topic Decision                              | Searching through Internet for the topics.  | 1                           | Internet                                    |
| 2              | Topic Approval                              | Submit the Abstract copy of the project to the Head of the Department of the Information Technology.          | 1                           | -   |
| 3              | Study of Objective and Introductory Work    | Studying about topic and other research material for the project  | 1                           | Agri Chemicals Pvt. Ltd. Company Co-workers |
| 4              | Selection of Hardware and Software platform | Searching for the most suited programming technologies from hardware and software requirements point of view. | 1                           | Internet                                    |

| <b>Sr. No.</b> | <b>Task</b>                                  | <b>Activity</b>  | <b>Duration<br/>(Weeks)</b> | <b>Resource<br/>Name</b>                    |
|----------------|--|--|-----------------------------|---|
| 5              | Collection of Data                           | Collection of data such as employee related data, Supplier data, OPR data and etc. | 4                           | Agri Chemicals Pvt. Ltd. Company Co-workers |
| 6              | Preparation of Final Report and Presentation | Preparing the project Report based on the given guideline.                         | 2                           | Guidelines mentioned by the Project Guide   |



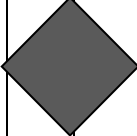

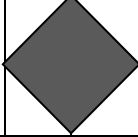


### **3.2 Project Time and Task Distribution table**

A Gantt chart is a type of chart that illustrates the project schedule. Gantt charts illustrate the start and finish dates of the terminal ends and summary elements of the project.

The following Gantt chart will represent various tasks performed by our project members with respect to time constraint in order to complete a project.

**Table 3.2 Project Time and Task Distribution Table**

| No. | Work Task<br>(Jun 2015 – Aug 2015)                | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 |
|-----|---|----|----|----|----|----|----|----|----|----|----|
| 1   | Identify the needs and benefits                   |    |    |    |    |    |    |    |    |    |    |
|     | Search online and refer books                     |    |    |    |    |    |    |    |    |    |    |
|     | <b>Milestone: Subject Familiarization</b>         |    |    |    |    |    |    |    |    |    |    |
| 2   | Study of existing system                          |    |    |    |    |    |    |    |    |    |    |
|     | Requirement gathering                             |    |    |    |    |    |    |    |    |    |    |
|     | Choose process model                              |    |    |    |    |    |    |    |    |    |    |
|     | Cost-benefit analysis                             |    |    |    |    |    |    |    |    |    |    |
|     | Feasibility study                                 |    |    |    |    |    |    |    |    |    |    |
|     | H/W and S/W requirements                          |    |    |    |    |    |    |    |    |    |    |
|     | Study of System Flow                              |    |    |    |    |    |    |    |    |    |    |
|     | <b>Milestone: Requirement Gathering Completed</b> |    |    |    |    |    |    |    |    |    |    |
| 3   | Gathering existing components                     |    |    |    |    |    |    |    |    |    |    |
| 4   | Design of User interface                          |    |    |    |    |    |    |    |    |    |    |
|     | Design of Database                                |    |    |    |    |    |    |    |    |    |    |

| No. | Work Task<br>(Sep 2015 – Nov 2015)         | 11   | 12 | 13 | 14   | 15 | 16 | 17  | 18  | 19  | 20 |
|-----|--|--|----|----|--|----|----|---|---|---|----|
| 5   | Integrate all components                   |   |    |    |  |    |    |   |   |   |    |
|     | Integrate database connection              |  |    |    |  |    |    |   |   |   |    |
|     | <b>Milestone: Implementation Completed</b> |  |    |    |  |    |    |   |   |   |    |
| 6   | Testing                                    |  |    |    |  |    |    |   |   |   |    |
|     | <b>Milestone: Testing Phase Completed</b>  |  |    |    |  |    |    |  |   |   |    |
| 7   | Rework                                     |  |    |    |  |    |    |   |  |   |    |
|     | Project Documentation                      |  |    |    |  |    |    |   |   |  |    |

# **Chapter 4**

## **Methodology**

## 4.1 Proposed System

Proposed system store the historical data about the company working manner in the form of electronic data instead of paper work data which happened in the past. We can develop this for any other company according to their business module or working environment. This application considers the information provided by company employee through the desktop application built on a client side. The application can be built up using various other technologies like Java, C, and CPP for platform independence. But almost 100% of users are familiar with the windows operating system, so we stick to the .net platform for developing an application.

Proposed system consist the following modules:

- **Variety of forms to store information:**

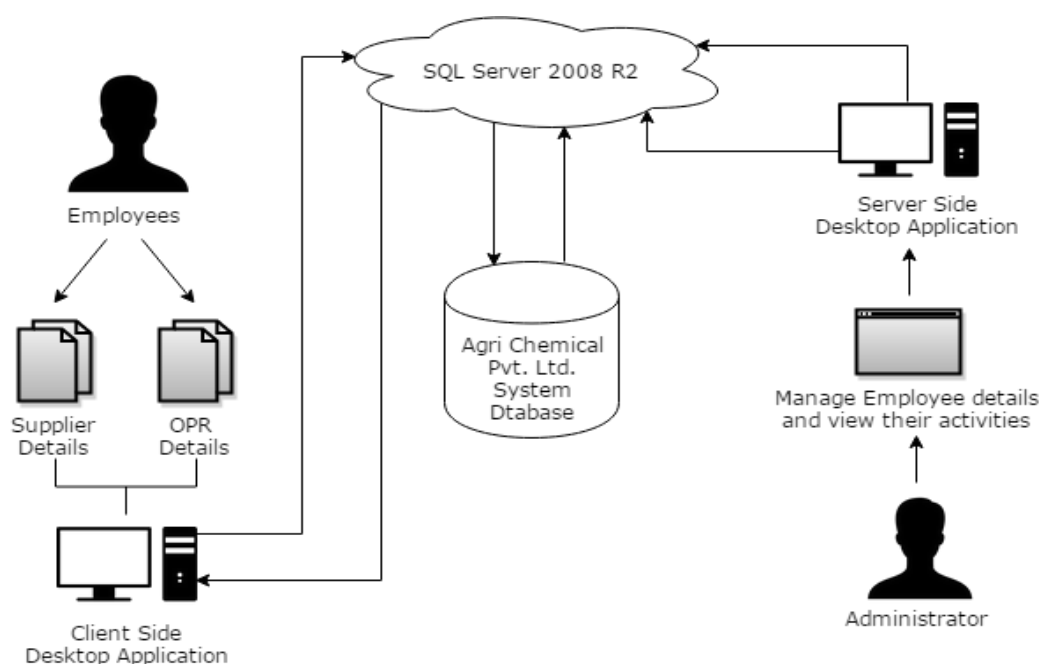
This module is built at the client side desktop application. In this module variety of application forms provided by the software system in order to get information about the company related suppliers, Overseas purchase order details and other information. These forms also help company employees to view, alter and print the information of the same. Also system stores the data about employee profile which give the more information about the employee to the system administrator.

- **Obtaining employee activities on day to day basis:**

This is administrative side module. In this module the administrator can track the employee activities on the day to day basis by clicking just the “View Employee Activities” button. The employee holds the unique id of its own which allows the administrator to determine the activities performed by the employee on daily basis. The system can generate the graphical information of the stored data which allows the higher authority to analyze the data more intensively and helps them to make the right decisions in tricky situations as quickly as possible.

#### 4.1.1 System Architecture Diagram

The following diagram shows you the overall architecture of the Information System for Liaison Company. The System makes use of desktop application created in VB.NET 2010 along with the SQL Server 2008 as a back end for managing the data in the system. The system works in a client-server environment.



**Figure 4.1 System Architecture Diagram**

At the server side the desktop application allows the system administrator to control and manage the other users in the system. The desktop application is used by the administrator to manage and control the employee details, View employee day to day activities and also generate a response to the request made by the employee for OPR or Supplier deletion request. The user interface of the desktop application is simple and user friendly, so administrator finds it easy to interact with the system.

At client side each employee provided a desktop application to manage and maintain the details about the Suppliers, OPR details and etc. The SQL server Database service makes the communication possible between server side and client side desktop application.



## **4.2 Proposed Methodology**

### **4.2.1 Server Side Operation**

At server side we provide a desktop application which allows the administrator to control and manage the employee details. The desktop application has a GUI which allow the server side user to easily view the activities of the employee on day to day basis. The GUI makes it easier for the end users of the system to easily interact with the system.

### **4.2.2 Client Side Operation**

At client side the employee also uses the desktop application. Each employee has its own pair of unique ID and password which distinguish it from the rest of the employees in the company. The client desktop application contains set of various forms which allows the employees to add, edit and view or print the details about company suppliers, companies Overseas Purchase Order details and etc. Once the verification is done at both ends of the system by the desktop application itself the data is stored in the database server.

### **4.2.3 Prior Approach**

One way to keep the track of the historical data in the company is to use the paper work method where all the company transaction related information is printed on paper for the future keepsake. The major issue with this approach is accuracy and speed. It is difficult to maintain the altering data with the paper work method such that if the correction is to be made we have to dispose the previous data printed on the paper and then again print the data on the paper. This results in time consumption and lead company to spend extra money on paper and printing materials like printer, cartage and etc. It is also difficult to store the paper data for very long time because it utilizes the space of the company and it is not very convenient to make backup of such data in case if any bad happens to original data.

## **4.3 System Requirements**

### **4.3.1 Software Requirements**

- Microsoft Visual Studio 2010
- Microsoft SQL Server 2008
- Microsoft .NET Framework 3.5 or above
- Windows Operating System 7 and above
- Microsoft Office 2007 or above

### **4.3.2 Hardware Requirements**

- RAM 2 GB or above
- HDD 120 GB or above
- Processor Intel Core 2 Duo Processor or above

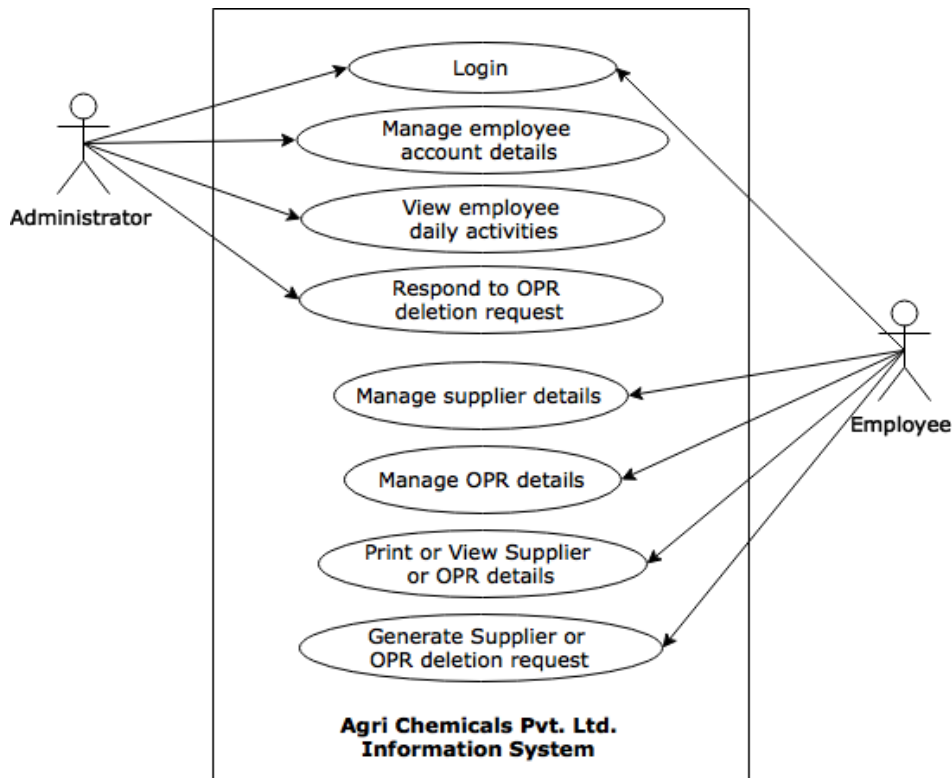
# **Chapter 5**

## **System Design**

## 5.1 System Design

### 5.1.1 Use Case Diagram

The use case diagram is a type of UML diagram. It allows us to represent the user interaction with the actual system.



**Figure 5.1 Use Case Diagram**

There are two types of users in our system i.e. Administrator and Employees. The following diagram represents the Use Case Diagram of the Information System for the Liaison Company.

The administrator can control and manage the each employee details within a system. The employees manage the details about suppliers of company, OPR details and etc. The Administrator and Employee both provided functionalities through which they can make changes in their profile, change account password and etc.

### 5.1.2 Activity Diagram

Activity diagram is basically a flow chart to represent the flow from one activity to another activity. The activity can be described as an operation of the system.

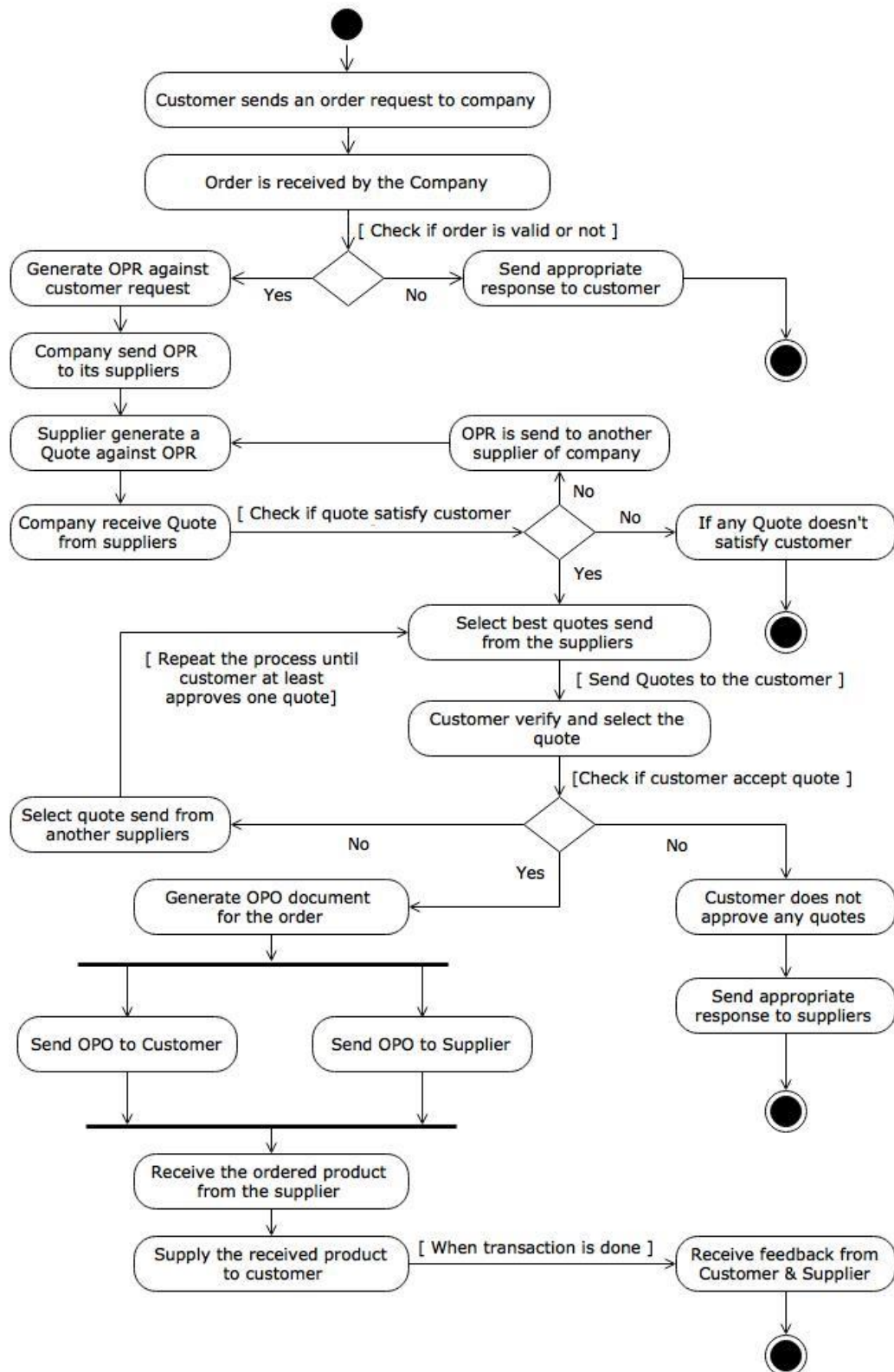


Figure 5.2 Activity Diagram

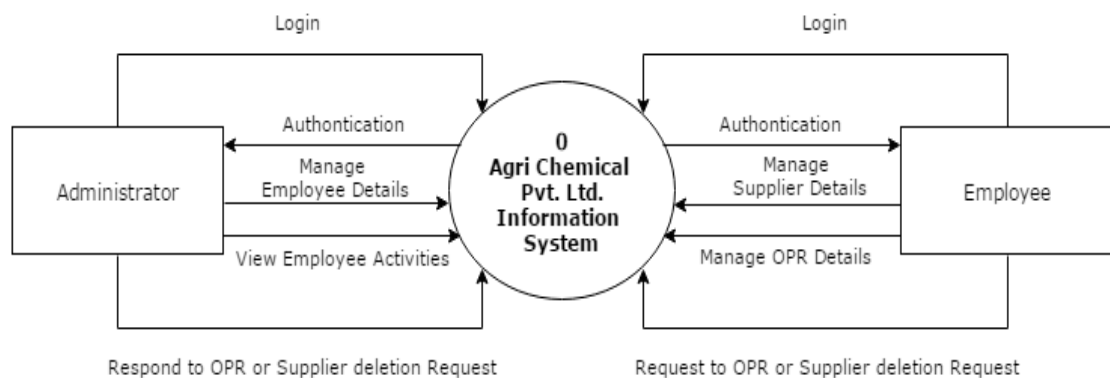
When customer sends an order to the company, it first checks whether the order is appropriate or not. If yes then the OPR is generated and it sends to various suppliers attached to company. Suppliers in return send the quotations for the requested OPR to the company. Company chooses the best quotation in client's regards and send to customer. If customer doesn't accept the given quote, company send the another quote from different supplier to customer. If customer accepts quotation, company generates the OPO document and sends its copy to both supplier and customer.

At last company receives the ordered product from its supplier and sends to customer. Once overall process is done company receive feedback from both customer and the supplier.

## 5.2 Data Flow Diagrams

### 5.2.1 DFD Level 0 Diagram

The Data Flow Diagram (DFD) allows us to understand the data flow within the system. All the activities performed by the system were represented in the DFD Diagrams. The following diagram represents the DFD Level 0 diagram of the Information System for the Liaison Company.

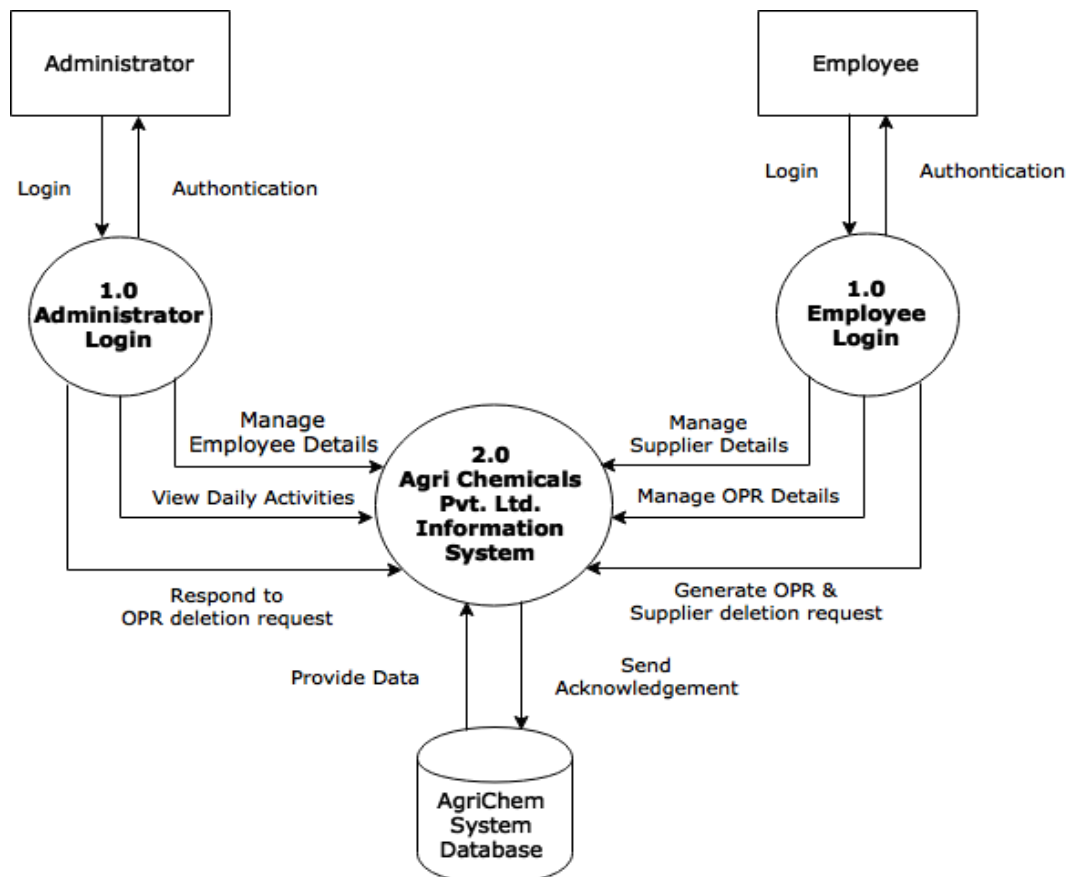


**Figure 5.3 DFD Level 0 Diagram**

The Administrator makes use of server side application to view all employee details or to manage and control the employee activities in the system. The employee makes use of their client side application to maintain the details about suppliers, OPR and other company related information intact within the system.

### 5.2.2 DFD Level 1 Diagram

Data Flow Diagram level 1 is the extension of DFD Level 0 Diagram. It represents the most of the major processes from the DFD Level 0 Diagram. The following diagram represents the DFD Level 1 Diagram of the Information System for the Liaison Company.



**Figure 5.4 DFD Level 1 Diagram**

The above diagram shows the major processes handled by the Information System for the Liaison Company. Any user of system must have to logging in order to utilize the system features. If the authentication is valid then user gets access to system. Employee uses the combination of unique id and password to log into the system. Once authentication is done employee can enter into the system. As for the Administrator side he/she can logged in on the server side as the same manner of employee. The services provided by the SQL database management system make sure the data transaction in the system. All the client side data is collected with the help of application and send to the server.

# **Chapter 6**

## **Experimental Results and Performance Analysis**



## 6.1 Experimental Results

### 6.1.1 Welcome Screen



Figure 6.1 Welcome Screen

The above Welcome Screen gives information about Version of software and the information about company such as Contact and location information.

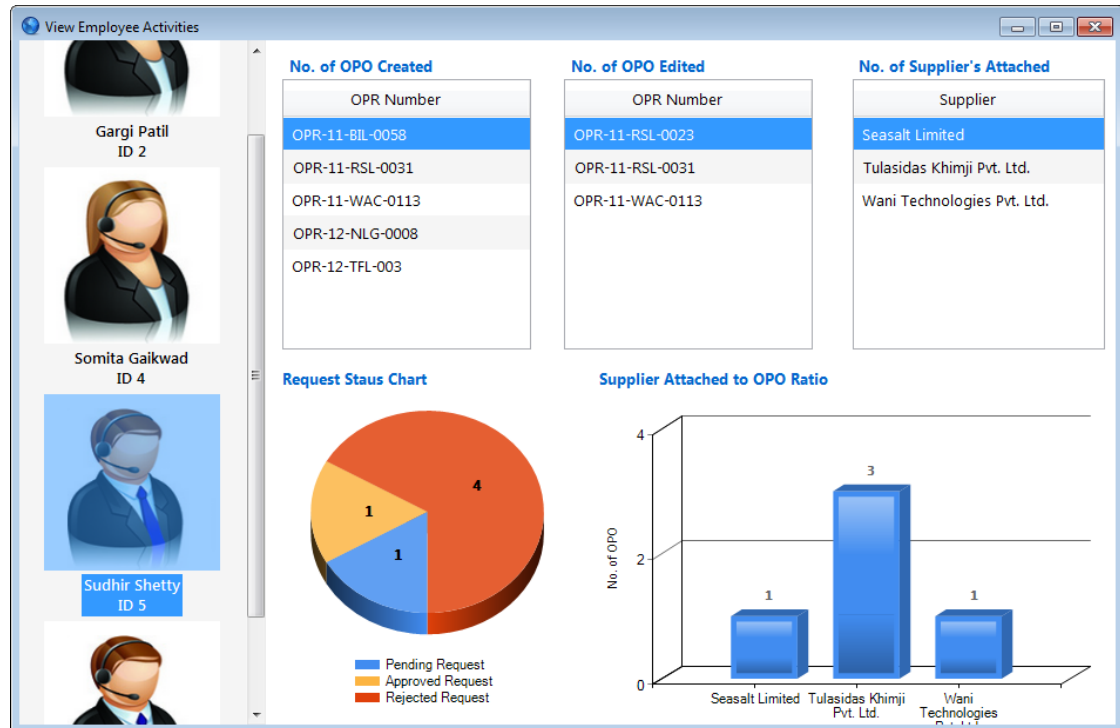
### 6.1.2 Login Window



Figure 6.2 Login Window

### 6.1.3 View Employee Activities

The following figure shows the user interface that enables an Administrator to view day to day activities of employees in the company.



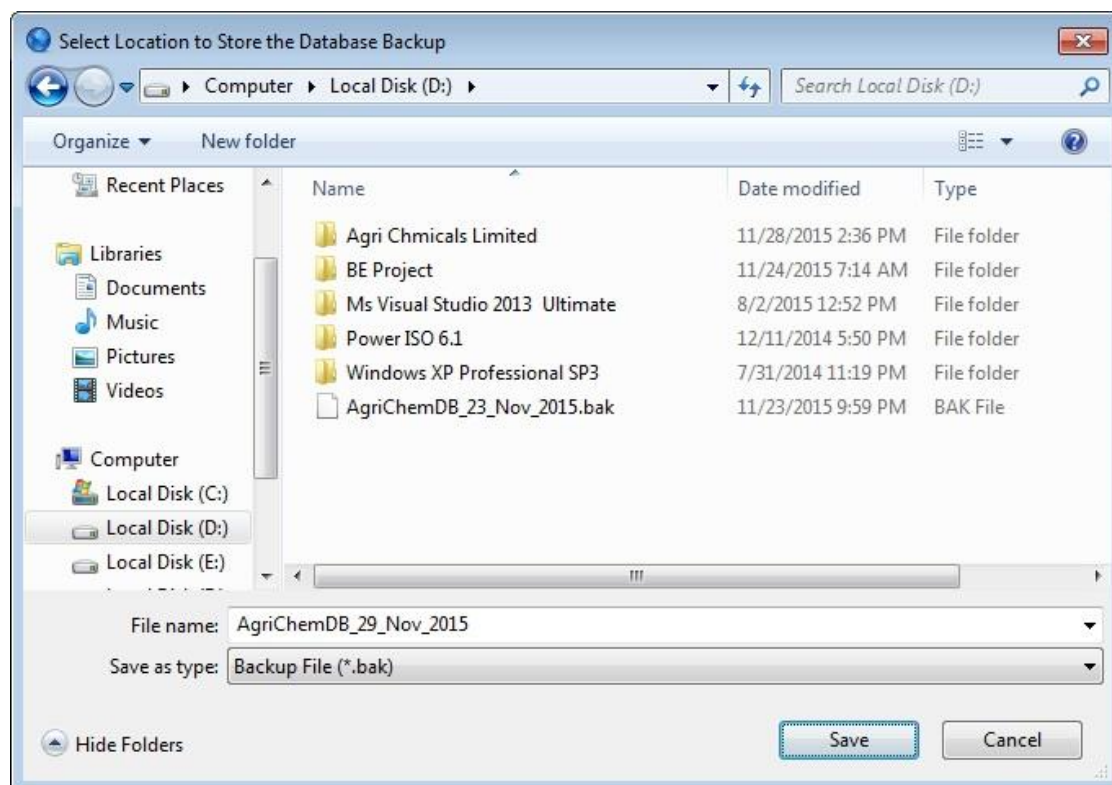
**Figure 6.3 View Employee Activities**

The user interface allows administrator to view employee activities in efficient manner.

The form contains the list of employees on the left side panel. Administrator just has to double click on the user profile picture in order to view employee activities. Employee activities are displayed on the right side panel. The activities contains information such as OPO or Supplier details created and edited by employee, Employee login and logout information, OPO deletion requests generated by employees and etc.

#### 6.1.4 Create Database Backup

Database backup is a useful tool for protecting data from any kind of computer malfunctioning such as – virus spread, system gets hang and etc. The following form allows administrator to create database backup.

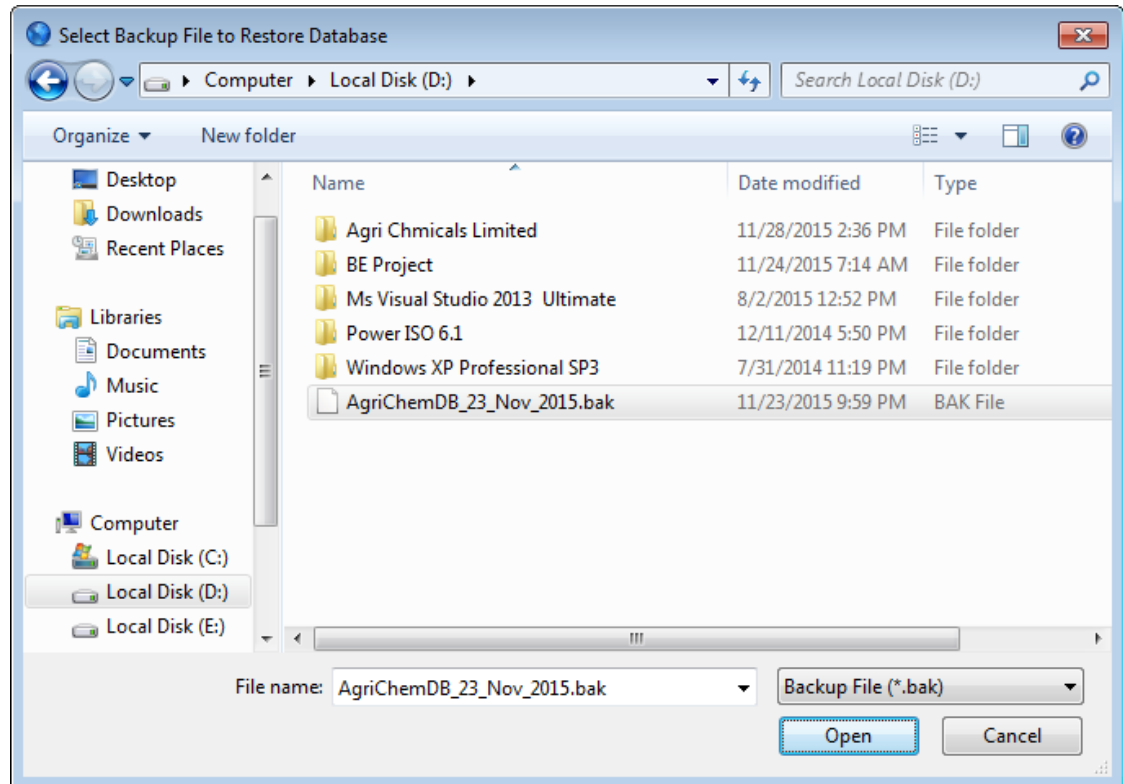


**Figure 6.4 Create Database Backup**

The system allow administrator to create a database backup. Each backup file has system generated name consist of 'AgriChemDB\_DD\_MON\_YYYY' format. We recommend that you must create a backup on regular basis on the external device to prevent it from future damage.

### 6.1.5 Restore Database from Backup file

The following figure shows how Administrator can restore the database back to its safe state using a backup file created in past.



**Figure 6.5 Restore Database from Backup file**

After selecting an appropriate backup file to restore the system database the system will automatically perform the database restoration process.

Once the database restoration process completed successfully the system will shut down itself in order to apply the necessary changes to the system database made by the restoration process.

### 6.1.6 New OPO Registration Form

The following figure shows the New OPO Registration Form which allow the employees to enter new Overseas Purchase Order details into system database.

The screenshot displays the 'New OPO Registration' window. It contains several input fields for registration details:

- OPR Number: OPR-11-ENK-0010
- OPO Number: OPO-11-ENK-0010
- Invoice Number: N-856
- BL/AWB Number: B-856
- AGLPO Number: AGL-45360
- OPR Date: Saturday, November 05, 2011
- OPO Date: Tuesday, November 15, 2011
- Invoice Date: Monday, November 07, 2011
- BL/AWB Date: Thursday, November 10, 2011
- LPO Number: LPO-45360

Below these fields is a table with the following data:

|   | Item Description                            | Quantity | Unit | Price   | Currency  |
|---|---|----------|------|---------|-----------|
| 1 | Face scan Biometric Machines with Batteries | 4        | Nos  | 500     | US Dollar |
| 2 | Potassium Iodate                            | 1000     | Kgs  | 5200.45 | US Dollar |
| 3 |   |          |      |         |           |

At the bottom, there are summary fields and buttons:

- Total: 5202450.00
- Freight Charge: 0
- FOB Charge: 50
- Commission: 3
- Grand Total: 5358573.50
- Attachments: D:\Agri Chemicals Limited\Reports\OPR-11-ENK-0010.xlsx, D:\Agri Chemicals Limited\Reports\Seasalt Limited.doc
- Supplier: Seasalt Limited
- Comments: Finalized Order
- Buttons: Save Details, Reset Details

**Figure 6.6 New OPO Registration Form**

The form contains all the mandatory fields which are required by the company employees to manage and maintain the OPO details.

After successful fulfillment of information employee can save OPO details by clicking on the “Save Detail” button. If information is incorrect, then appropriate error message is generated by the system. Employee can manually enter the quotation details or they can use the “Upload Quotation” button to upload the quotation details already present in the excel sheet.

### 6.1.7 New Supplier Registration Form

The following figure shows the New Supplier Registration Form which allow the employees to enter new Supplier details into system database.

**New Supplier Registration**

Name: Wani Technologies Pvt. Ltd. Type: WholeSalers

Address: Shop No. 2 & 3, Royal Palace, P. N. Road, Ploat No. 11, Sector 2, Kharghar, Navi Mumbai Country: India

City: Mumbai Postal Code: 410201

Website: www.wanitechnologies.com Comments: Leading Suppliers

Phone No:

|   | Phone Number |
|---|--------------|
| 1 | 022-240-5158 |
| 2 | 022-240-5174 |
| 3 |              |

Fax No:

|   | Fax Number   |
|---|--------------|
| 1 | 022-204-0557 |
| 2 | 022-204-0566 |
| 3 | 022-2040556  |

Contact Information:

|   | Contact Person Name  | Email Address           | Mobile Number |
|---|----------------------|-------------------------|---------------|
| 1 | Avinash Pankaj Singh | avisingh@gmail.com      | 9624204001    |
| 2 | Siddhesh Prasad Tari | siddheshptari@gmail.com | 9854125625    |
| 3 |                      |                         |               |

**Save Details** **Reset Details**

**Figure 6.7 New Supplier Registration Form**

The form contains all the mandatory fields which are required by the company employees to manage and maintain the Supplier details.

Form allows employee to enter more than one Phone number and Fax number for each individual Supplier. The phone and fax number must be unique for each supplier. System allows more than 15 formats of phone and fax numbers to be saved in the system.

After successful fulfillment of information employee can save Supplier details by clicking on the “Save Detail” button. If information is incorrect, then appropriate error message is generated by the system.

### 6.1.8 View OPO Details

The following figure shows the View Overseas Purchase Order Details Form which allows employee to view OPO details on the basis of their preference.

The screenshot shows a web application window titled "View OPO Details". On the left, there is a sidebar with four filter sections: "OPR Number:" with a text input field, "AGLPO Number:" with a text input field, "Invoice Number:" with a text input field, and "Related Supplier:" with a list of checkboxes and supplier names. At the bottom of the sidebar are "Search" and "Clear" buttons. The main area of the window displays a list of 18 OPOs, each represented by a document icon with "PO" on it and a text label. The OPOs are arranged in two columns. The first column contains: OPR-10-NLG-0003, OPR-11-BIL-0058, OPR-11-NCGC-0014, OPR-11-RSL-0004, OPR-11-RSL-0031, OPR-11-WAC-0113, OPR-11-WAC-0215, and OPR-12-RSL-0033. The second column contains: OPR-11-ABA-0025, OPR-11-ENK-0010, OPR-11-NIP-009, OPR-11-RSL-0023, OPR-11-RSL-0040, OPR-11-WAC-0180, OPR-12-NLG-0008, and OPR-12-TFL-003. The OPO "OPR-11-RSL-0031" is highlighted with a blue bar at the bottom.

| OPR Number       | AGLPO Number | Invoice Number | Related Supplier |
|------------------|--------------|----------------|------------------|
| OPR-10-NLG-0003  |              |                |                  |
| OPR-11-ABA-0025  |              |                |                  |
| OPR-11-BIL-0058  |              |                |                  |
| OPR-11-ENK-0010  |              |                |                  |
| OPR-11-NCGC-0014 |              |                |                  |
| OPR-11-NIP-009   |              |                |                  |
| OPR-11-RSL-0004  |              |                |                  |
| OPR-11-RSL-0023  |              |                |                  |
| OPR-11-RSL-0031  |              |                |                  |
| OPR-11-RSL-0040  |              |                |                  |
| OPR-11-WAC-0113  |              |                |                  |
| OPR-11-WAC-0180  |              |                |                  |
| OPR-11-WAC-0215  |              |                |                  |
| OPR-12-NLG-0008  |              |                |                  |
| OPR-12-RSL-0033  |              |                |                  |
| OPR-12-TFL-003   |              |                |                  |

**Figure 6.8 View OPO Details**

Employee can view OPO details by setting the filters on the left side panel on the form. The system allows employee to use the following filter to search the OPO details from the database:

1. OPR Number
2. AGLPO Number
3. Invoice Number
4. Related Supplier

Once OPO details are displayed on the right hand side panel employee can edit, print or generate the deletion request for the particular OPO by right clicking on it.

### 6.1.9 View Supplier Details

The following figure shows the View Supplier Details Form which allows employee to view Supplier details on the basis of their preference.

View Supplier Details

Supplier Name:

Supplier Type:

- ☐ Affiliate Merchants
- ☐ Drop Shippers
- ☐ Manufacturer & Exporter
- ☐ Manufacturers
- ☐ WholeSalers

Supplier Country:

- ☐ China
- ☐ India
- ☐ Indonesia
- ☐ Sri Lanka

Supplier City:

- ☐ Baotou
- ☐ Beijing
- ☐ Colombo
- ☐ Dalian
- ☐ Gwalior
- ☐ Kolkata

Search Clear

Alliance Organic LLP

KAPS Engineers, India

Net Infotech System

R. A. K. Group

Seasalt Limited

Techlab Autogas Pvt. Ltd.

Tulasidas Khimji Pvt. Ltd.

Wani Technologies Pvt. Ltd.

**Figure 6.9 View Supplier Details**

Employee can view Supplier details by setting the filters on the left side panel on the form. The system allows employee to use the following filter to search the Supplier details from the database:

1. Supplier Name
2. Supplier Type
3. Supplier Country
4. Supplier City

Once Supplier details are displayed on the right hand side panel employee can edit, print or delete the supplier details from the database.



## **6.2 Performance Analysis**

### **6.2.1 Testing**

Testing is a series of different tests that whose primary purpose is to fully exercise the computer based system. Although each test has different purpose, all work should verify that all system elements have been properly integrated and performed allocated functions. Testing is the process of checking whether the developed systems work according to the actual requirement and objective f the system.

Level of Testing:

1. Unit Testing
2. Integration Testing
3. System Testing
4. Output Testing
5. User Acceptance Testing

The testing performed by us on our project is as follow:

#### **Unit Testing**

In unit testing all modules need to be tested separately. Our project demands checking the app, each windows form, each event on the windows form, the database collaboration etc. to determine each of the unit of our project is working properly.

#### **Integration Testing**

The project is divided into two modules – server side and client side module. Each module is tested independently. On integration the most important aspect to be verified is whether all the modules function working properly together without having any interfacing error.

#### **System Testing**

In system testing software or hardware is testing conducted on complete, integrated system to evaluate the system's compliance with its specified requirement? In our project we tested client as well as server model as whole irrespective of individual components.

### **Output Testing**

Once the system testing is done we conduct the output testing. We performed this testing in order to find out whether the appropriate action is performed for the respective event.

### **User Acceptance Testing**

Acceptance testing is a test conducted to determine if the requirements of a specification or contract are met. Here the project is tested in a real life situation with end users to determine whether the project adheres to the requirements.

## **6.2.2 Test Cases**

In our project we have two different modules – Client side module for the Company Employee and Server side module for the System Administrator.

So, test cases are designed for each module separately and tests with their accordance. The test cases defined by us for our project are listed below:

### **1. At Server side for Administrator**

1. Authentication Test
2. User Management Test
3. Test case for supervision done by the Administrator
4. Test cases for the Database Backup and Restoration process

### **2. At Client side for Company Employee**

1. Authentication Test
2. Test cases for managing OPO details
3. Test cases for managing Supplier details
4. Test cases for saving attachments
5. Test cases for uploading excel sheets in quotation table

**Table 6.2.2.1 Test Cases done at Administrator side**

| <b>Test Case</b>                                | <b>Input</b>  | <b>Expected Result</b>   | <b>Actual Result</b> |
|---|---|--|----------------------|
| Authentication Test                             | Invalid Password.   | Must prompt user for valid input.  | Yes                  |
| User Management Test                            | Invalid data fill in the form such as field are left blank, Email, phone details are not entered in proper format, try to make duplicate entry.         | It must prompt user to enter valid inputs for each invalid entry made in the form. | Yes                  |
| Test case for supervision done by Administrator | Check whether the correct data is represented for the particular client. Check the consistency of the information. The information must not be overlap. | It must show desired information in the proper format for the selected employee.   | Yes                  |
| Test case for the Database Backup process       | Check whether the proper and most recent database backup is created with the proper system generated file name.   | It must create a .BAK (Database backup file) at the user desired location.         | Yes                  |
| Test case for the Restore Database process      | Check whether all the changes made by the database restoration process were committed in the end.   | It must restore the database successfully.   | Yes                  |

**Table 6.2.2.2 Test Cases done at Employee side**

| <b>Test Case</b>  | <b>Input</b>  | <b>Expected Result</b>  | <b>Actual Result</b> |
|---|---|---|----------------------|
| Authentication Test   | Invalid Password.   | Must prompt user for valid input.   | Yes                  |
| Test case for managing OPO Details                                    | Invalid data fill in the form such as field are left blank, Email, phone details are not entered in proper format, try to make duplicate entry. | It must prompt employee to enter valid inputs for each invalid entry made in the form.  | Yes                  |
| Test case for managing Supplier Details                               | Invalid data fill in the form such as field are left blank, Email, phone details are not entered in proper format, try to make duplicate entry. | It must prompt employee to enter valid inputs for each invalid entry made in the form.  | Yes                  |
| Test case for viewing OPO or Supplier details using different filters | Variety of filter are used to filter the OPO or supplier details from the database and display on their view details forms respectively.        | It must display the appropriate result for both OPO and supplier according to the filters set by the user in order to view the desired information from the database. | Yes                  |

| Test Case   | Input   | Expected Result   | Actual Result |
|---|---|---|---------------|
| Test case for saving Attachments details                | Check whether the files uploaded through software are stored in the database properly or not. Also it must satisfy the unique constraint for the uploaded files.  | It must store file properly which are uploaded by the employee for the particular OPO detail and must prompt employee if the duplicate file is being uploaded for the same OPO. | Yes           |
| Test case for uploading excel sheets in quotation table | Check whether all the data contains in the excel sheet file must be populated correctly in the quotation table. And there must be facility to upload more than one excel sheet in the same quotation table. | It must populate details correctly and then populate details from last point onward if the more than one excel sheet is being uploaded.   | Yes           |

# **Chapter 7**

## **Conclusion and Future Scope**

## **7.0 Conclusion**

For the purpose of keeping track of historical data related to OPR, OPO, Suppliers and any other company matter details we develop a client-server information system for the before mentioned company. As any other company, the mentioned company also works in hierarchical manner. To achieve such hierarchy we created a system where Administrator act as the higher authority and control the work done by the lower authority like company employees in this case. The system stores details about company matters in the form of electronic data so any modification or disposing of data is less cost effective and very time saving than any other paper methods approached by the company in the past.

## **7.1 Future Scope**

At current point we only develop a desktop version of application which only works on the Windows operating system. So, creating a web based application which provides the user more web based services like web chats, web notifications, connectivity from various platforms like desktop, mobiles and etc.

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