Software Requirements Specification

for

Warehouse Management

Version 1.0 approved

Prepared by Chaitanya Reddy

NIIT UNIVERSITY

14th September 2016

Table of Contents

Revision History

Name	Date	Reason For Changes	Version
Chaitanya Reddy	9/22/2016	Initial Version	1.0

1. Introduction

1.1 Purpose

The aim of this document is to explain the detailed description of the Warehouse Management Application. This document will explain all the features, how it will work under different situations and others. Document is intended to make stakeholders and developers to understand the application.

1.2 Document Conventions

Document is written in IEEE Software Requirements Specification format 830.Font sizes, spacing, line gaps are under the same format. Descriptions, requirements and all others of the application mentioned in the document has its own priority and described under its respective section. All the assumptions that are made will be mentioned beforehand and no external assumptions are required.

1.3 Intended Audience and Reading Suggestions

Document is developed for understanding the complete overview of the project. This application that is made will be a industry based project. Developers can make use this document for understanding the use cases, UI flows, requirements and other aspects. Stakeholders, clients and others can use this to understand the use/how to use of the product, features and others. Reading the document in the flow which it is written help to understand the document easily(using the glossary and appendix written in the last when required).

1.4 Product Scope

This product is developed to help in the management of the warehouses online. This application is made up of relational database as a hybrid application which make the application work in any platform without creating a hiccup for the users. This product helps in managing all the products that are existing in any warehouse like, sales reports, purchase reports and others. All the reports and the product statistics will be shown in the graphical way which makes the user to understand his business in no time. Managers, field engineers, developers and many others will be able to check the reports, update of the products and others according their role. The product is developed in a more interactive way so that any type of user even a newbie will be able to understand the flow of the application and use all the features of it. All the mangers/business mans/organizations those are maintaining warehouses will be able to use this product which makes their business flow more efficient and easy way. This product will be help full for the field engineers and other co-workers to get the update about the any product and others details of it at any point of time.

1.5 References

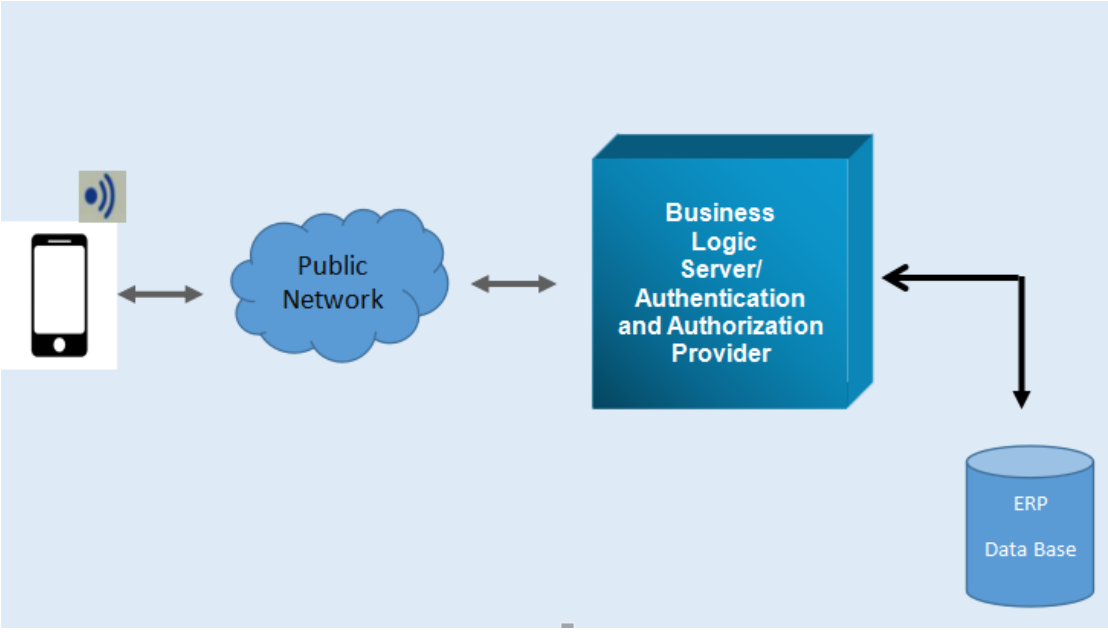
Books: Software Engineering by Roger S Pressman 5th edition, Software Engineering by Pankaj Jalote 4th edition.

Weblinks:https://en.wikipedia.org/wiki/Software_requirements_specification
https://drive.google.com/file/d/0B9sPtKJ_1aYrTEQ4cDFnekVmSHc/view?usp=sharing /* UI Flow (from client) */

2. Overall Description

2.1 Product Perspective

Warehouse Management application developed for managing all types of warehouses accordingly. This is will be new product under the family of ERP product. Product will be focusing on management of the products that are available in the warehouses. This will be the mainly focusing on the graphical reports.This will be the complete system which includes all the features and covering all the requirements that are required for managing any warehouse without any sub system.



2.2 Product Functions

Functions that a user can perform:

- Purchase Order Creation from Mobile Application
- View List of Purchases Orders
- Delete and Update Purchase Orders

- Sales Order Reports

- Warehouse Management Report

2.3 User Classes and Characteristics

Warehouse management will be requiring managers, filed engineers, workers and many other to maintain in a hierarchical way. Warehouse management consist of warehouse details, warehouse with purchase order, warehouse with sales order, warehouse by date, inventory by item/location etc. and return shipping. He may access any of the above options. If the Admin chooses the sales order he gets a detailed report of all the sales orders, sale order status, sales order with different payment, and if he chooses the sales order status he can see the graphical representations of the sales orders. By choosing the option purchase order he gets the options of purchase order details, purchase order status, purchase order with different payment. If he wants to see the details of purchase order graphically he can select the option purchase order status. Coming to customer , he can initialize the purchase of the product.

UseCase Diagram of the product is given below because of technical reasons.

2.4 Operating Environment

As the system that is being developed is hybrid application same code base will be used to deploy in all the platforms. The framework was made responsive so users of any platform will not face any sort of problem in using the application. So, for each platform different dependencies exists as follows.

Web Application: Any latest browser which is updated is needed.
Android Application: Kitkat and above versions are needed.
IOS Application: IOS 6 and above will be necessary.
Windows Application: Windows Mobile 6 and above will be needed.

2.5 Design and Implementation Constraints

As complete warehouse details will be existing in the database, it should be maintained in a secure server, also the API scripts which connects the application to the database should also be maintained in the secure server. After delivering the product to customer, maintenance will not be taken care by developers. Camel casing is used as programming convention. For CRUD ‘POST’ will be used as communication protocol over HTTPS layer. Application is developed as open source so all the documents will be available as public till client claims.

2.6 User Documentation

Admin: All the data of the users will be saved in a single database. Activities of the users can be be tracked from the same. Source code will be provided with comments at needed so any changes that to be done can be made easily without disturbing the whole system.

Users: No prerequisite knowledge is required to manage the application. Each step will be clearly mentioned with instruction to next step.

2.7 Assumptions and Dependencies

Application is developed under the provided requirements of the client. If there are any changes in terms of the additional software (new operating systems as windows mobile or hardware), then the application may need certain customizations. The database schema requirements will be mutually discussed with the application owners and the database design will be signed-off. Any changes in the production database schema at a later date may impact the functionality of the mobile application.

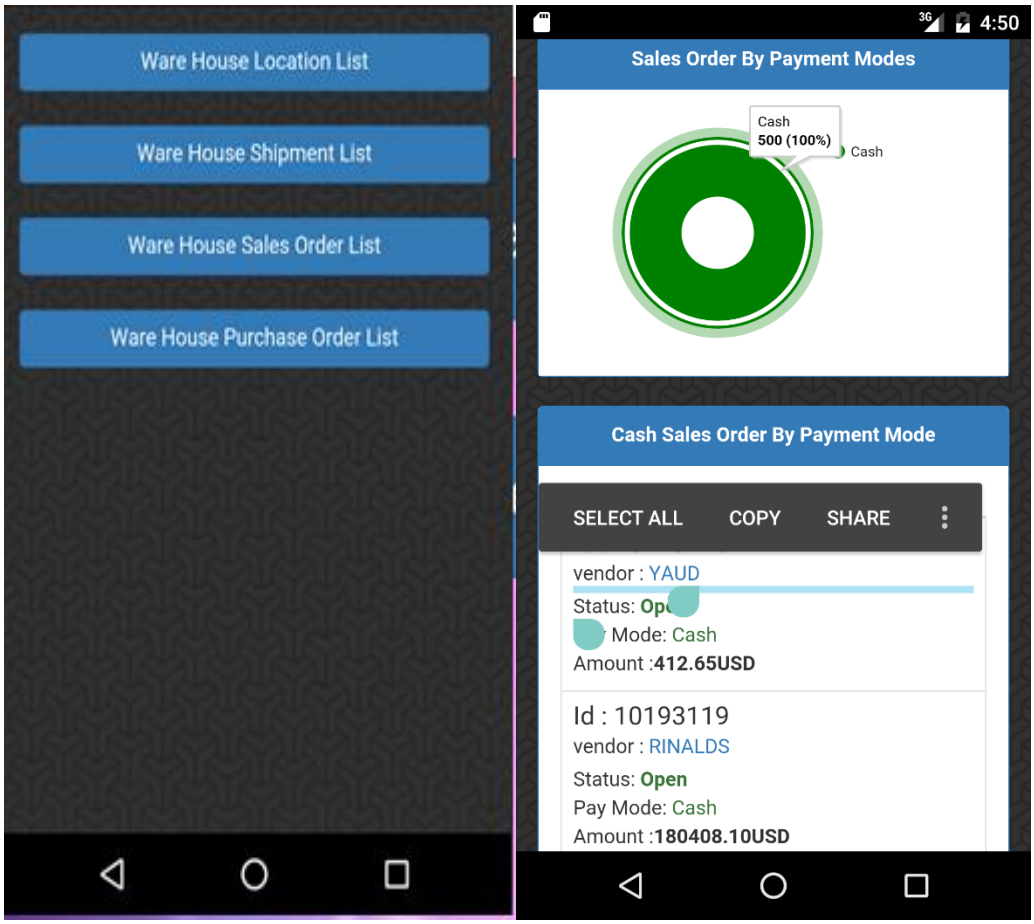
The warehouse administrator provides the access to the required test environments in the user testing phase. Any delays in providing the test environment could lead to delays in final deliverable sign-off.

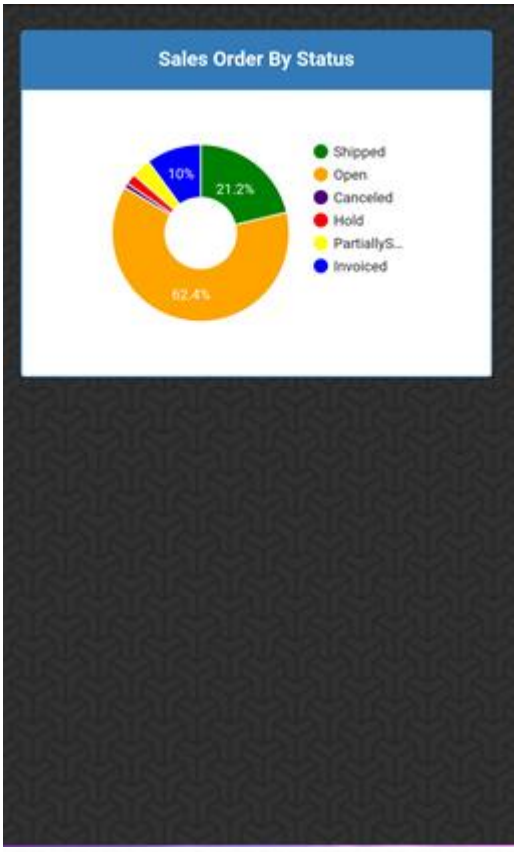
It is assumed that the development & test teams will have access to the application owners to discuss the progress of the project, provide the clarifications needed to complete the project at various phases of the execution. Any delays from the application owners in providing the required clarifications could lead to delays in completing the project

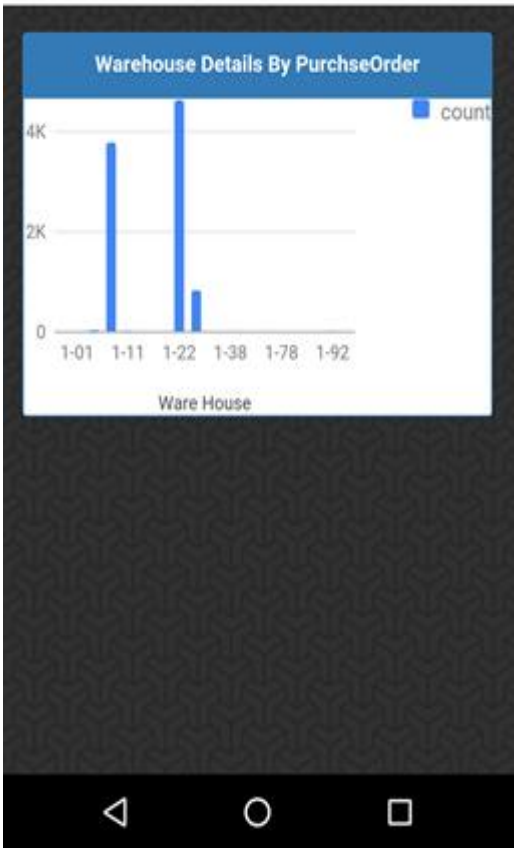
3. External Interface Requirements

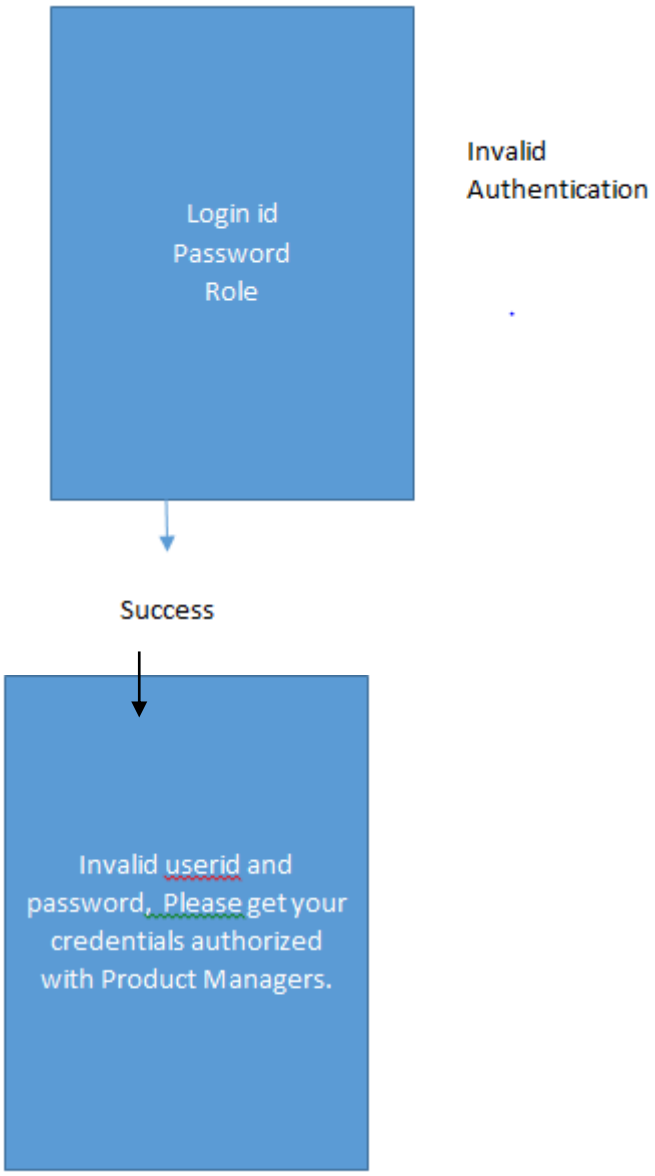
3.1User Interfaces

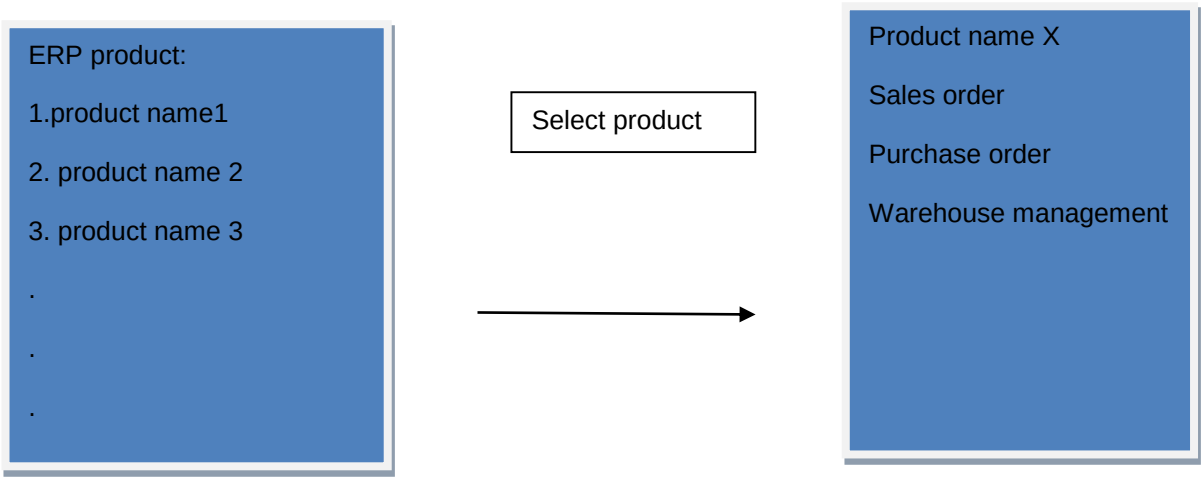
The following screen shots provide a high level view of the user interface required for the mobile application and the expected report formats. The detailed user interface design and various components will be developed during the design phase. The actual user interface designs will be reviewed by application owners and signed-off.

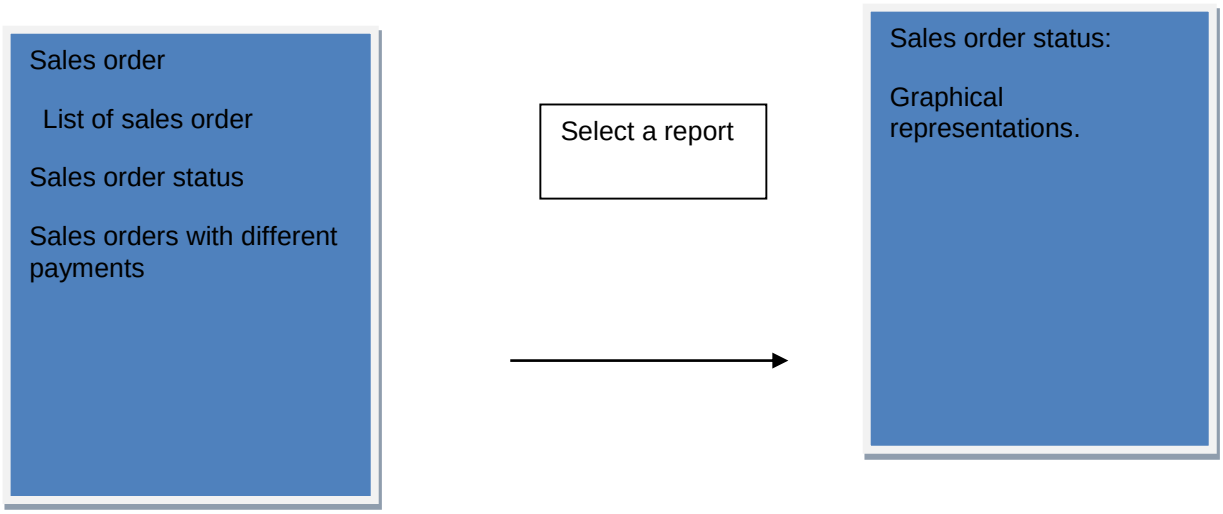


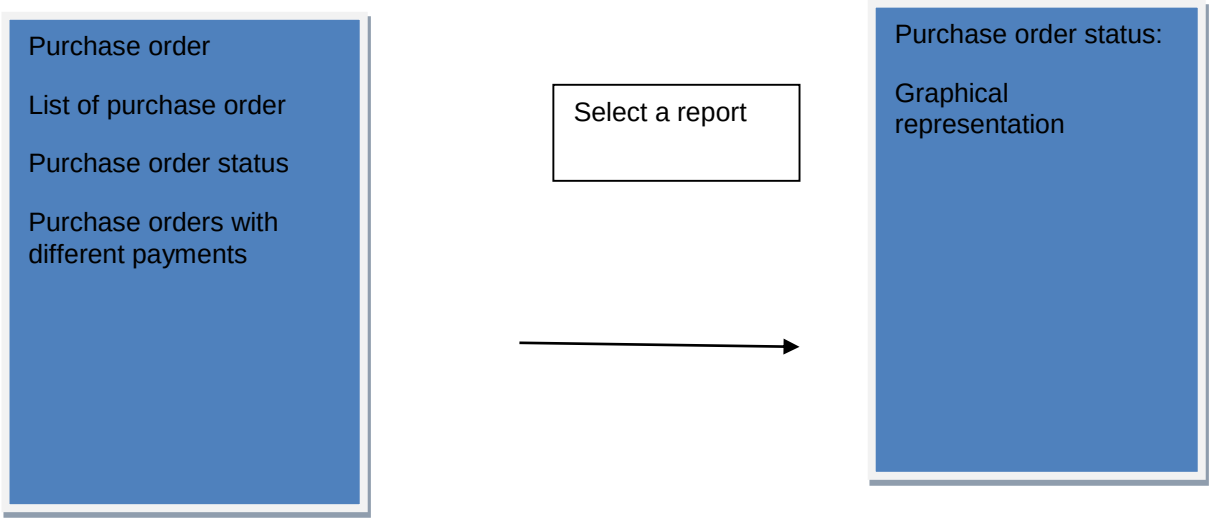

Sales Order By Status
10%
21.2%
62.4%
Shipped
Open
Canceled
Hold
PartiallyS...
Invoiced


Warehouse Details By PurchseOrder
count
4K
2K
0
1-01
1-11
1-22
1-38
1-78
1-92
Ware House


Login id
Password
Role
Invalid
Authentication
Success
Invalid userid and password, Please get your credentials authorized with Product Managers.


ERP product:
1.product name1
2. product name 2
3. product name 3
.
.
.
Select product
Product name X
Sales order
Purchase order
Warehouse management


Sales order
List of sales order
Sales order status
Sales orders with different payments
Select a report
Sales order status:
Graphical representations.


Purchase order
List of purchase order
Purchase order status
Purchase orders with different payments
Select a report
Purchase order status:
Graphical representation

Warehouse management:

1. Warehouse details

2. Warehouse

3. Warehouse details by purchase order

4. Warehouse details by sales order

5. Warehouse order by item

6. Inventory by item/location/warehouse

7.return shipments

ame as above

3.2 Hardware Interface

Application that is developed is hybrid and is compactable with many of the devices. All the devices need to have minimum hardware support for running the application. No external support for hardware is required. Minimum hardware will be listed below and is required for all devices.

Options	Minimum Support
Ram	512MB
Display	640*480
Communications	Secured, Dail-up

3.3 Software Interfaces

The following tools, libraries are required for developing this product :

1) Install latest version of JDK.
Follow the procedure from below link and install latest JDK.

http://www.oracle.com/technetwork/java/javase/downloads/index.html

2) Install Eclipse
Install Eclipse from the https://eclipse.org/
Install Android Development Tools with Eclipse.
There are many sites which offer this procedure. One can google and find easily. Here are some links for reference.

http://www.theserverside.com/tutorial/Step-by-step-guide-to-Android-development-with-Eclipse

https://www.ibm.com/developerworks/opensource/tutorials/os-eclipse-android/

Alternately, one can develop using Android Studio also. If you are following Android Studio then Eclipse is not required. It is up to the developer choice.

3) Install Phone Gap.
Phone Gap is one of the popular tool which provides framework for developing Hybrid Mobile applications. This tool provides space for web view development and also provides all Phone features APIs.

Adobe has taken over the PhoneGap. If you are planning to market your app by placing in Appstores then you need to pay some money to Adobe whenever you are placing the app in appstore.

There are many links available on google. You can follow anyone of those and install the PhoneGap framework.

Following are some of the links.

https://www.npmjs.com/package/phonegap

http://docs.phonegap.com/getting-started/1-install-phonegap/cli/

4) Install Tomcat Server
You need to install the Server component where host the server app for interaction with database.

https://tomcat.apache.org/download-70.cgi

5) Install MySQL database
The SQL database is required to store the ERP data. The server component should interact with SQL database to read and write the data. The Server component need to create proper SQL queries and extract the required data.

http://dev.mysql.com/downloads/

6) Install Chrome or Firefox browser.

3.4 Communications Interfaces

Communication from application to outside networks will be done through will be over a secured protocol majorly HTPPS, FTP and others. Before connecting to secure network users will be checked, not to allow spamming to the internal networks.

4. System Features

The below all the sections describe the features of the hybrid application. Each feature will be described in a brief.

4.1 Authentication

All the users are provided with different with platforms. They can use the application in all the devices and the data flow will be synced without any problem because all the data is centralized in a single database.

4.2 Purchasing Products

All the products will be shown with their respective status like availability, usability and others to all the users. These maintenance will be done by respective managers. The purchase order creation is an important function in the process to ensure the quick communication of the demand to the concerned teams in the warehouse management. Once the purchase order creation happens in the system, the various divisions will be informed to plan their next plan of action to fulfill the demand.

4.3 Updating the Orders

Purchases that are made will be stored and will be made visible to the users so that they can update them as per the requirements. This will help plan the supply chain management better to meet the demands. The format and the required fields of this view will be provided in detail during the design phase. This makes the users to achieve their flexibility on purchasing the products. Also give the users a tracking option in the orders to check the status of the orders.

4.4 Reports

This is one of the special features that is specially made for managing the complete warehouse with single clicks. All types of reports and their users will be listed below.

4.4.1 Purchase Reports

Purchase reports include reports of all the type of purchases that are made by the customers as product wise, monthly, yearly, overall and others. These are made in graphical ways which allows managers and others to get the output of the reports clearly in a single look.

4.4.2 Sales Reports

Sales reports include reports of all the type of sales that are made by the customers as product wise, monthly, yearly, overall and others. These are made in graphical ways which allows managers and others to get the output of the reports clearly in a single look.

4.4.3 Warehouse Reports

Warehouse reports include reports of all warehouses. All the products, purchases, sales of the particular warehouses will be shown here. These are made in graphical ways which allows managers and others to get the output of the reports clearly in a single look.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

The application is expected to meet certain performance criteria. However, there are other dependencies which could cause an impact on these performance criteria depending on the speed of the network, server response time, load etc.

- The database shall be able to accommodate a minimum of 10,000 records of Users, Criminal Records, Witness Records individually.
- The software shall support use of multiple users at a time.
- There are no other specific performance requirements that will affect development.

5.2 Safety Requirements

The application needs to take proper safety measures to handle the database and concerned data. The exception handling while handling the data updates needs to be handled carefully. The database locking and committing needs to be appropriate so that no data corruption happens through the functionality. The software has been well modeled to work in all kinds of unexpected situations during runtime. However, in any case if the software crashes a bug report must be allowed to be sent to the developers

5.3 Security Requirements

The database should be protected physically by having server located in an enclosed and guarded facility. Virus scanning software should be installed to protect from viruses. The server should be installed under firewall so that server only internal users

can access it. The system shall be compatible with AIMS security standards. There should be terms and conditions and a check on the content added by the users. Duplicate record must be discarded by the administrator.

5.4 Software Quality Attributes

The Quality of the System is maintained in such a way so that it can be very user friendly to all the users.

- **Accurate and hence reliable:** The system should be robust enough to handle fault tolerances. The system should not crash and should be able to identify invalid inputs and produce a suitable error message.
- **Availability:** The system should be available 24/7. It should always provide real time information.
- **Usability**: The system should provide an easy to use Graphical interface similar so that users do not have to learn a new style of interaction. Any notification or error messages generated should be clear, succinct, polite and free of jargon.
- **Fast speed:** The system should be fast enough to display error messages, notification, results etc.
- **Integrity:** Only system administrator has the rights to change system parameters, such as pricing policy etc. Users need to be authenticated before accessing personal data.

5.5 Business Rules

The application needs to follow the role based access and functionality to ensure the data security. The detailed role based matrix will be provided in the design phase based on the business rules defined by the application owners.

6. Other Requirements

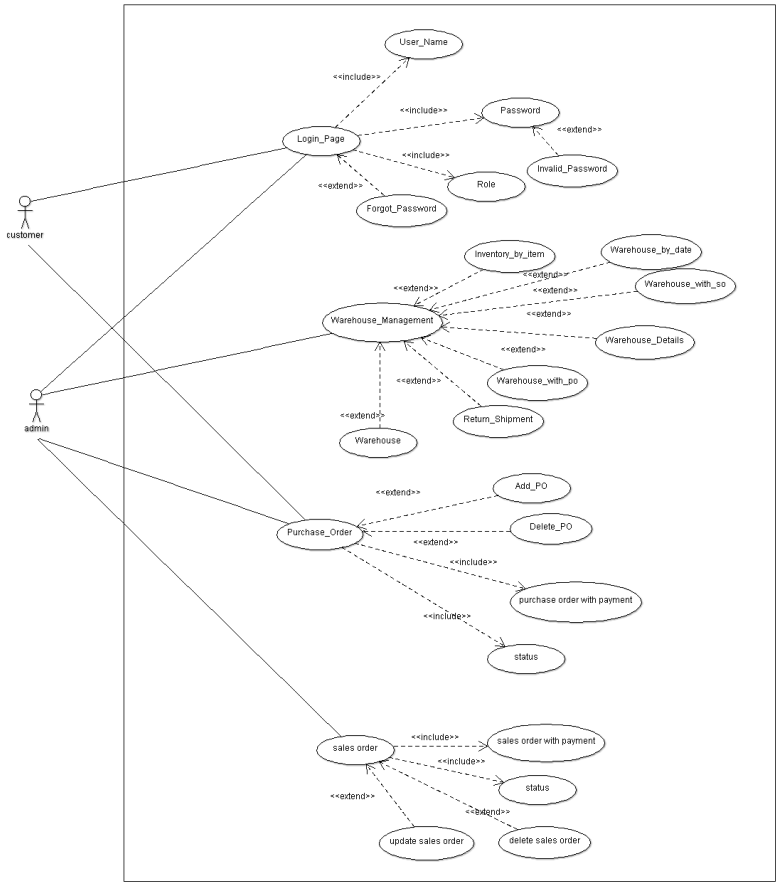
Although major requirements are covered, minor requirements such as color combinations, sizes of tabs and others will be reserved by the client.

Appendix A: Glossary

All the abbreviations are described here and use case also.

Id	Expand
DB	Database
CRUD	Create, Replace, Update, Delete

POST	Sending data protocol
PO	Purchase Order



Appendix B: Analysis model:

The model we are using is agile model. It is the combination of iterative and Incremental process model.