



CSSE 414

**ADVANCE SOFTWARE
ENGINEERING**

GROUP:

SOFTWARE ENGINEERING (BSSE)

SECOND YEAR [MORNING]:-

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INVENTORY MANAGEMENT SYSTEM

Abstract:

Inventory Management System is software which is helpful for the businesses operate hardware stores, where Admin keeps the records of sales and purchase. Mismanaged inventory means disappointed customers, too much cash tied up in warehouses and slower sales. This project eliminates the paper work, human faults, manual delay and speed up process. Inventory Management System will have the ability to track sales and available inventory. Using different interfaces for different users. Such as Administrator can access and modify all the functionalities. Software does not allow users to access all functionalities. Privacy for unwanted insertion in stock is also maintained.

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1 INTRODUCTION:

The purpose of this document is to give a detailed description of the requirements for the “INVENTORY SYSTEM” software. It will illustrate the purpose and complete declaration for the development of system. It will also explain system constraints, interface and interactions with Admin and Users also.

1.1 Features:

This overview provides some of the business considerations related to inventory management. You can use the following features to help you fully utilize your Inventory Management system:

- Stocking considerations
- Item identification
- Location and lot considerations
- Physical and logical warehouses
- Item count and cost computation

1.2 Software Development Steps:

1.2.1 Requirement Gathering:

By visiting inventory go-downs & with the help of Internet.

1.2.2 Implementation:

It is done by breaking down the software into smaller chunks and after testing each chunk individually finally integrate the software

1.2.3 Software Testing:

For testing we have tried all the possible aspects that can create any type of interrupt.

1.3 Methodology:

Prototype:

It is a specialized software development procedure that initiates developers towards making only the sample of the resolution to validate its functional essence to the customers and make essential changes before creating the authentic final solution.

By using this prototype, the client can get an “actual feel” of the system, since the interactions with prototype can enable the client to better understand the requirements of the desired system. Prototyping is an attractive idea for complicated and large systems for which there is no manual process or existing system to help determining the requirements. The goal is to provide a system with overall functionality.

- Gives clear idea about the functional process of the software
- Reduces the risk of failure in a software functionality
- Assists well in requirement gathering and the overall analysis

2 REQUIREMENTS

2.1 Functional Requirements:

The main purpose of functional requirements within the requirement specification document is to define all the activities or operations that take place in the system. These are derived through interactions with the users of the system.

2.1.1 Manage Users:

- It allows admin to manage users, hold their details, authenticate these users at the time of login and accordingly provide different options.

2.1.2 Manage Stock:

- It holds the details of all the product stock and the system allows the admin to log into the system and enter inwards entries related to the stock.
- It also allows User(s) and Admin to view the list of inward and outward entries.

2.1.3 Order Details:

- Admin and user(s) are accessible to view the order details.

2.1.4 Customer Details:

- System holds the records of customer. In case of new customer, the customer will register
- Admin and user(s) are accessible to view the customer details.

2.1.5 Supplier Details:

- The system also holds supplier details, which are accessible to admin and user(s).

2.1.6 Generate Invoice:

- When customer make an order then it checks stock that product is available or not, if it's available then order is confirm and generate invoice, else order is either discard or modify then It again checks stock and follow same steps mentioned above.

2.2 Non-Functional Requirements:

Non-Functional Requirements (NFRs) define system attributes such as security, reliability, performance, maintainability, scalability, and usability. Also known as “System Qualities”.

2.2.1 Response Time:

- System will appear description and price of a required item(s) within 1 seconds.
- On successful login, the system must respond with Admin's/User's account status or (in the case of invalid attempt entered) an “Invalid Password, Login Failed” message within 1 seconds.

2.2.2 Ease of Use:

- The system must be user friendly, with easy to understand menu, instructions etc.
- Minimal learning time for commands.

2.2.3 Operating Platform:

- The system should operate on Microsoft Windows 7, 10 etc.
- The system should be able to run effectively on a PC with a minimum 1.6 GHz processor and 1 GB Ram.

2.2.4 Interface:

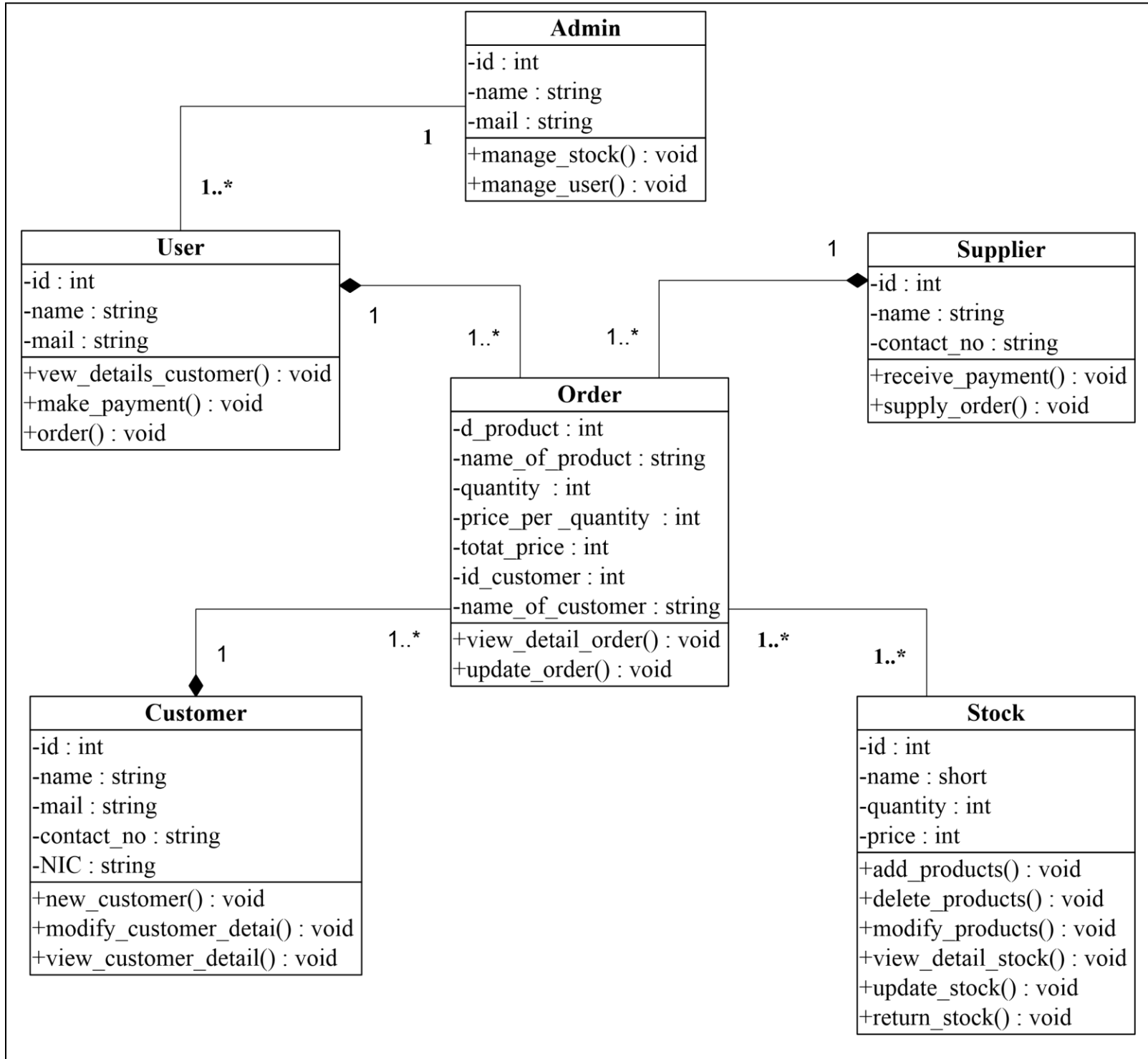
- The GUI of the system should include windows, dialog boxes, menus, buttons and on screen instructions etc.
- Upon successful completion of an operation (for example a creation of a new customer record) a message highlighting the success or failure of the operation should be displayed

2.2.5 Privacy and Security:

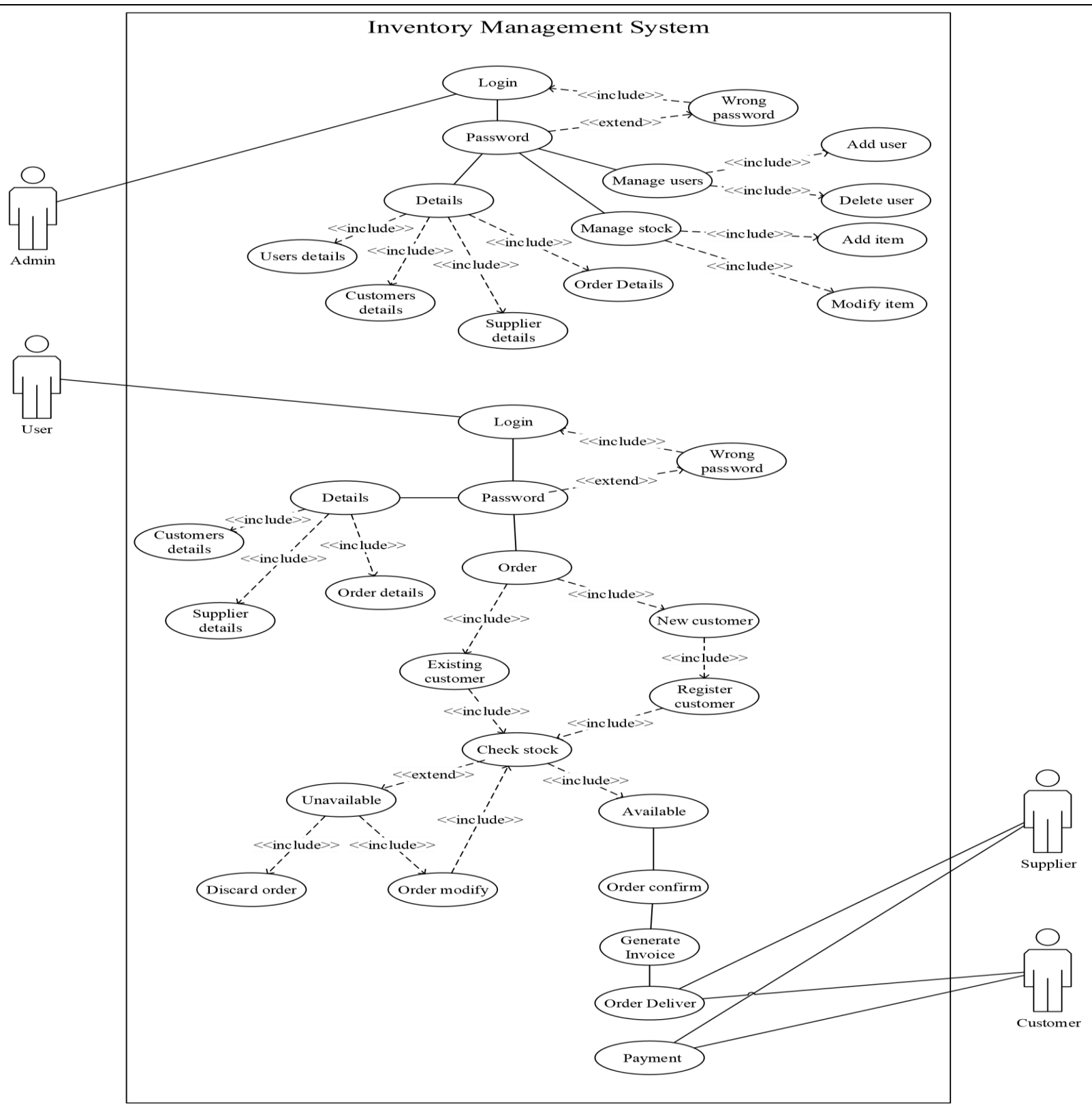
- Customer's personal information is only accessible by a limited number of user(s) /admin(s) who have special access rights to use the systems, and are required to keep the information confidential.

3 UML DIAGRAM(s):

3.1 Class Diagram:

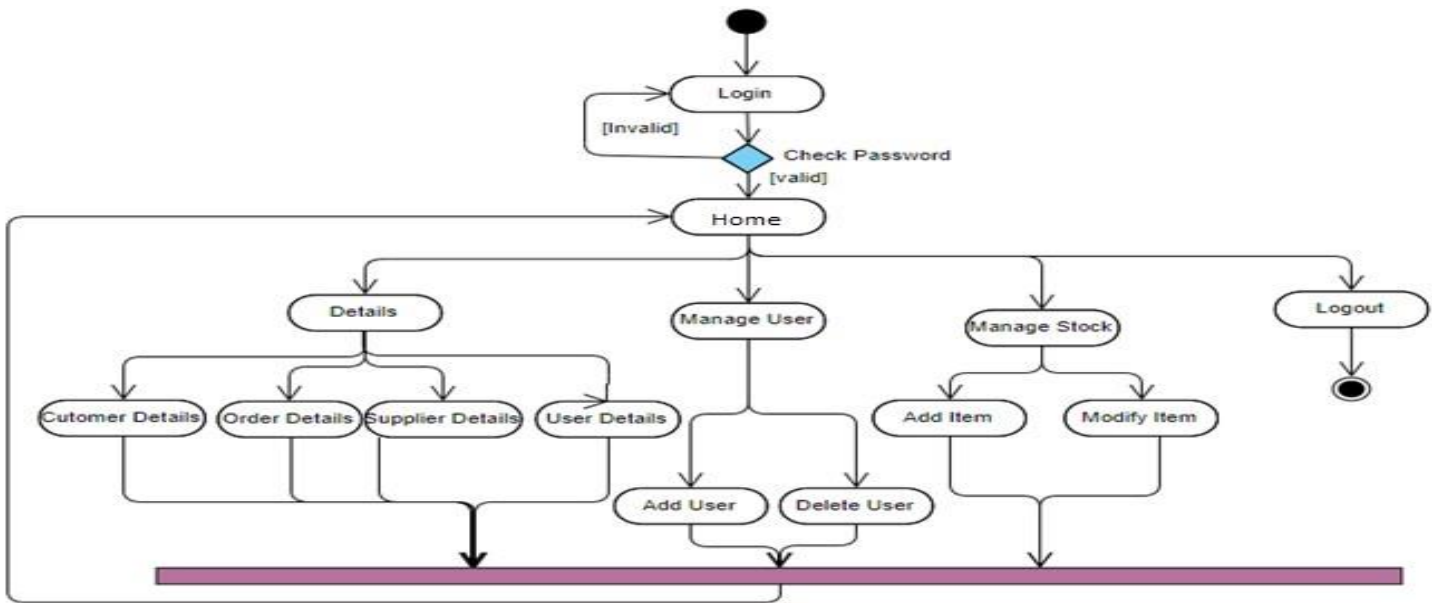


3.2 Use-Case Diagram:

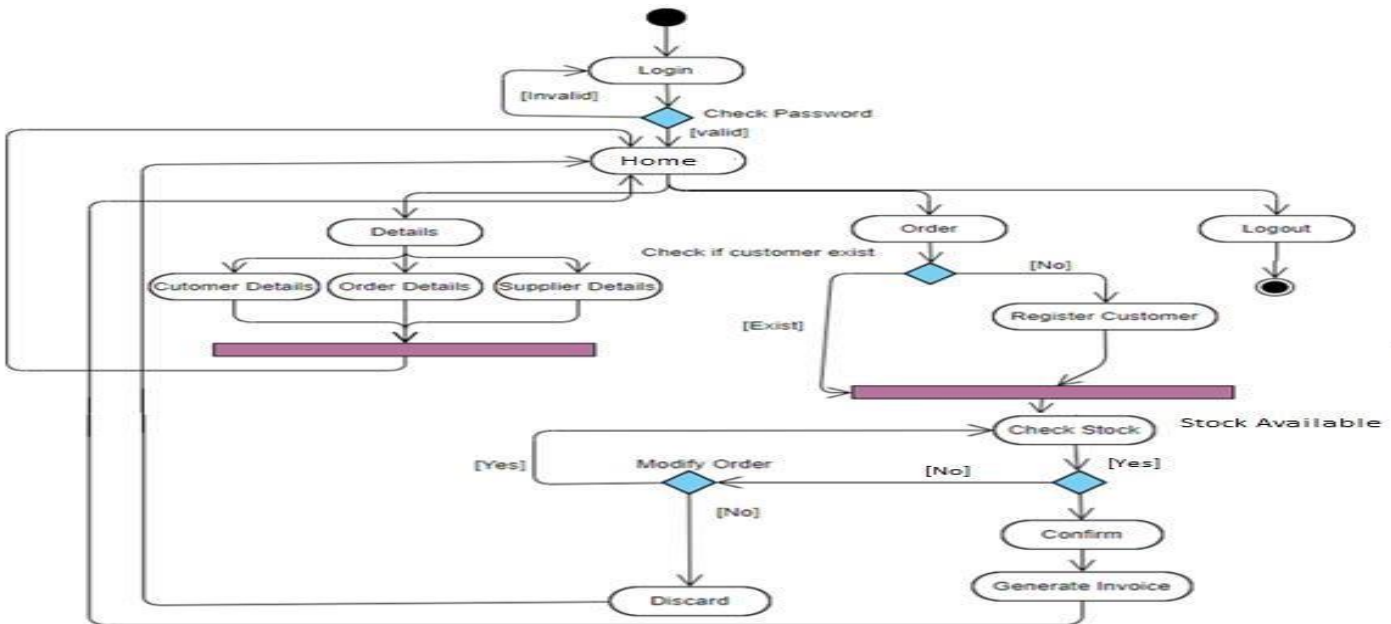


3.3 Activity Diagram:

3.3.1 For Admin:

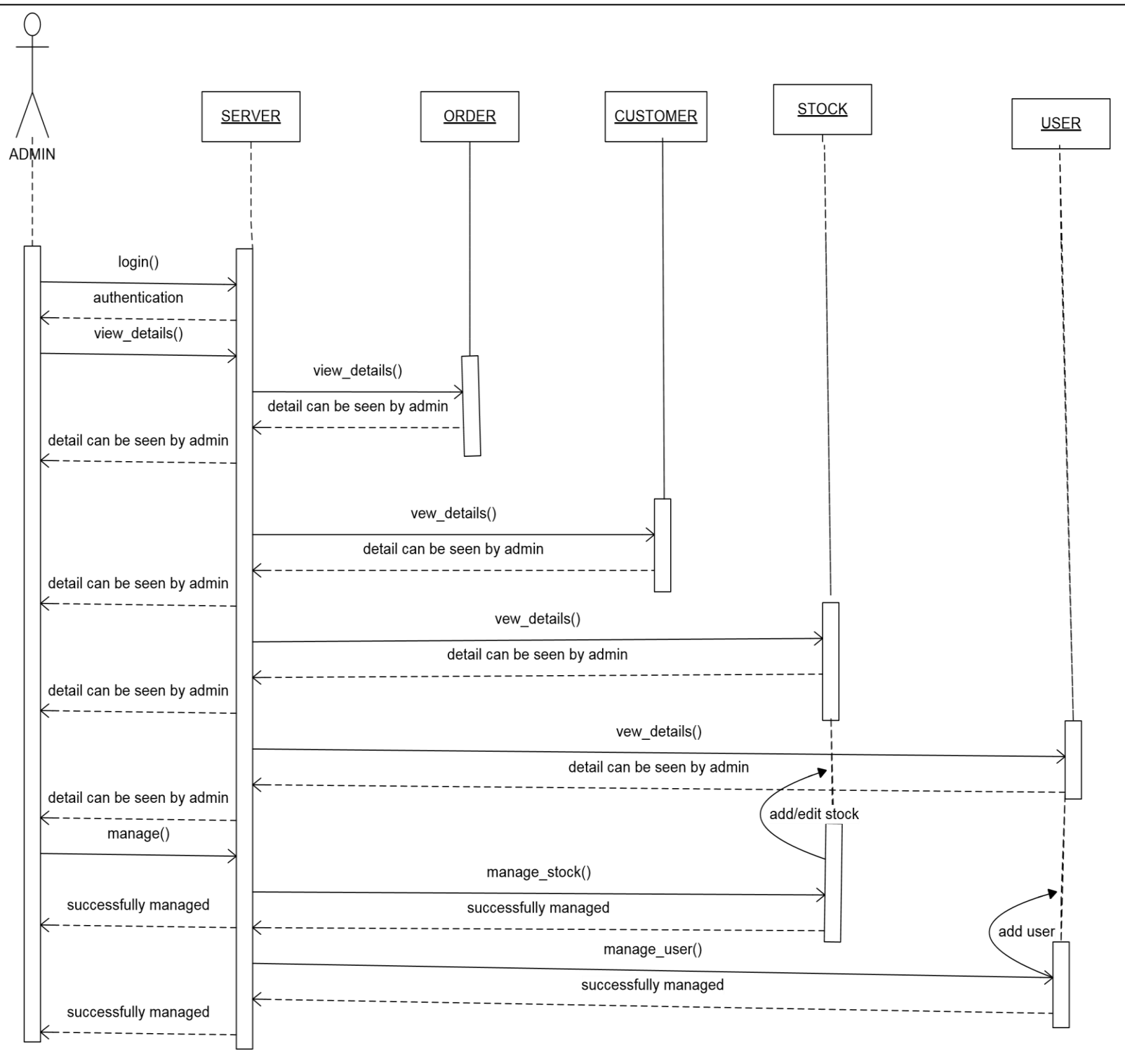


3.3.2 For User:

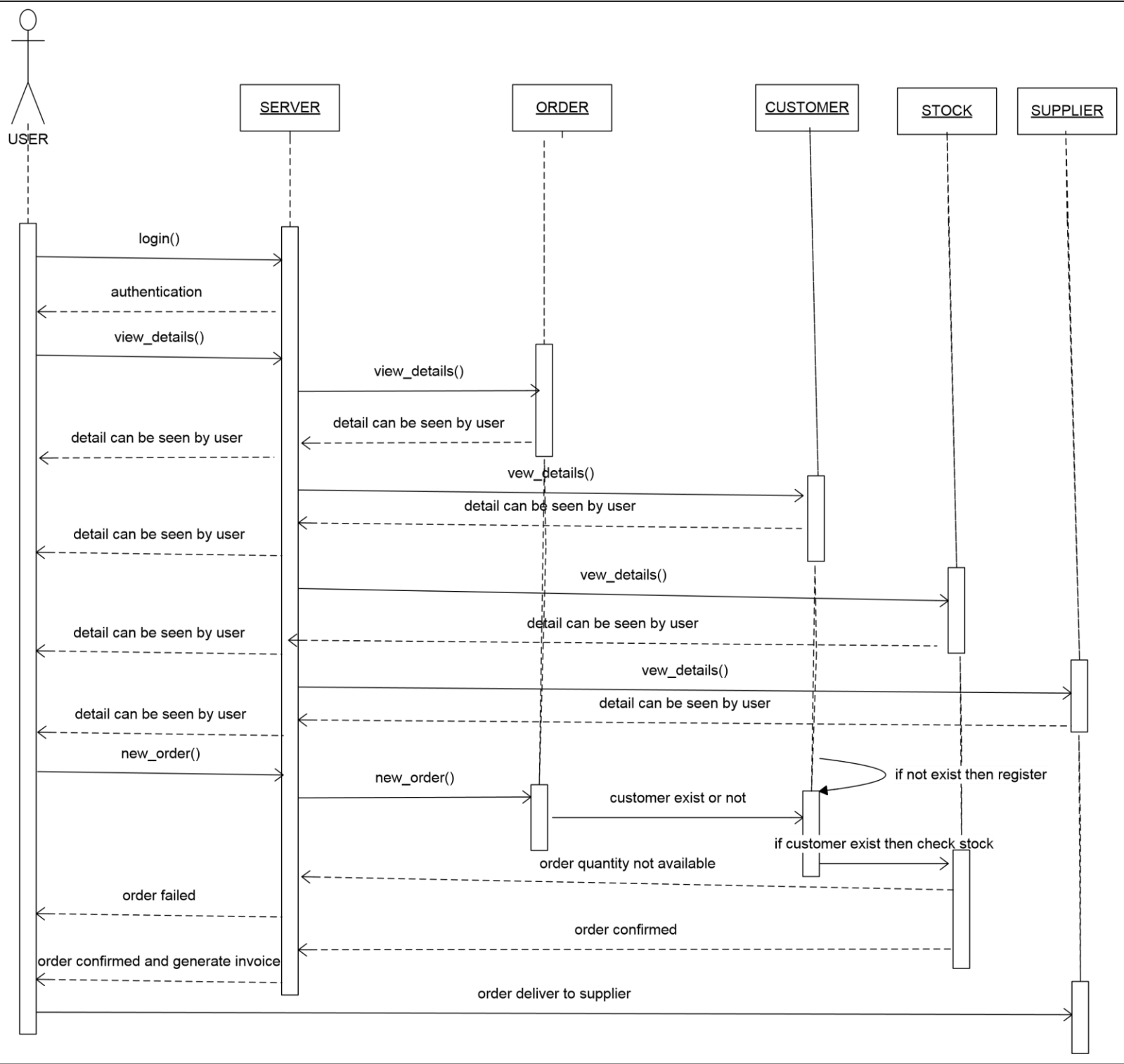


3.4 Sequence Diagram:

3.4.1 For Admin:



3.4.2 For User:



4 SOFTWARE TOOLS:

4.1 Analysis Tools:

4.1.1 Available Tools:

- **Apache Spark:** It is an open source, wide range data processing engine, basically, it provides an execution platform for all the software.
- **Ms-Excel:** Microsoft Excel is a spreadsheet program used for calculations, making charts and recording data about all sorts of business processes.
- **Rapid Miner:** Rapid Miner Studio is a "downloadable GUI for machine learning, data mining, text mining, predictive analytics and business analytics".
- **KNIME:** Allows users to visually create data flows (or pipelines), selectively execute some or all analysis steps.
- **QlikView:** Is a Reporting tool which is used for creation of dashboards for analytical purpose.

4.2 Project Management Tools:

4.2.1 Tools Used:

- **MS-Project:** The application is designed to assist project managers in developing plans, assigning resources to tasks, tracking progress, managing budgets and analyzing workloads.

4.2.2 Available Tools:

- **Wrike:** It is an intuitive spreadsheet-like app that can be used to perform and manage a range of work such as business processes, event schedules, sales pipelines, customer info, task lists, and team projects.
- **Asana:** It's a tool for organizing personal or team work, basing the system on individual tasks framed into bigger projects.
- **JIRA:** It is used for bug tracking, issue tracking, and project management.
- **Smart Sheet:** It is used to assign tasks, track project progress, manage calendars, share documents and manage other work.

4.3 Designing Tools:

4.3.1 Tools Used:

- **Ms-Visio:** It is used for many things that utilize layouts, diagrams, and charts, UMLs, Class Diagrams etc.

4.3.2 Available Tools:

- **Visual paradigm:** Visual Paradigm is a software tool designed for software development teams to model business information system and manage development processes.

- **Borland Together:** Is a visual modeling tool that helps business and development teams to analyze and design software architectures.
- **Papyrus:** Is designed to be easily extensible as it is based on the principle of UML Profiles.
- **Umbrello-The UML Modeler:** helps the software development process by using the industry standard Unified Modelling Language (UML) to enable you to create diagrams for designing and documenting your systems.
- **Rational Software Modeler:** Is an object-oriented Unified Modeling Language (UML) software design tool intended for visual modeling.
- **ArgoUML:** An easy-to-use UML tool with cognitive support.

4.4 Functional Tools:

4.4.1 Tools Used:

- **Visual Studio:** Is a set of tools that independent software vendors (ISVs) can use to build customization abilities into their applications for both automation and extensibility.

4.4.2 Available Tools:

- **Eclipse:** used as an IDE for JAVA for which a plug-in is available.
- **AnaConda:** Is a freemium open source distribution of the Python and R programming languages for large-scale data processing, predictive analytics, and scientific computing, that aims to simplify package management and deployment.
- **PyCharm:** Is an integrated development environment (IDE) used in computer programming, specifically for the Python language.

4.5 Database Tools:

4.5.1 Tools Used:

- **Sql server(2012):** Used to perform tasks such as update data on a database, or retrieve data from a database.

4.5.2 Available Tools:

- **WampServer:** Is a Web development platform on Windows that allows you to create dynamic Web applications with Apache2, PHP, and MySQL. WampServer automatically installs everything you need to intuitively developed Web applications. You will be able to tune your server without even touching its setting files.
- **MS Access:** Is a database object that you can use to create a user interface for a database application
- **Microsoft Azure:** works to create, scale and extend applications into the cloud using Microsoft SQL Server technology.

5 **CONCLUSION:**

Inventory System software developed for a company has been designed to achieve maximum efficiency. It is designed to replace an existing manual record system thereby reducing time taken for calculations and for storing data.

The system is strong enough to withstand regressive daily operations under conditions where the database is maintained and cleared over a certain time of span. The implementation of the system in the organization will considerably reduce data entry, time and also provide readily calculated reports.

6 FUTURE WORK:

First of all we will make possible online sell and purchase as well as online payment facilities.

We are also planning to replace the present sql database system from a suitable cloud storage system such as Microsoft Azure, Amazon web services.

Also we will add automatic monthly report generation feature to provide ease to the inventory system users.

The most desired feature is replacing the manual inwards purchasing to the automatic inward purchasing in which our system monitors the inward items and automatically purchase the items and add to stock when it feels the low amount of stocks.

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