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Vellore Institute of Technology

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SCHOOL OF COMPUTER SCIENCE ENGINEERING

CSE 3001 – SOFTWARE ENGINEERING

PROJECT REPORT

INVENTORY P.O.S. MANAGEMENT

Submitted by

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Contents

1. INTRODUCTION

1.1 PURPOSE

This document conveys the SDS (Software Design Specifications) for our project based on 'Inventory POS Management'. It contains specifications about the way our project is designed through analysis of the architecture of the project and the interactions between the classes to fulfill the required outputs.

1.2 OVERVIEW OF SYSTEM

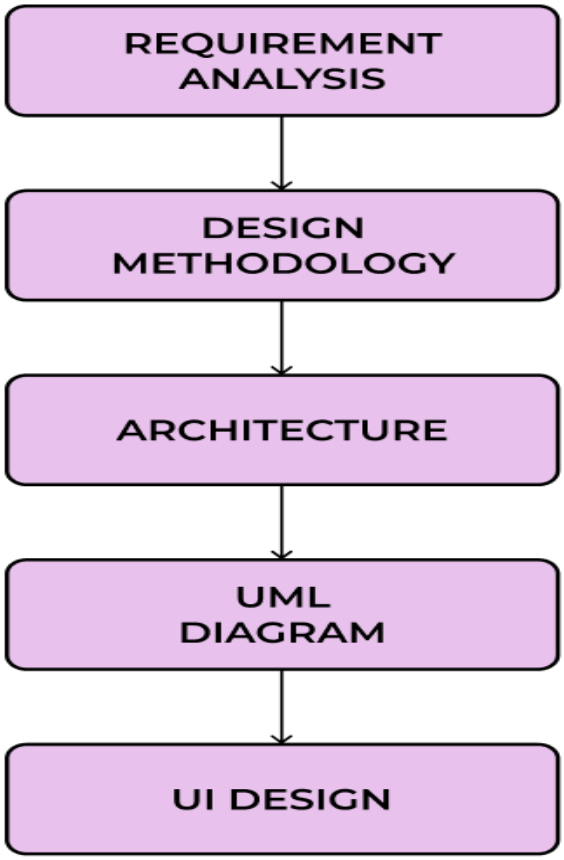
The POS inventory management system is intended to be used by small businesses who wish to manage their sales in a POS inventory-based system. This can also be used by consumers who intend to purchase their goods & services from e-commerce platforms.

Our system also intends to bring out the perks of POS management which includes improvements in inventory management, ability to track costs of the specific product, and invoice billing functionality. We aim to prepare a web-based platform for the abovementioned POS to track the sales activity which would include an attractive user interface, a dashboard feature supported by a database for the intended functionality.

1.3 PROJECT SCOPE

Through the POS inventory management system, we intend to cover the shortcomings of current existing systems to develop a solution. Our main objective is to create a web-based platform for tracking sales activity. It can be used by an admin as well as a user. We intend to show all products on our platform with details such as the cost, quantity, description, etc. so that the user can conveniently buy the product. We also target to provide the admin with administrative attributes such as data maintenance, details about products and data visualization. We would also include a dashboard on our platform for the user's convenience.

1.3 DESIGN MAP



2. DESIGN CONSIDERATIONS

2.1 ASSUMPTIONS

We take into consideration the following assumptions before planning our design methodology:

1) All design tools and applications are free to use and easy to learn.
2) The flow of our project will be following the evolutionary development model.
3) The project will be implemented using the call and return architecture.

2.2 CONSTRAINTS

The following constraints will be faced while developing the project:

1) The deadline must be respected and we cannot take more time than the time that is allotted to us.
2) Not all tools are free to use so we will have to use only free programs.
3) Our project would not be completely perfect and it would be under constant improvement.

2.3 SYSTEM ENVIRONMENT

We plan to use the following technologies while designing the system:

1) UML diagrams & UI Design: Figma
2) Frontend: HTML, CSS, JavaScript
3) Backend: PHP
4) IDE: Sublime
5) Server: Apache
6) Database: MySQL

2.4 DESIGN METHODOLOGY

A Methodology can be defined as the principles and rules in order to govern a system. Now, a method can be defined as a procedure for a set of activities. For software design, design methodology is a critical step as it determines how the complete software development task would proceed under the designing section. So, a better design methodology can lead to a well-defined project.

For our design methodology, we will be using the following components:

1) A model consisting of constructs in the problem.
2) A set of procedures which will guide us throughout the project.
3) A set of guidelines showing us the things to avoid during the development of our project.
4) Evaluation criteria for assessing the product quality.

Software design methodology consists mainly of the software design process, coupled with the software design representation, which mainly consists of UML diagrams and UI designs. It is a needed component of the project development phase as it can be of aid whenever we revisit the project for maintenance purposes.

3. ARCHITECTURE

3.1 OVERVIEW

This section is a detailed representation of the architecture used in our project. The call-and-return architecture will be used during the architectural analysis phase. This architectural model has been chosen for our project as it involves a lot of functional calls and returns, and hence, we need an architectural model which is easy to modify.

3.2 SUBSYSTEM, COMPONENT AND MODULE

This architectural style allows us to achieve a structure which is easier to modify compared to the other architectural styles. This is further divided into two types:

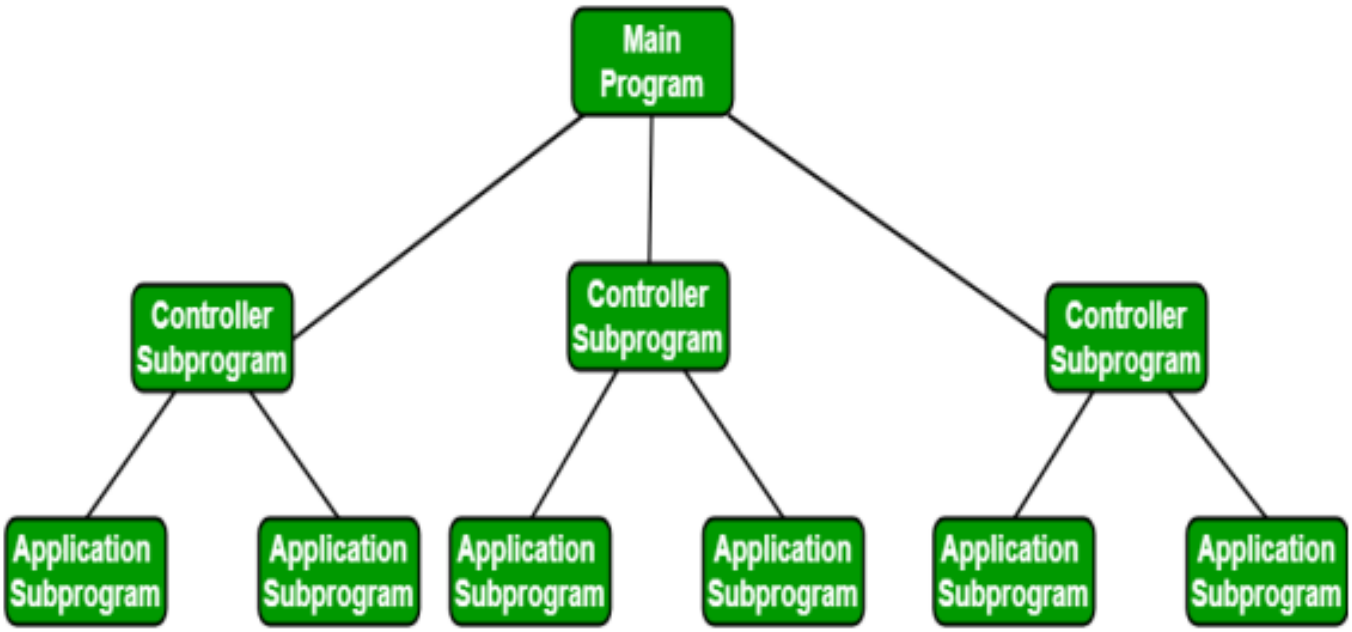
1) Main program / subprogram architecture:

   The program is hierarchically divided into smaller pieces. The main program invokes its subprograms, which are its components basically.

2) Remote procedure call architecture:

   The main program along with its components are distributed in a network of many computers. This has been done in order to focus more on the performance of the system.

Our project is following the main program / subprogram style.



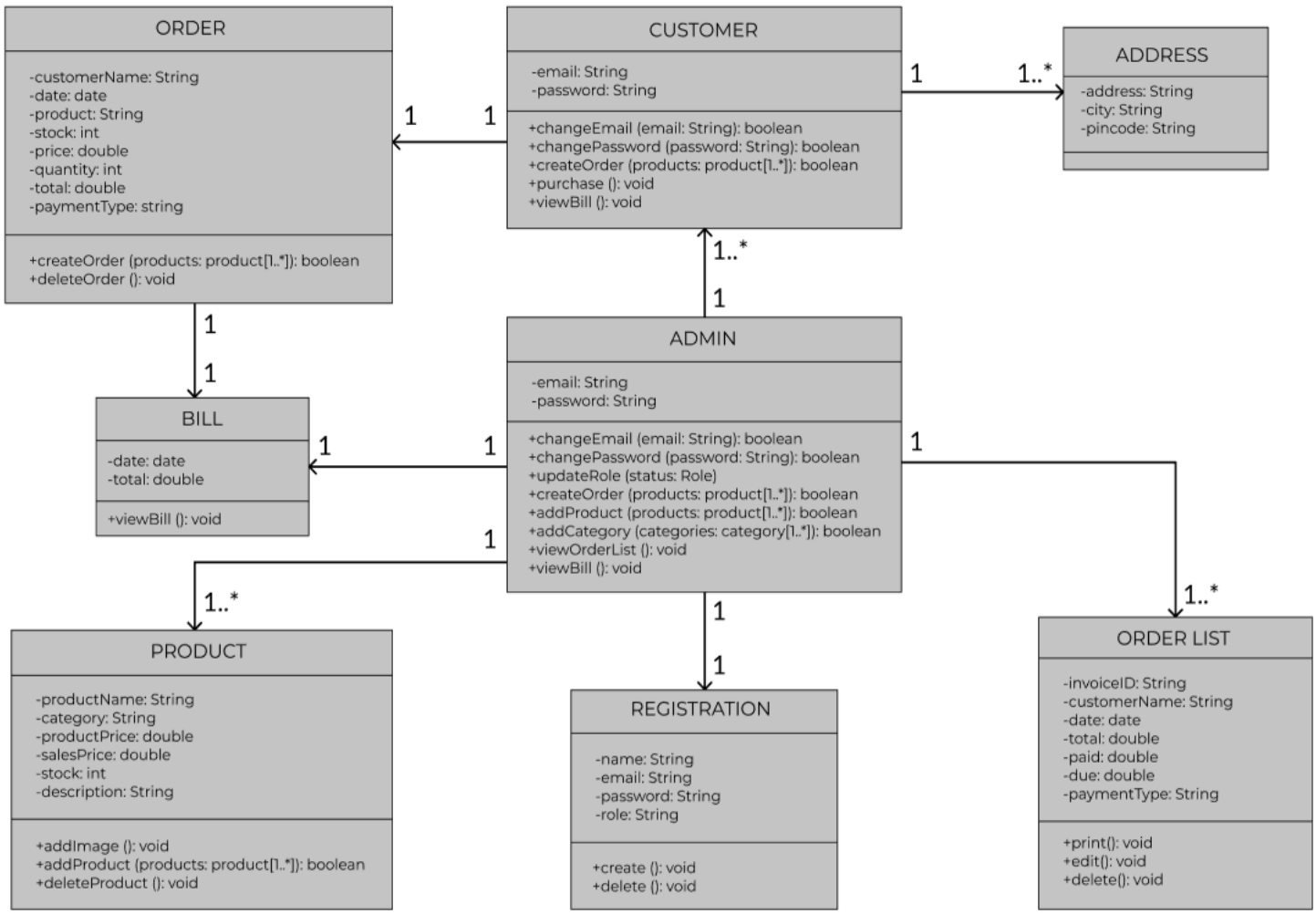
3.3 STRATEGY

The main program / subprogram architecture uses the following strategy:

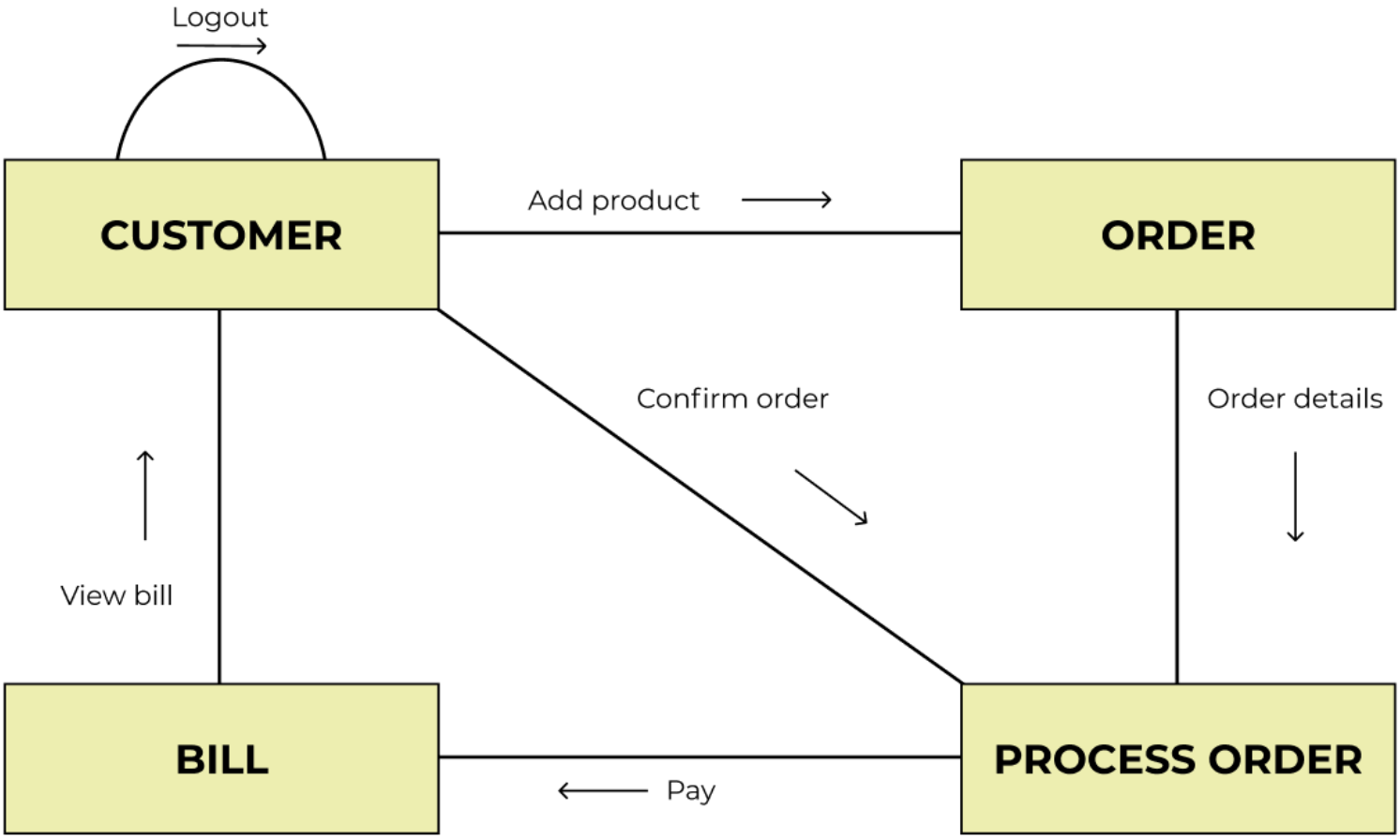
1) The user executes the main program.
2) From given user input, a subprogram gets executed.
3) The subprograms then access their libraries and invoke calls among themselves.
4) This process continues until the program is exited or terminated.

4. UML DIAGRAMS

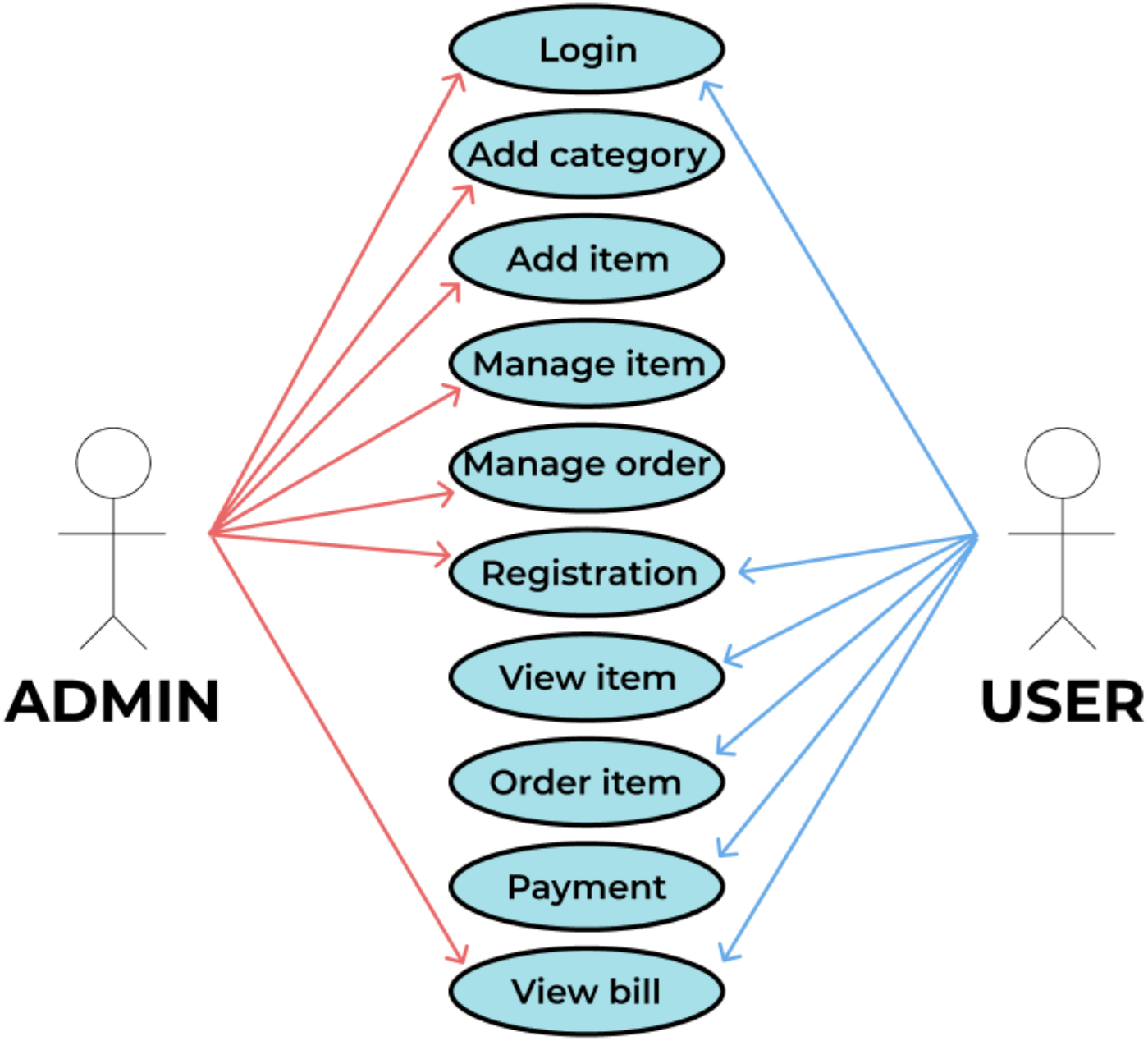
4.1 CLASS DIAGRAM



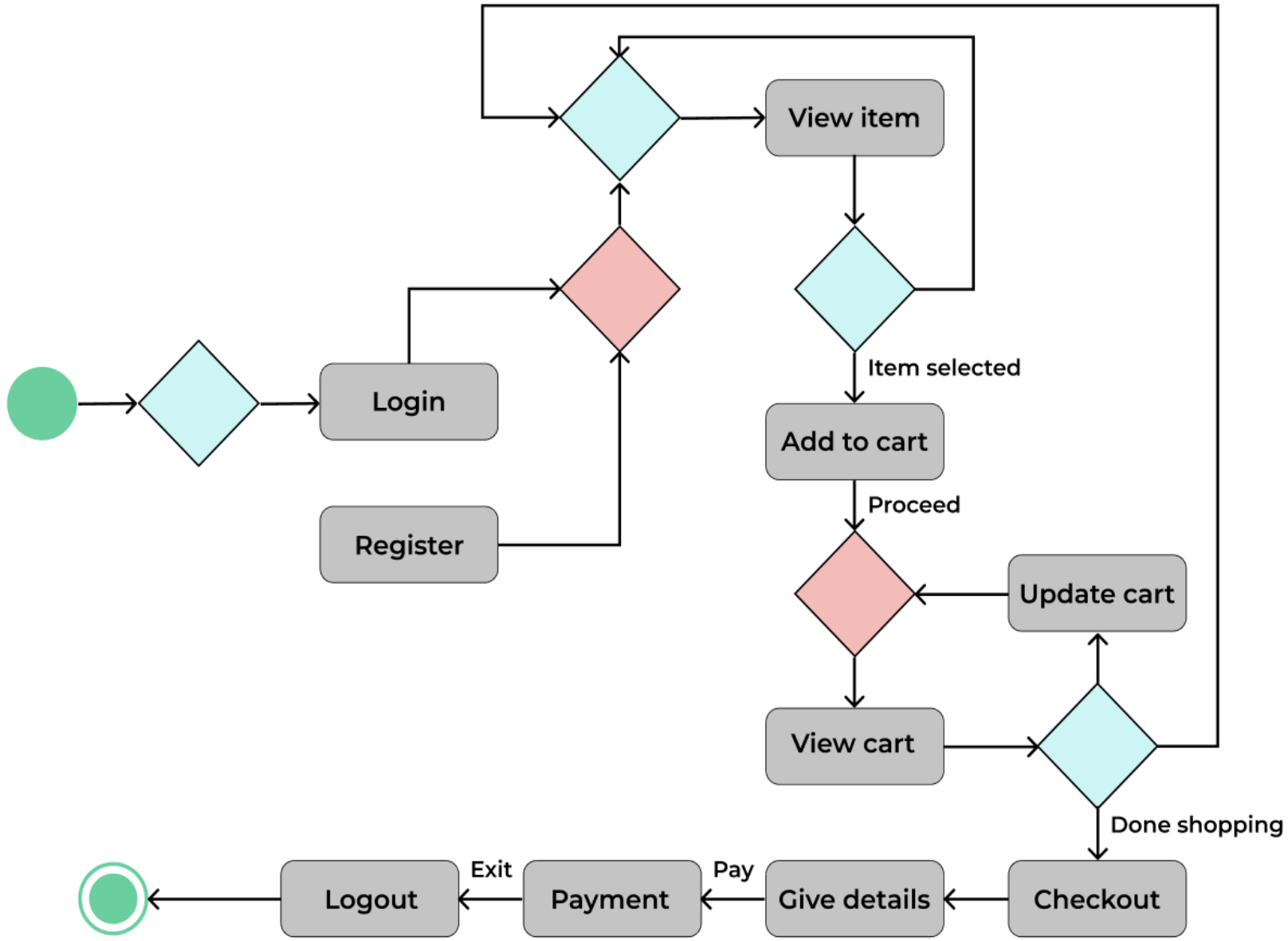
4.2 COLLABORATION DIAGRAM



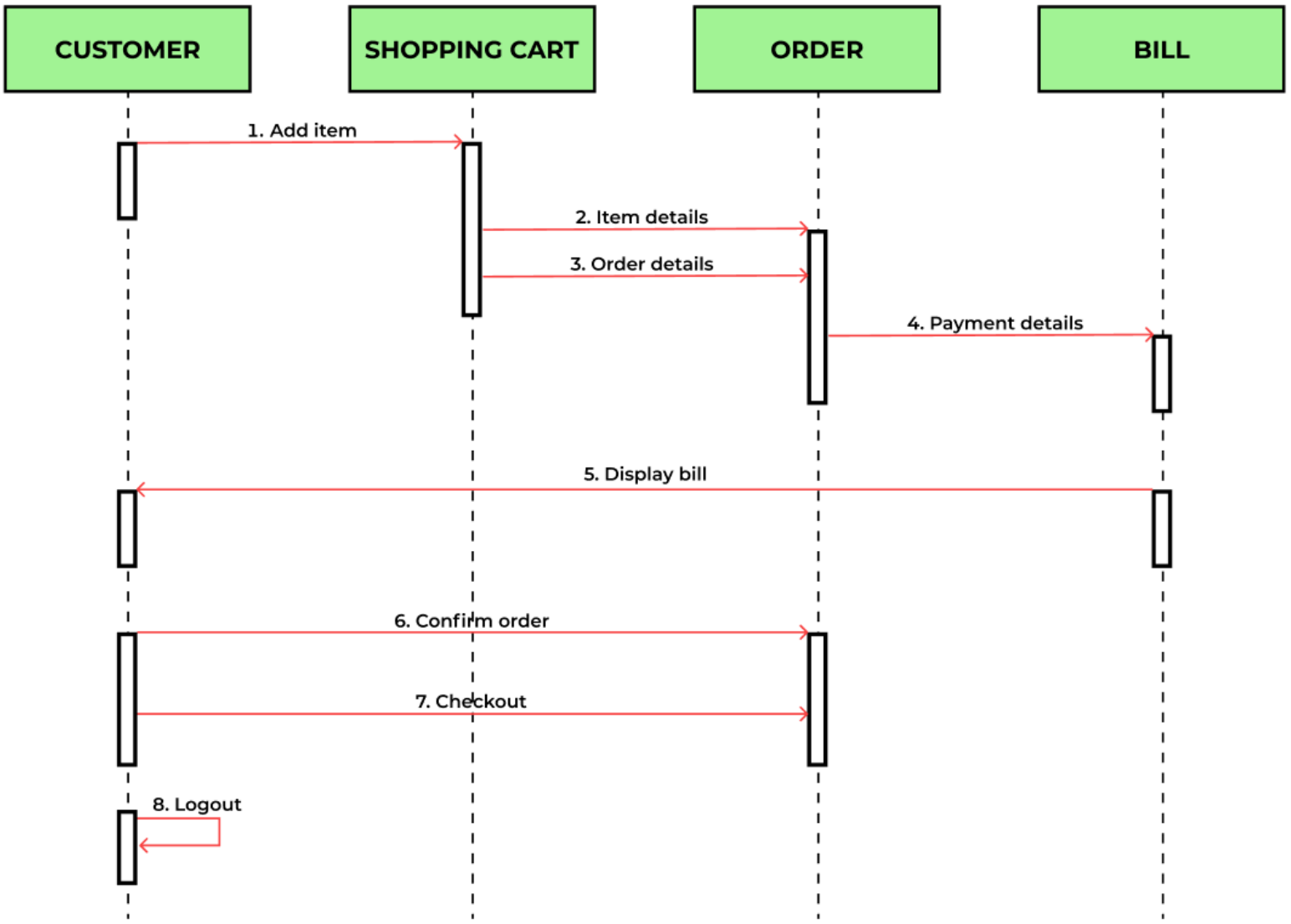
4.3 USE CASE DIAGRAM



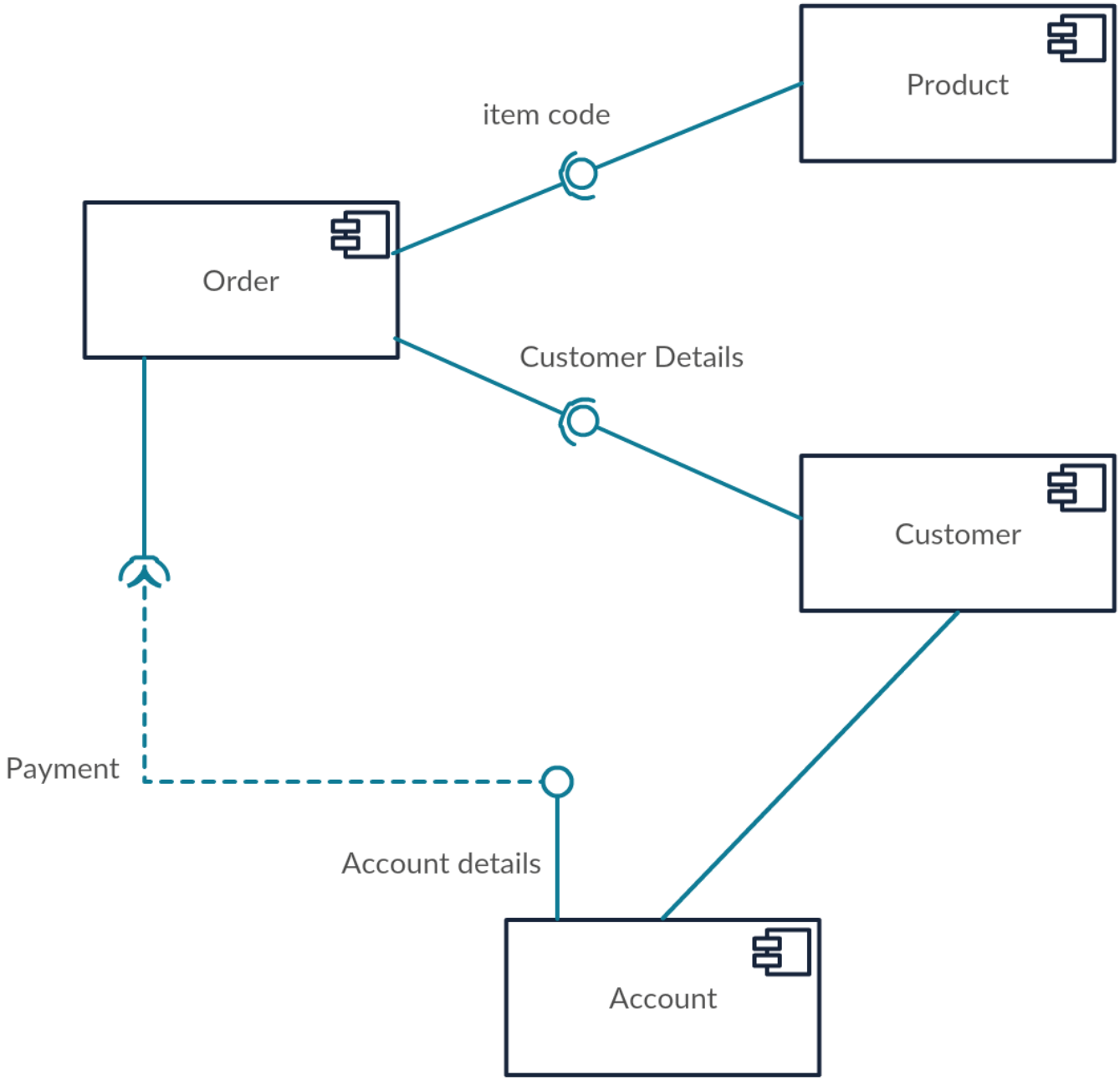
4.4 STATE DIAGRAM



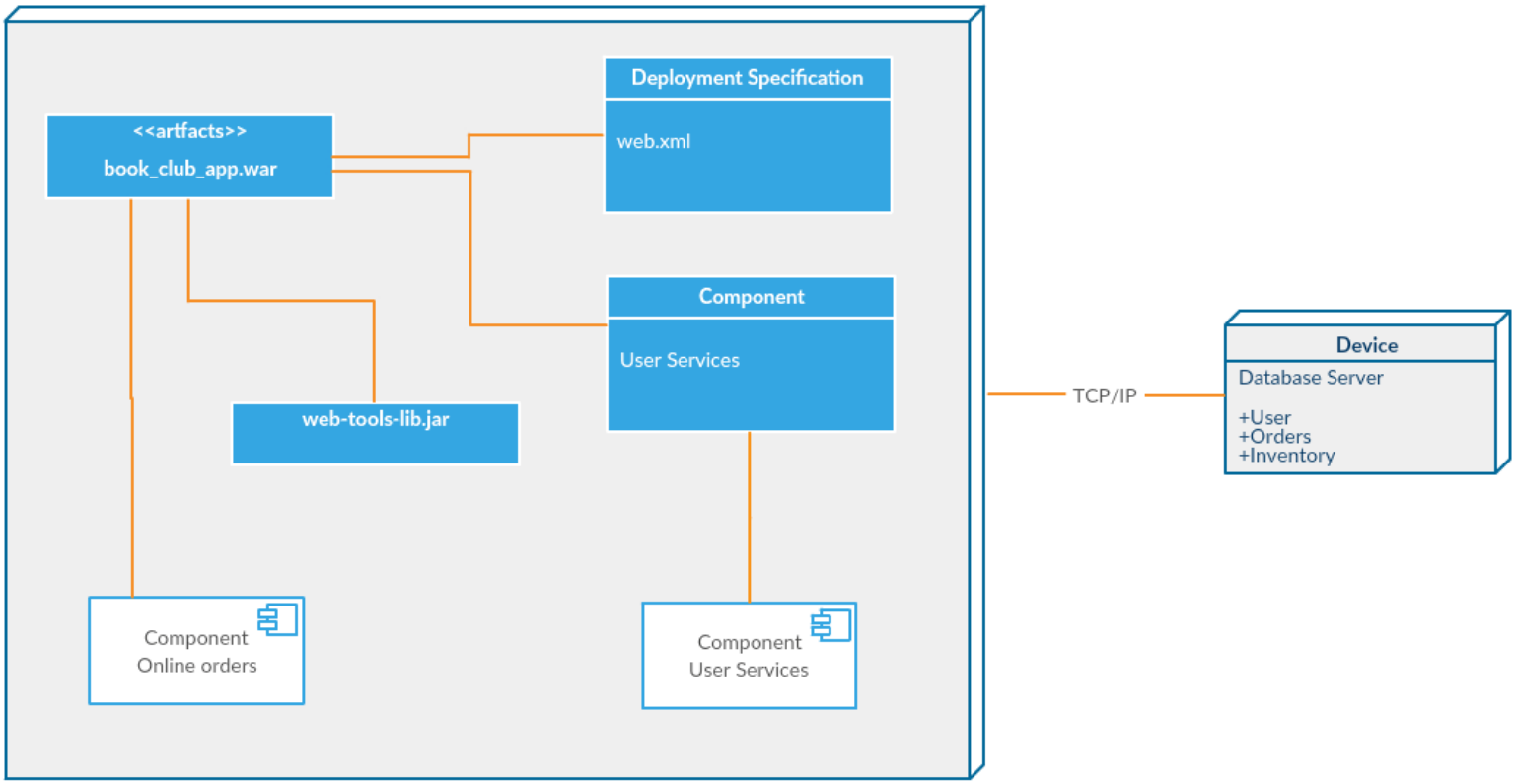
4.5 SEQUENCE DIAGRAM



4.6 COMPONENT DIAGRAM



4.7 DEPLOYMENT DIAGRAM



5. PROPOSED WORK

5.1 FUNCTIONAL REQUIREMENTS

- The software validates users automatically against the POS Inventory Management System.
- The Sales system should be allowed to record customers sales data.
- Only employees with administrative rights should have the right to view revenue data.
- The software system in use should be supporting flexible payment gateways for our customers.
- The software system should be legal according to government policies.
- As a security measure, the system will allow the customer to register in order to make a purchase.

5.2 NON-FUNCTIONAL REQUIREMENTS

- Users are advised to change the initially generated login password immediately after the first login.
- The operational costs required for maintenance for the system should be managed.
- The software should be designed such that we should be able to resolve the system faults in future.
- The website should be capable enough to handle at least thousands of users without affecting its performance.
- The software should be portable, that is, moving from one operating system to the another should not be an issue.
- Privacy rights of users should be respected and data should be kept safely.

5.3 ADVANTAGES OF WORK

- The POS inventory management system can provide a platform for those interested in managing their businesses in the online world.
- The system is simple to understand and does not require a huge understanding of the technologies used to make it.
- It would serve as a platform which would every need in one place, thus convenient to use.

5.4 DISADVANTAGES OF WORK

- Existing companies and platforms can act as competition.
- The implementation of such a system requires proper planning and execution, so in case of an error we would have to iterate again.
- A lot of users are still new to the Internet so it would take time to get a decent userbase.

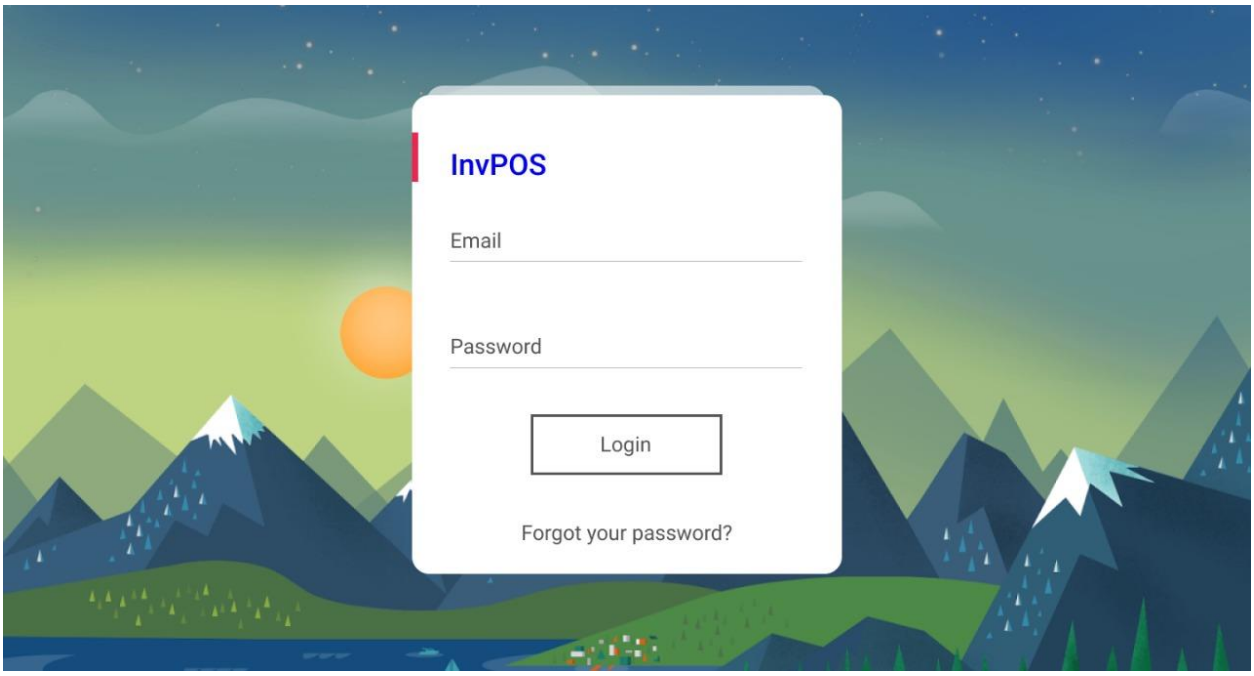
5.5 FUTURE WORK

- Regular improvement of website for adapting to changing trends.
- Adding a section in the website which will allow the user to register their business.
- Addition of new products to include upcoming businesses.

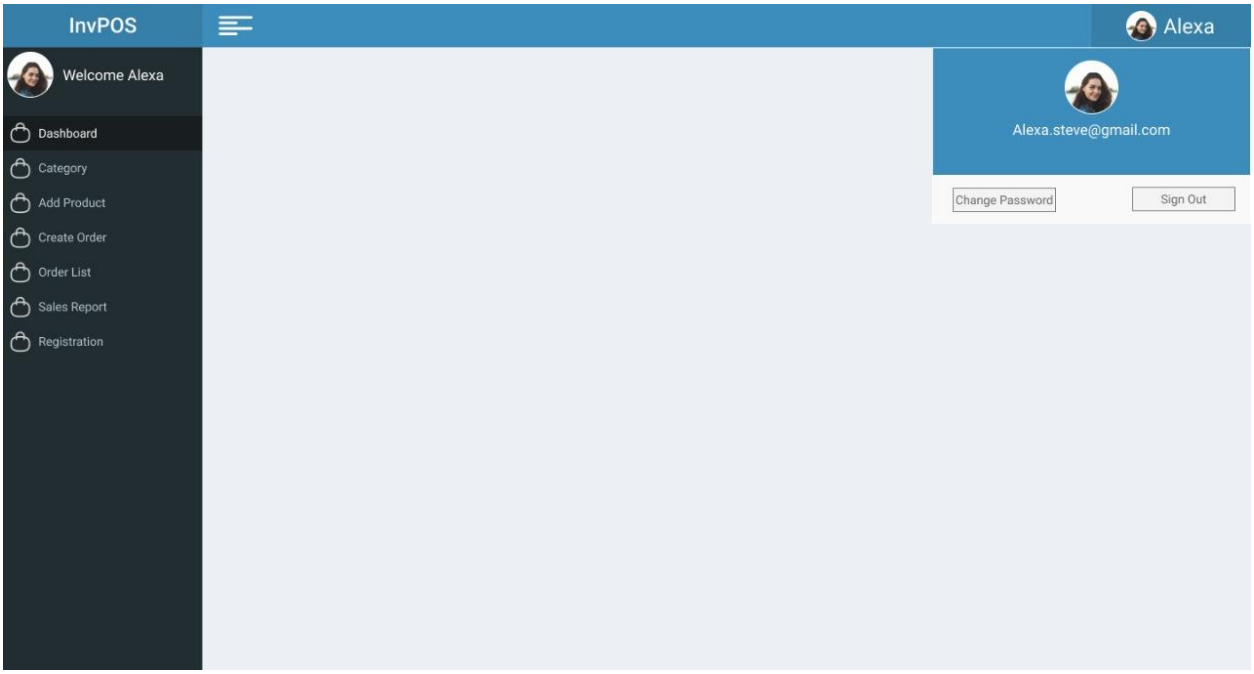
6. UI DESIGN

6.1 GUI PROTOTYPES

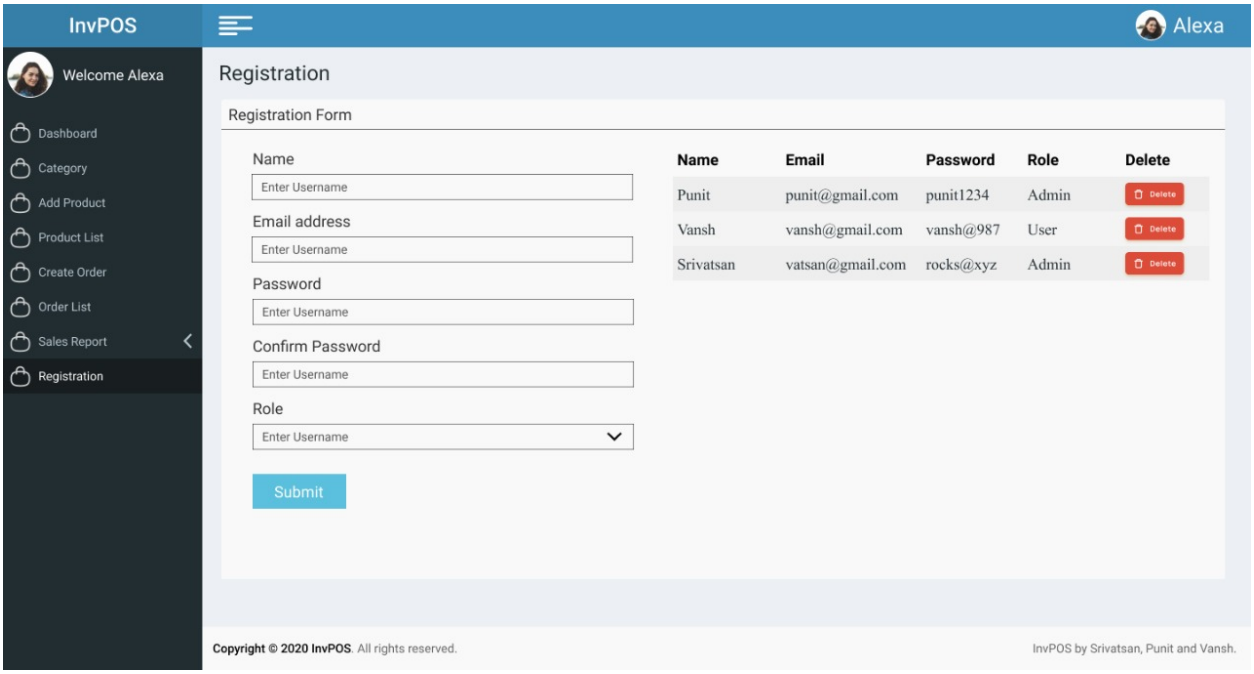
Login Page



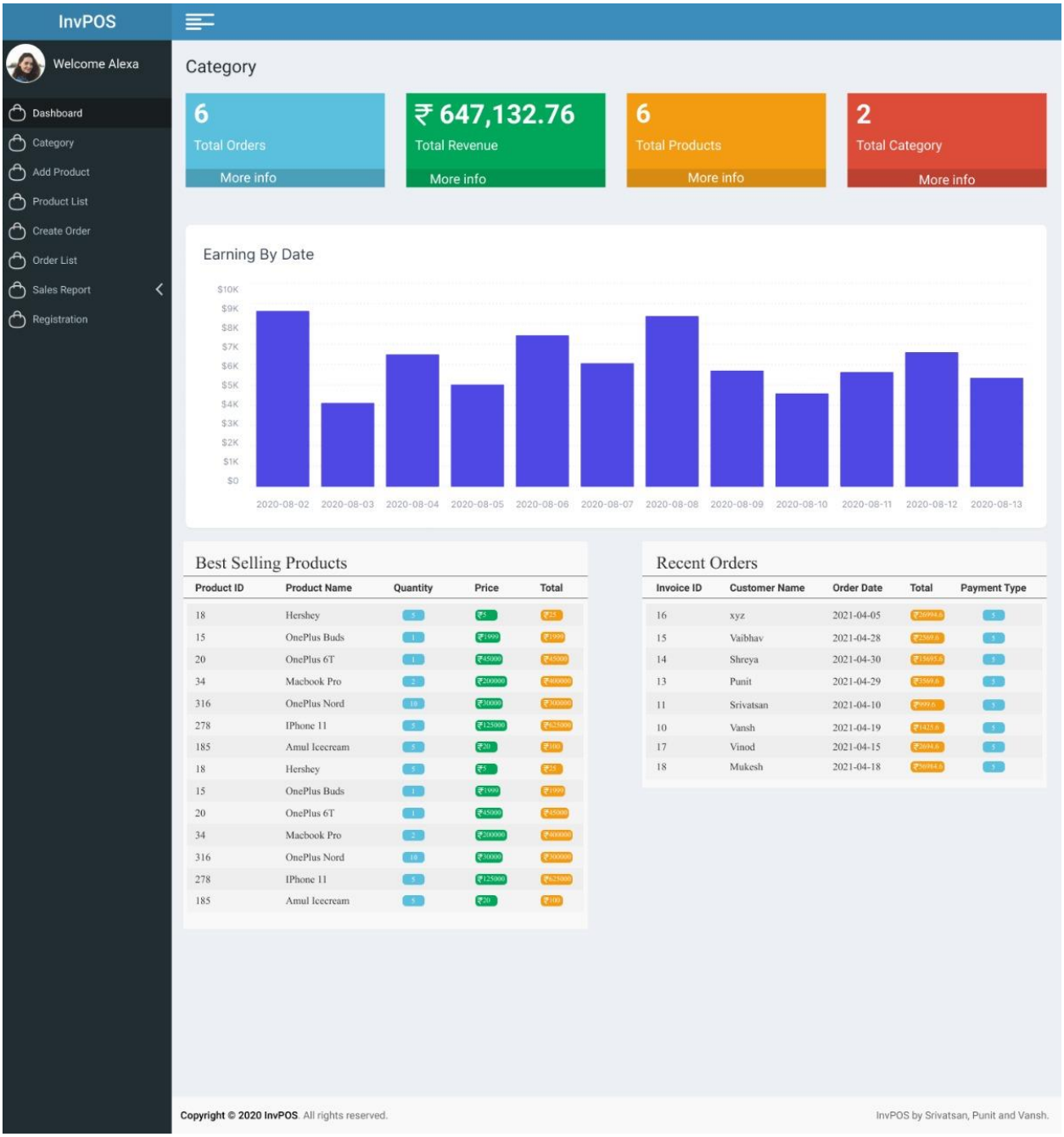
Dashboard



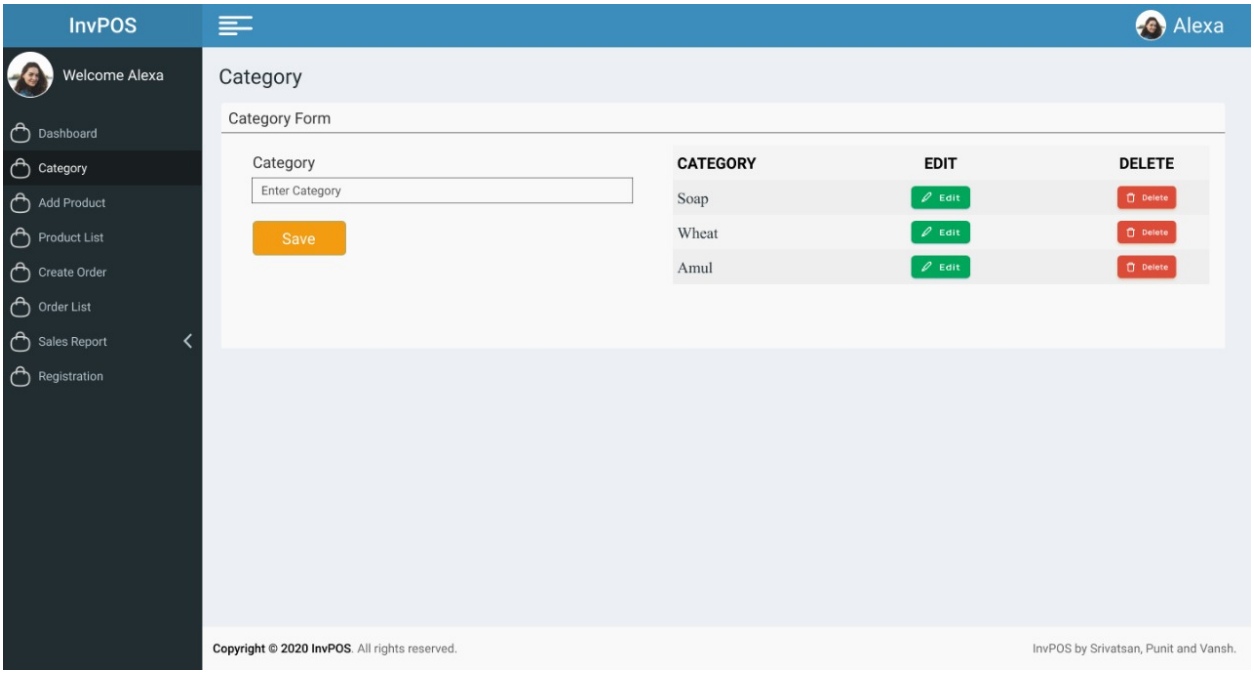
Registration



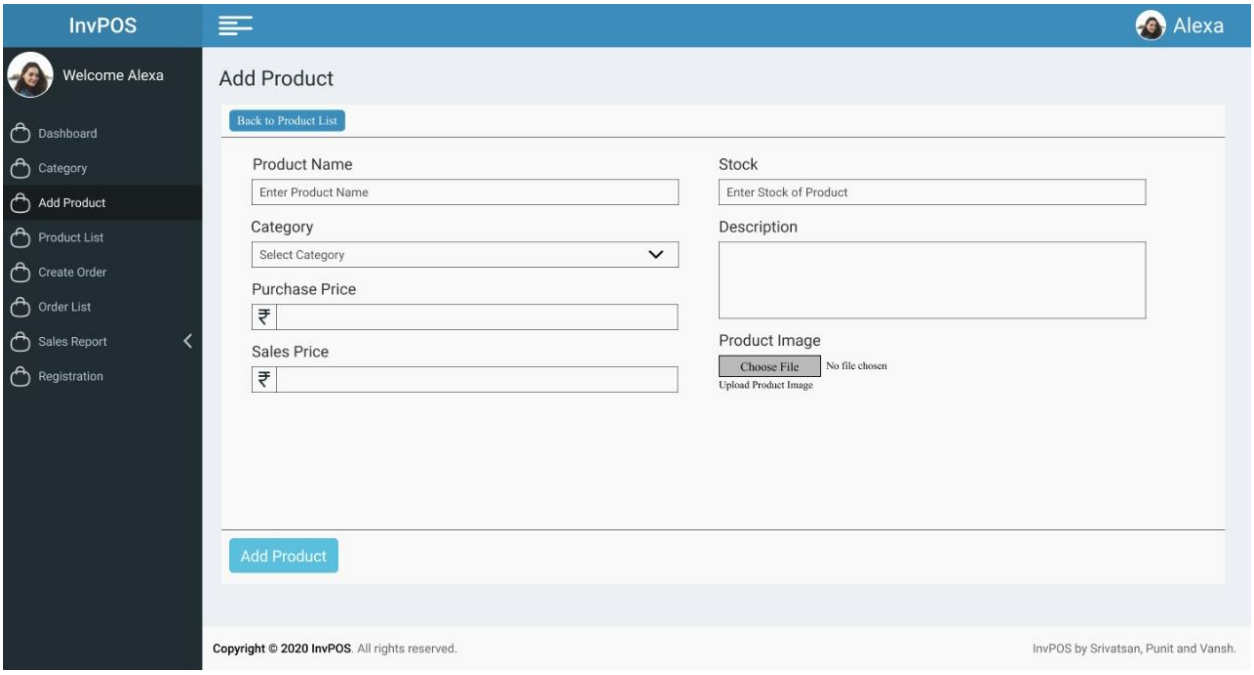
Sales Report



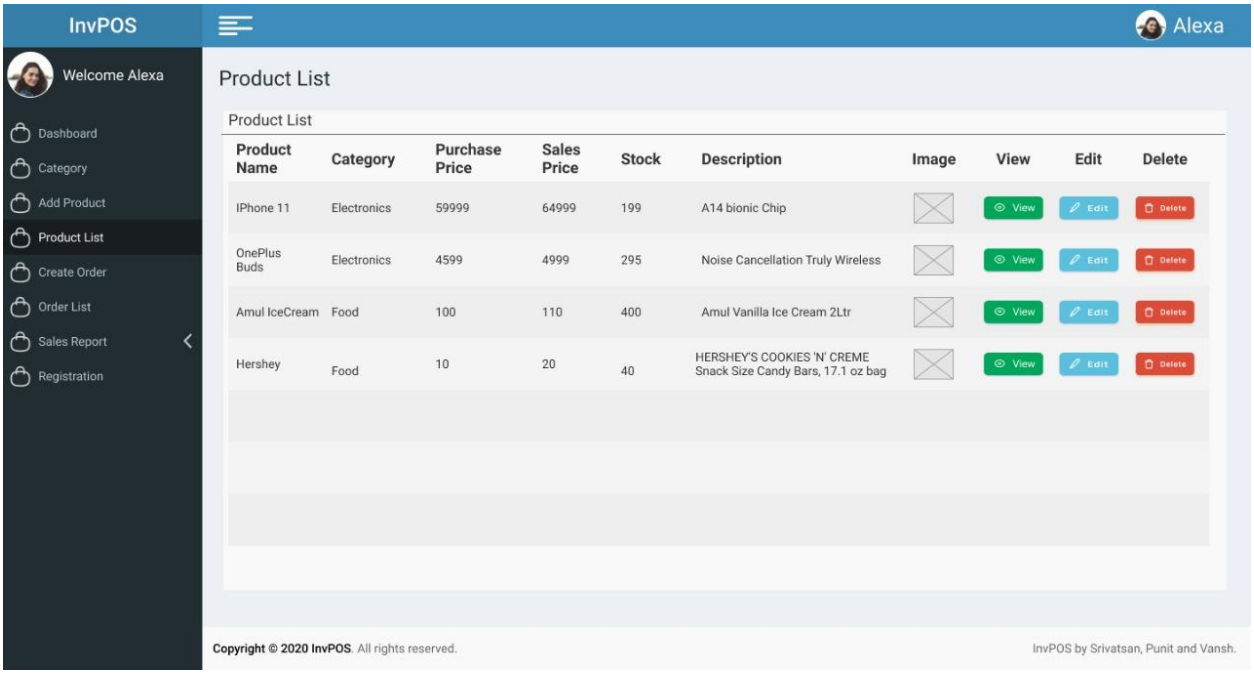
Category



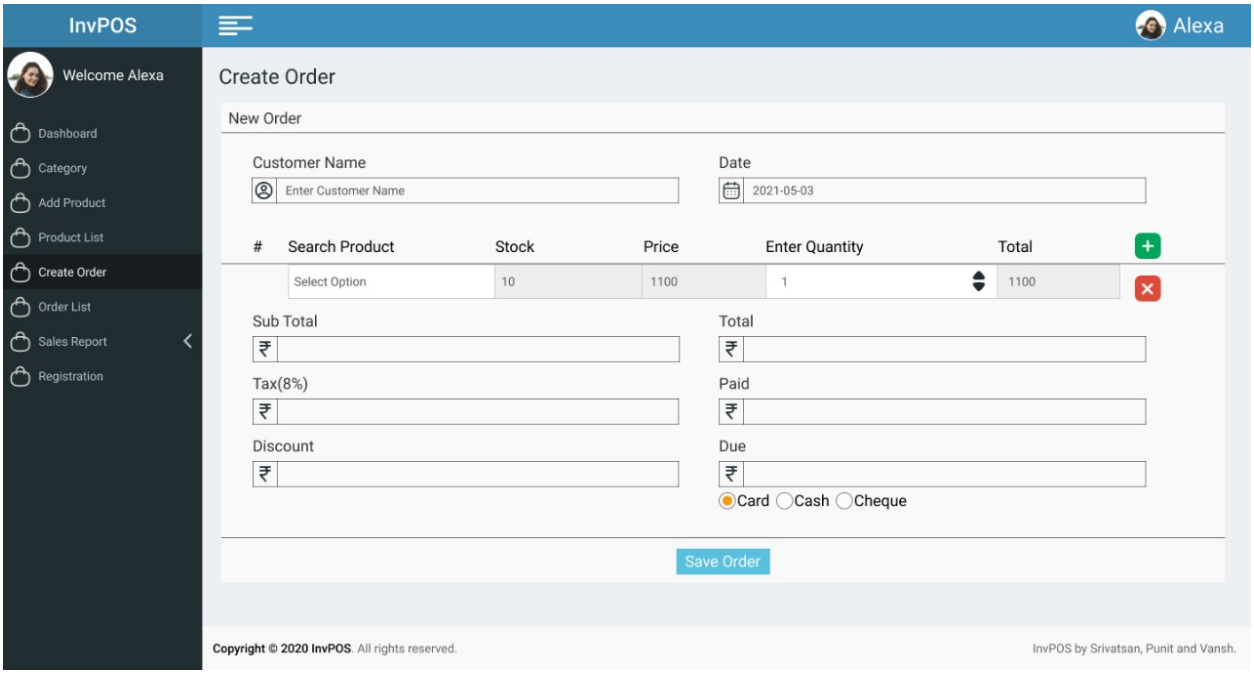
Add Products



Product List



Create Order



Order List

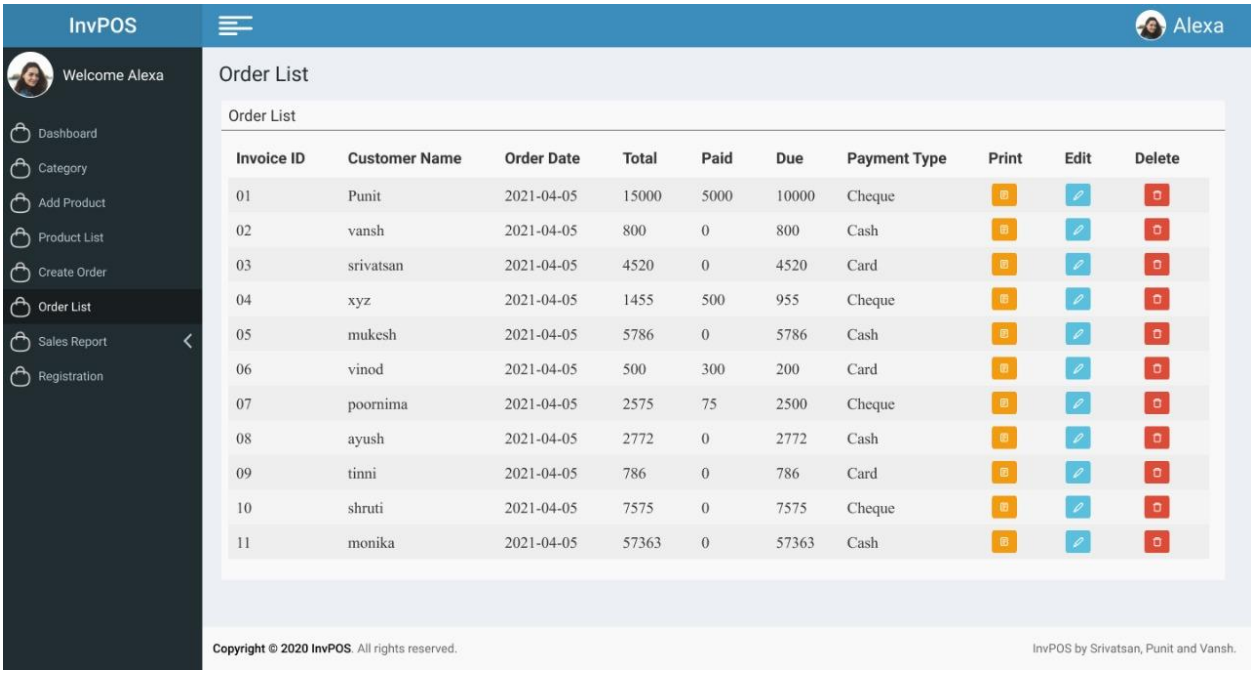
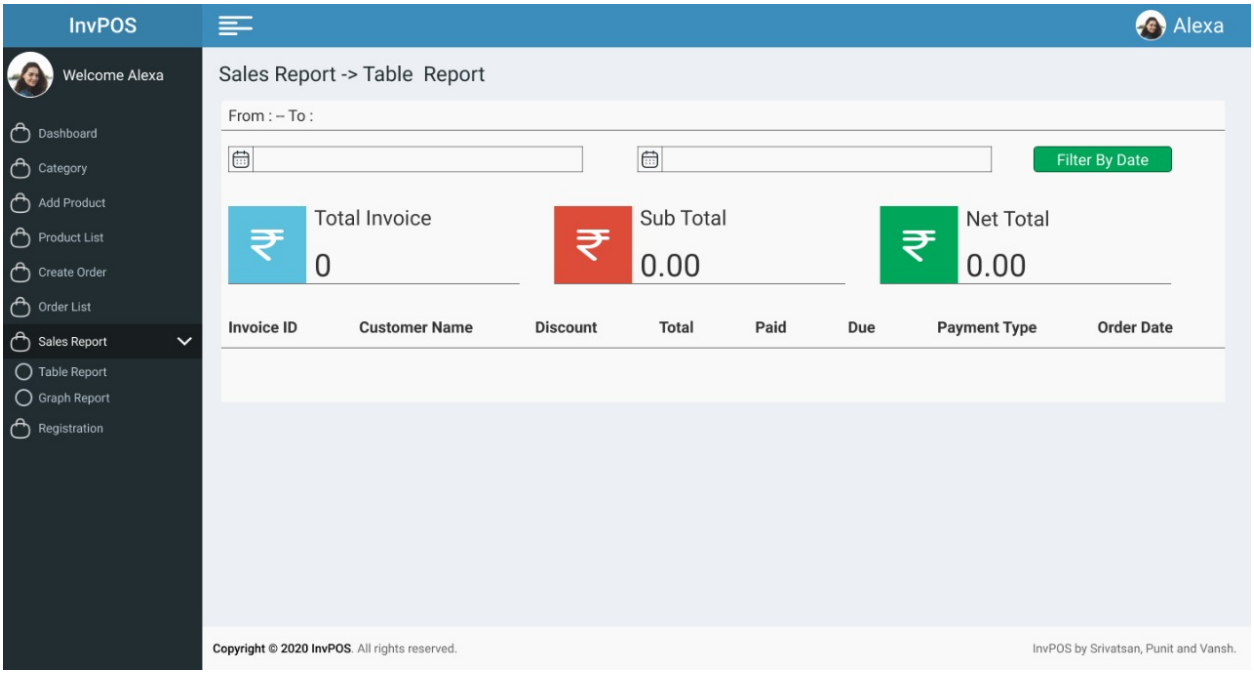
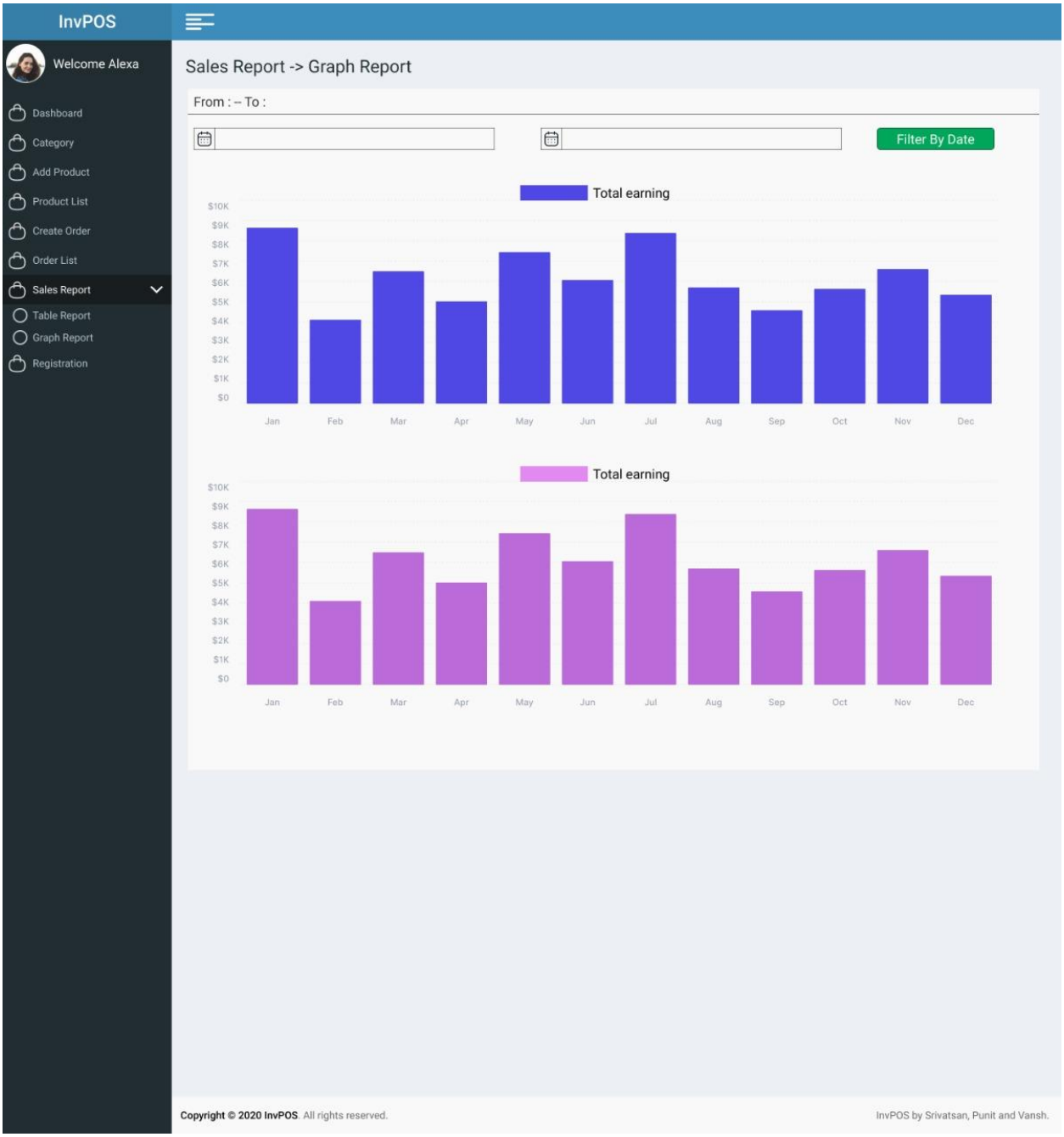


Table Report



Graph Report



6.2 INTERFACE COMPONENTS

This section contains the interfaces and its components. Our aim is to create a minimalistic and functional interface which users can use easily. The description of each interface is given below:

Dashboard:

The dashboard acts a navigation system and is the main component of our graphical user interface as it is intended to help users in accessing the website. It includes multiple components like registration, sales report, category, etc.

Header:

The header section contains the dashboard toggle button and displays the username and user display, along with the option to change password as well as logging out.

Registration:

This page contains the registration form, which allows the administrator of the website to add multiple users or administrators. The registration form contains entries such as the name, email address, password and role as it is required while logging into the website.

Sales Report:

The sales report contains two subsections: table report and graph report. Both of them are used to depict the information about sold goods on the platform. It includes sales data along with attributes such as customer name, payment type, date of order, etc.

Category:

The category page is used to add new categories in case the admin of the website is planning to include new types of products.

Add Products:

This page is used to add new products by including entries such as product name, category, price and stock. It also includes the option to upload an image for depiction of the product.

Product List:

This page summarizes all the products available on our website using a product list which contains all details of all products.

Create Order:

This section is used to create new orders for the customer.

Order List:

This section contains all information about all orders placed on our website and includes data such as invoice ID, order date and has options for printing the list as well.

7. CONCLUSION

7.1 CONCLUSION

This page summarizes all the products available on our website using a product list which contains all details of all products. The Inventory POS Management System was successfully developed and everything went smoothly as planned. All the functions and modules were completed, the development process was good.

The system was able to show everything that was expected in the given modules and also took care of the smalls details that matter.

We have tried our best to implement all the latest technologies that will enable user to work smoothly. On the other hand, the system still requires further improvement such as UI updates.

Lastly, the system may still be optimized for the best performance so that the clients can easily work and face no issues in maintaining their retailer business.

7.2 REFERENCES

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