ATMIYA UNIVERSITY

RAJKOT

A

Report On

AMAZON CLONE

Under subject of

MAJOR PROJECT

B. TECH, Semester – VII

(Computer Engineering)

Submitted by:

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(Head of the Department)

Academic Year

(2022-23)

CANDIDATE'S DECLARATION

We hereby declare that the work presented in this project entitled **"AMAZON CLONE"** submitted towards completion of project in **7th Semester** of B. Tech. (Computer Engineering) is an authentic record of our original work carried out under the guidance of "**Prof. Nirali Borad".**

We have not submitted the matter embodied in this project for the award of any other degree.

Semester: 7th

Place: Rajkot

Signature:

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ATMIYA UNIVERSITY

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CERTIFICATE

Date:

This is to certify that the "**AMAZON CLONE**" has been carried out by **Mavani Viraj Rameshbhai** under my guidance in fulfilment of the subject Major Project in COMPUTER ENGINEERING (7^{th} Semester) of Atmiya University, Rajkot during the academic year 2022-23.

Prof. Nirali Borad
(Project Guide)

Prof. Tosal M. Bhalodia
(Head of the Department)

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CERTIFICATE

Date:

This is to certify that the "**AMAZON CLONE**" has been carried out by **Jogiya Pritulkumar Vallabhbhai** under my guidance in fulfilment of the subject Major Project in COMPUTER ENGINEERING (7th Semester) of Atmiya University, Rajkot during the academic year 2022-23.

Prof. Nirali Borad
(Project Guide)

Prof. Tosal M. Bhalodia
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CERTIFICATE

Date:

This is to certify that the "**AMAZON CLONE**" has been carried out by **Madhu Vishal Ghanshyam** under my guidance in fulfilment of the subject Major Project in COMPUTER ENGINEERING (7^{th} Semester) of Atmiya University, Rajkot during the academic year 2022-23.

Prof. Nirali Borad
(Project Guide)

Prof. Tosal M. Bhalodia
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We even thank and appreciate to our colleague in developing the project and people who have willingly helped us out with their abilities.

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ABSTRACT

Businesses face intense competition in all industries. They are constantly searching for a method that has been successfully used to boost business income. Whatever a business wants to sell - restaurants, retail stores, or vape shops - if it doesn't have an application, it is missing out on money. Businesses must acknowledge the fact that the world has gone online. Amazon is a prime example of that with all the key elements making up a good e-commerce seller.

The Amazon is currently using Java, C++ and Pearl languages. Through this project, we'll discover a way to build a full-stack amazon clone featuring an admin panel, relying on Flutter framework and MongoDB. This project is an attempt to provide the advantages of online shopping to customers of a real shop. It helps buying the products in the shop anywhere through internet by using any android or IOS devices. Thus, the customer will get the service of online shopping and home delivery from his favourite shop. This system can be implemented to any shop in the locality or to multinational branded shops having retail outlet chains.

INDEX

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

1.1 Purpose

The objective of the project is to make an application in website/android/IOS platform to purchase items in an amazon clone shop. In order to build such an application complete device support, need to be provided. A complete and efficient application which can provide the online shopping experience is the primary objective of the project. The application can be implemented in many platforms like Android, IOS & web application.

1.1 Scope

This system can be implemented to any shop in the locality or to multinational branded shops having retail outlet chains. The system recommends a facility to accept the orders 24*7 and a home delivery system which can make customers satisfied. If shops are providing an online portal where their customers can enjoy easy shopping from anywhere, the shops won't be losing any more customers to the trending online shops such as Amazon itself.

1.2 Technology and tools

1. **Flutter Framework**
   - Flutter is an open-source UI software development kit created by Google.
   - It is used to develop cross platform applications for Android, iOS, Linux, macOS, Windows, Google Fuchsia, and the web from a single codebase.
   - Flutter code compiles to ARM or Intel machine code as well as JavaScript, for fast performance on any device.
2. **Dart**
   - Dart is a programming language designed for client development, such as for the web and mobile apps.
   - It is developed by Google and can also be used to build server and desktop applications.
   - It is an object-oriented, class-based, garbage-collected language with C-style syntax.
   - It can compile to either native code or JavaScript, and supports interfaces, mixins, abstract classes, reified generics and type inference.

3. NodeJS

- Node.js is an open-source, cross-platform, back-end JavaScript runtime environment that runs on a JavaScript Engine (i.e., V8 engine) and executes JavaScript code outside a web browser, which was designed to build scalable network applications.
- Node.js lets developers use JavaScript to write command line tools and for server-side scripting - running scripts server-side to produce dynamic web page content before the page is sent to the user's web browser.
- Consequently, Node.js represents a "JavaScript everywhere" paradigm, unifying web-application development around a single programming language, rather than different languages for server-side and client-side scripts.

4. Express

- Express.js, or simply Express, is a back-end web application framework for building RESTful APIs with Node.js, released as free and open-source software under the MIT License. It is designed for building web applications and APIs.
- It has been called the de facto standard server framework for Node.js.
- The original author, TJ Holowaychuk, described it as a Sinatra-inspired server, meaning that it is relatively minimal with many features available as plugins.
- Express is the back-end component of popular development stacks like the MEAN, MERN or MEVN stack, together with the MongoDB database software and a JavaScript front-end framework or library.

5. MongoDB

- MongoDB is a source-available cross-platform document-oriented database program.
- Classified as a NoSQL database program, MongoDB uses JSON-like documents with optional schemas.
- MongoDB is developed by MongoDB Inc. and licensed under the Server-Side Public License (SSPL) which is deemed non-free by several distributions.

2. PROJECT MANAGEMENT

2.1 Project Planning:

Project Planning is concerned with identifying and measuring the activities, milestones and deliverables produced by the project. Project planning is undertaken and completed sometimes even before any development activity starts. Project planning consists of following essential activities:

- Scheduling manpower and other resources needed to develop the system.
- Staff organization and staffing plans.
- Risk identification, analysis, and accurate planning.
- Estimating some of the basic attributes of the project like cost, duration and efforts.
- The effectiveness of the subsequent planning activities is based on the accuracy of these estimations.
- Miscellaneous plans like quality assurance plan, configuration management plan, etc.
- Project management involves planning, monitoring and control of the people, process, and the events that occurs as the software evolves from a preliminary concept to an operational implementation. Cost estimation is a relative activity that is concerned with the resources required to accomplish the project plan.

2.2 Project Scheduling:

The scheduling is the peak of a planning activity, a primary component of software project management. When combined with estimation methods and risk analysis, scheduling establishes a roadmap for project management. The characteristics of the project are used to adapt an appropriate task set for doing work

2.3 Risk Management:

- Risk management consists of a series of steps that help a software development team to understood and manage uncertain problems that may arise during the course of software development and can plague a software project.
- Risks are the dangerous conditions or potential problems for the system which may damage the system functionalities to very high level which would not be acceptable at

any cost. So in order to make our system stable and give its 100% performance we must have identify those risks, analyse their occurrences and effects on our system and must prevent them to occur.

2.3.1 Risk Identification:

Risk identification is a first systematic attempt to specify risks to project plan, Scheduling resources, project development. It may be carried out as a team process using brainstorming approach.

Technology Risk:

Technical risks concern implementation, potential design, Interfacing, testing, and maintenance problems

- Garbage Collection

People Risks:

These risks are concerns with the team and its members who are taking part in developing the system.

- Leaking an important data Failure of the administration
- Lack of knowledge.
- Lack of clear product vision.
- Technical staff conflict
- Poor communication between people.

Tools Risk:

These are more concerned with tools used to develop the system.

- Tools containing virus

General Risk:

General Risks are the risks, which are concerned with the mentality and resources.

- Lack of resources can cause great harm to efficiency and timely productivity.
- Rapidly changing requirements.
- Changes in requirements can cause a great harm to implementation, designing and schedule of developing the system.
- Insufficient planning and task identification.

2.3.2 Risk Analysis

“Risk analysis = risk assessment + risk management + risk communication.”

Risk analysis is employed in its broadest sense to include:

Risk assessment:

Involves identifying sources of potential harm, assessing the likelihood that harm will occur and the consequences if harm does occur.

For this project It might be: -

- System Crash

Risks management:

Evaluates which risks identified in the risk assessment process require management and selects and implements the plans or actions that are required to ensure that those risks are controlled.

Precautions taken to make risks minimal are as under: -

- Leaking an important data Failure of the administration

Risk communication:

Involves an interactive dialogue between stakeholders and risk assessors and risk managers which actively informs the other processes.

Steps taken for risk communication is as under: -

- Probability of certain risks is negotiated with client.
- All the possible risks are listed out during communication and project is developed taking care of that risks.

3. SYSTEM REQUIREMENTS STUDY

3.1 Hardware and Software Requirement

This shows minimum requirements to carry on to run this system efficiently.

3.1.1 Hardware Requirements

Server side Hardware Requirement:

Devices	Description
Processor	Intel Core i3 10th GEN or more
RAM	4 GB or more
Hard Disk	1 TB or more

Table 3.1.1.1 Server side Hardware Requirement

3.1.2 Software Requirements:

For which	Software
Operating System	Windows 7 or above, Linux, Android, IOS
Front end	Flutter Framework
Back end	NodeJS, Express, MongoDB
Language	Dart

Table 3.1.2.1 Software Requirements

3.1.3 Clint side Requirements:

For Which	Requirement
Browser	Any Compatible Devices

Table 3.1.3.1 Local Hardware Requirements

4. SYSTEM DESIGN

4.1 Overview

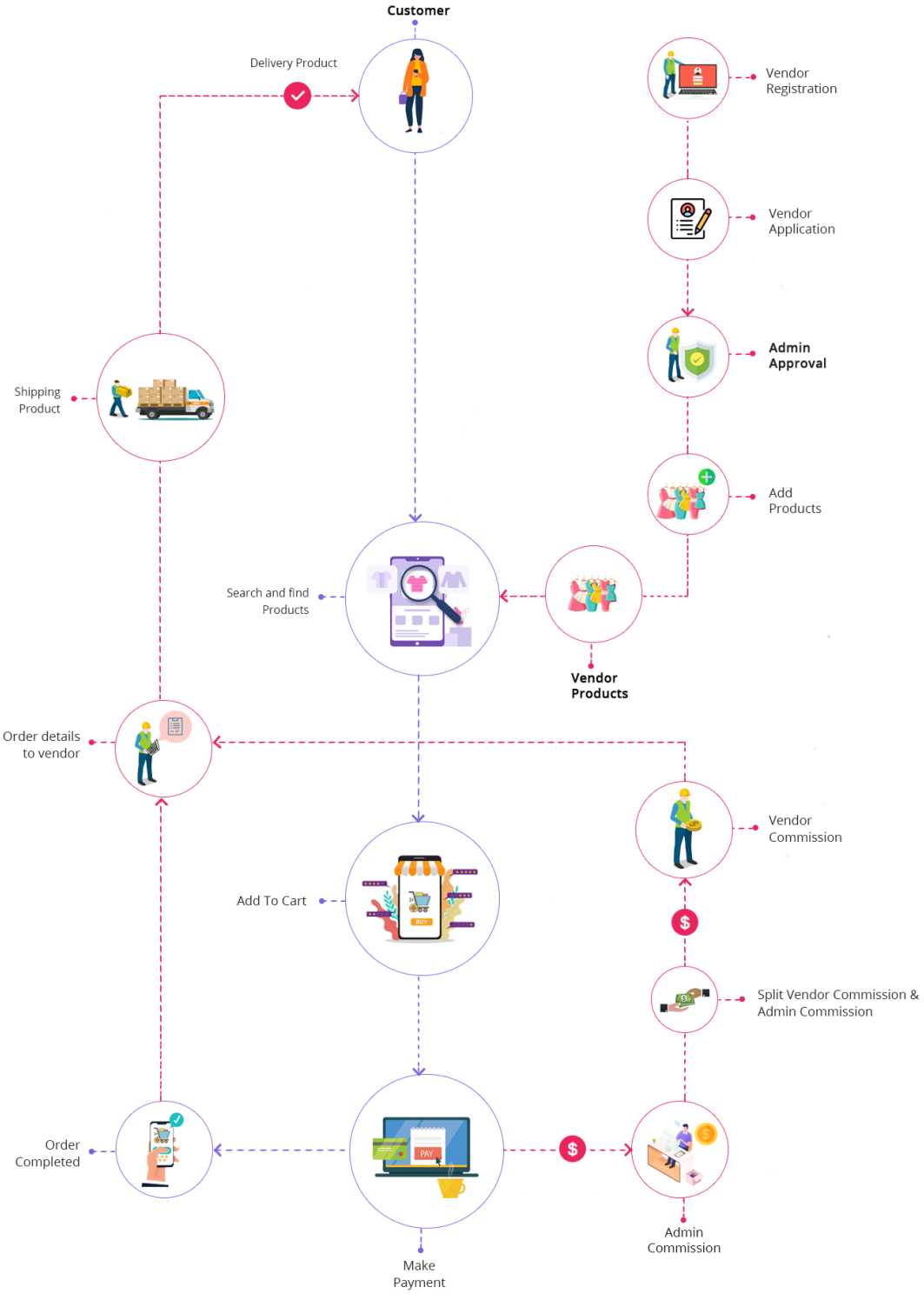

Figure 4.1.1 Advanced Work Flow

4.2 Class Diagram

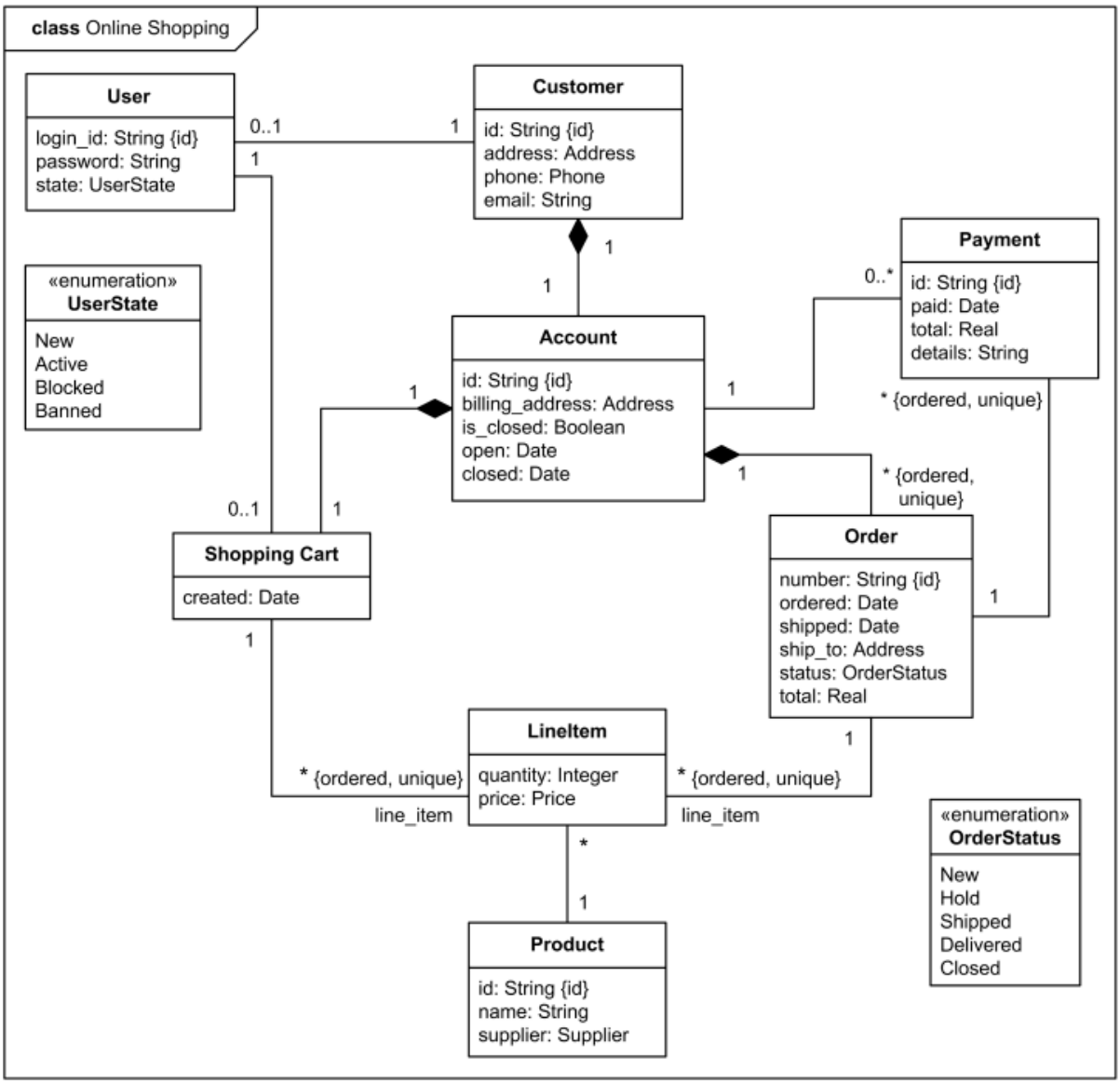

Figure 4.2.1 Class Diagram

4.3 ER Diagram

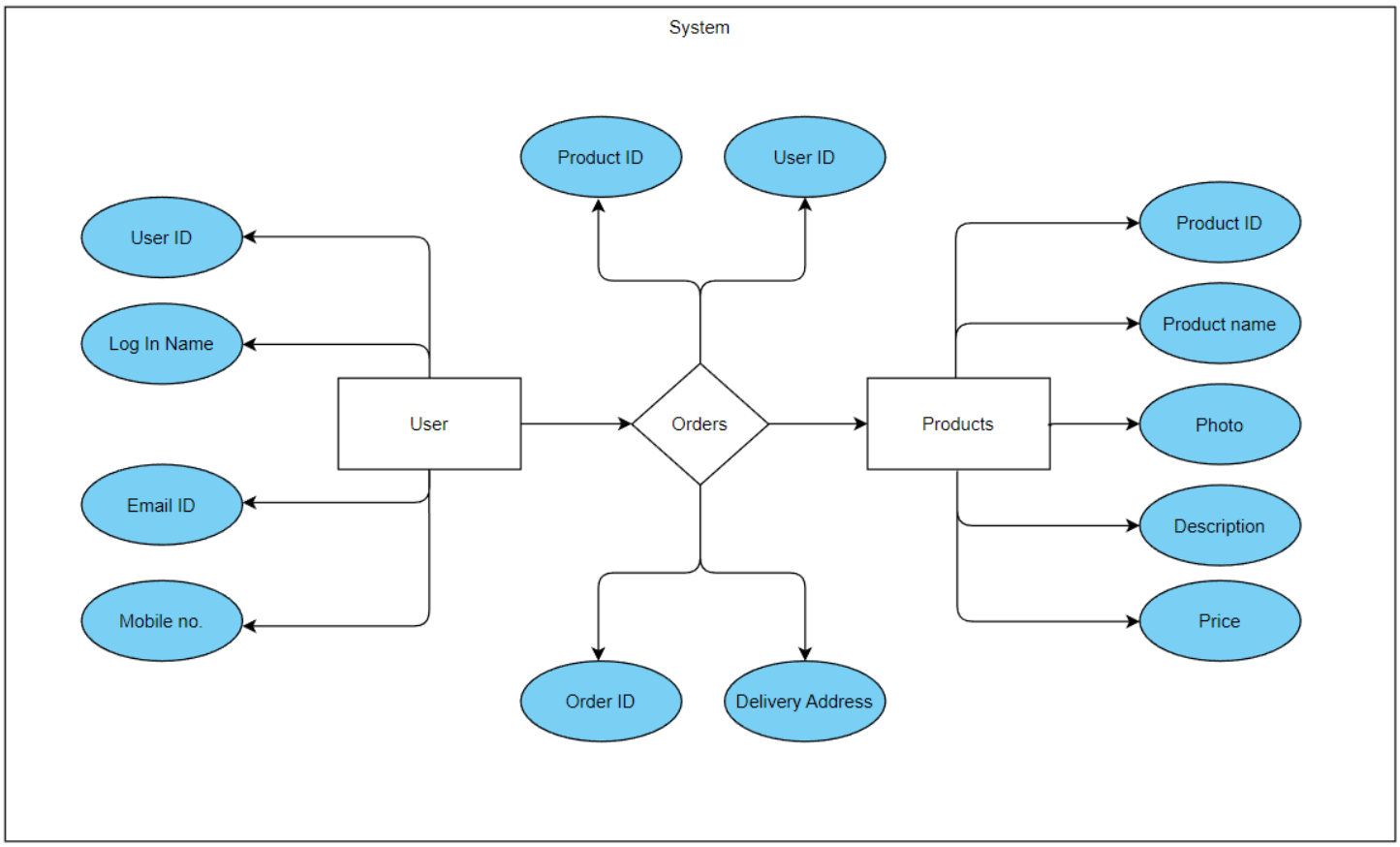

Figure 4.3.1 ER Diagram

4.4 Use Case Diagram

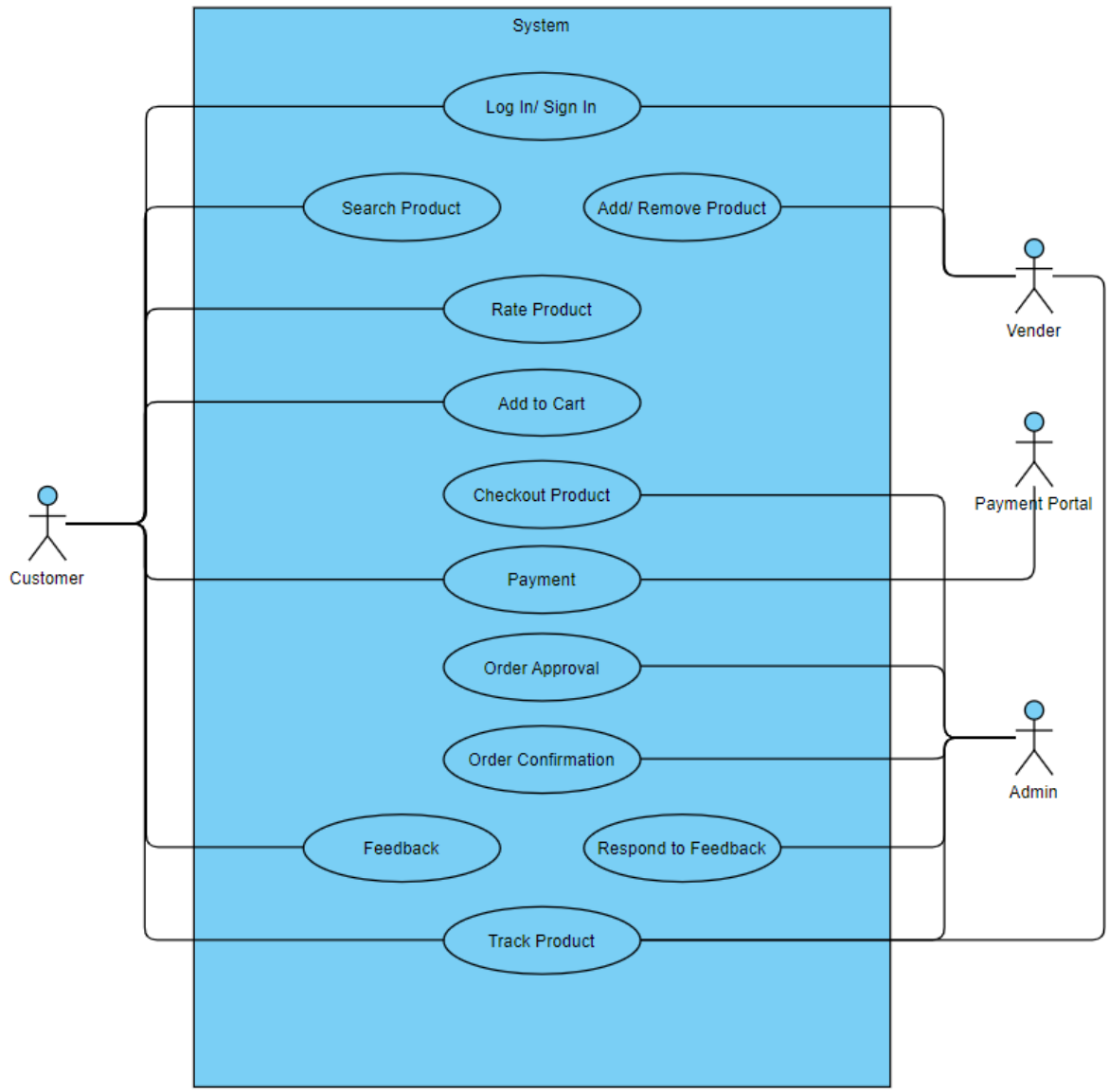

Figure 4.4.1 Use case Diagram

4.5 Activity Diagram

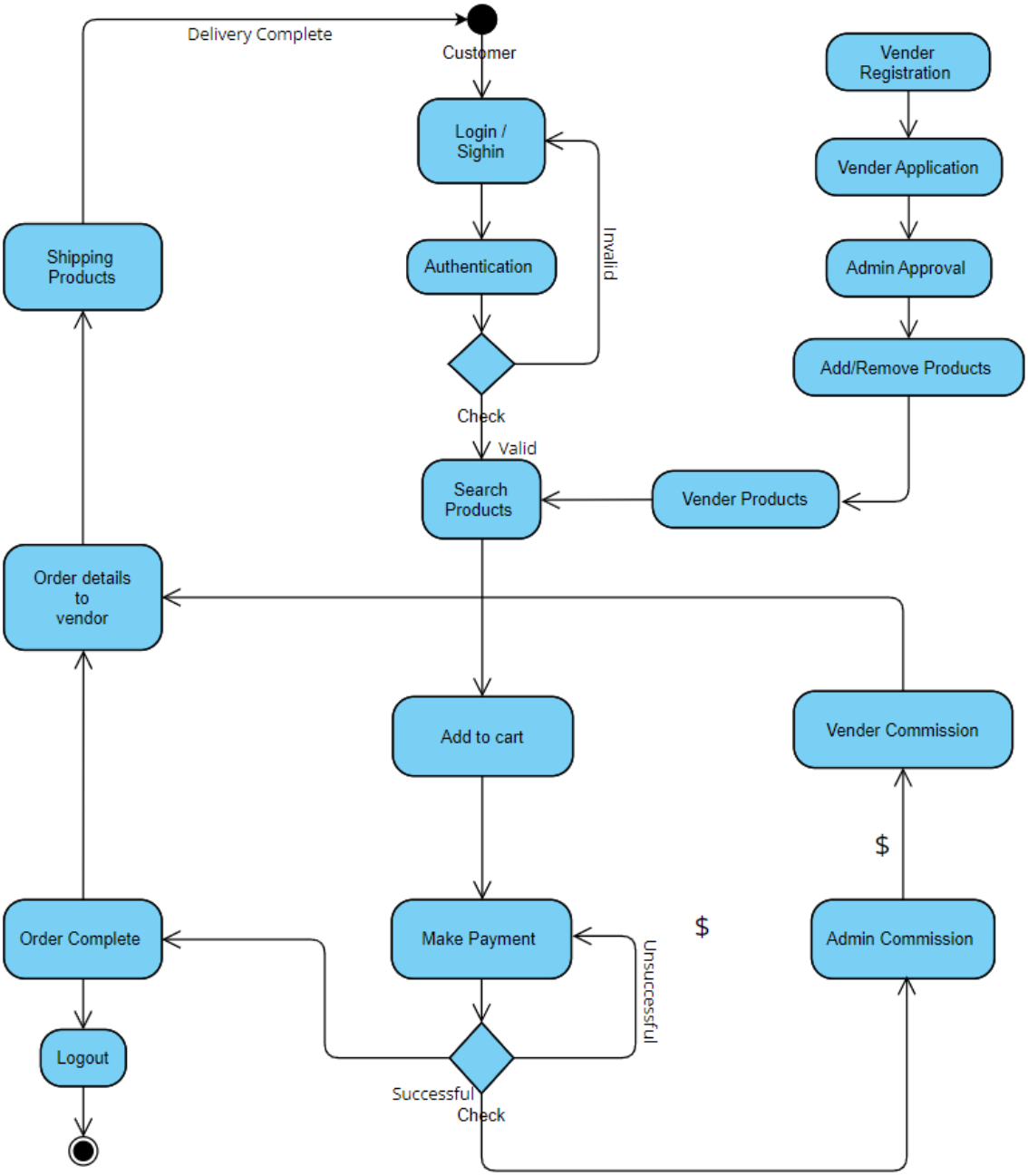

Figure 4.5.1 Activity diagram

4.6 Sequence Diagram

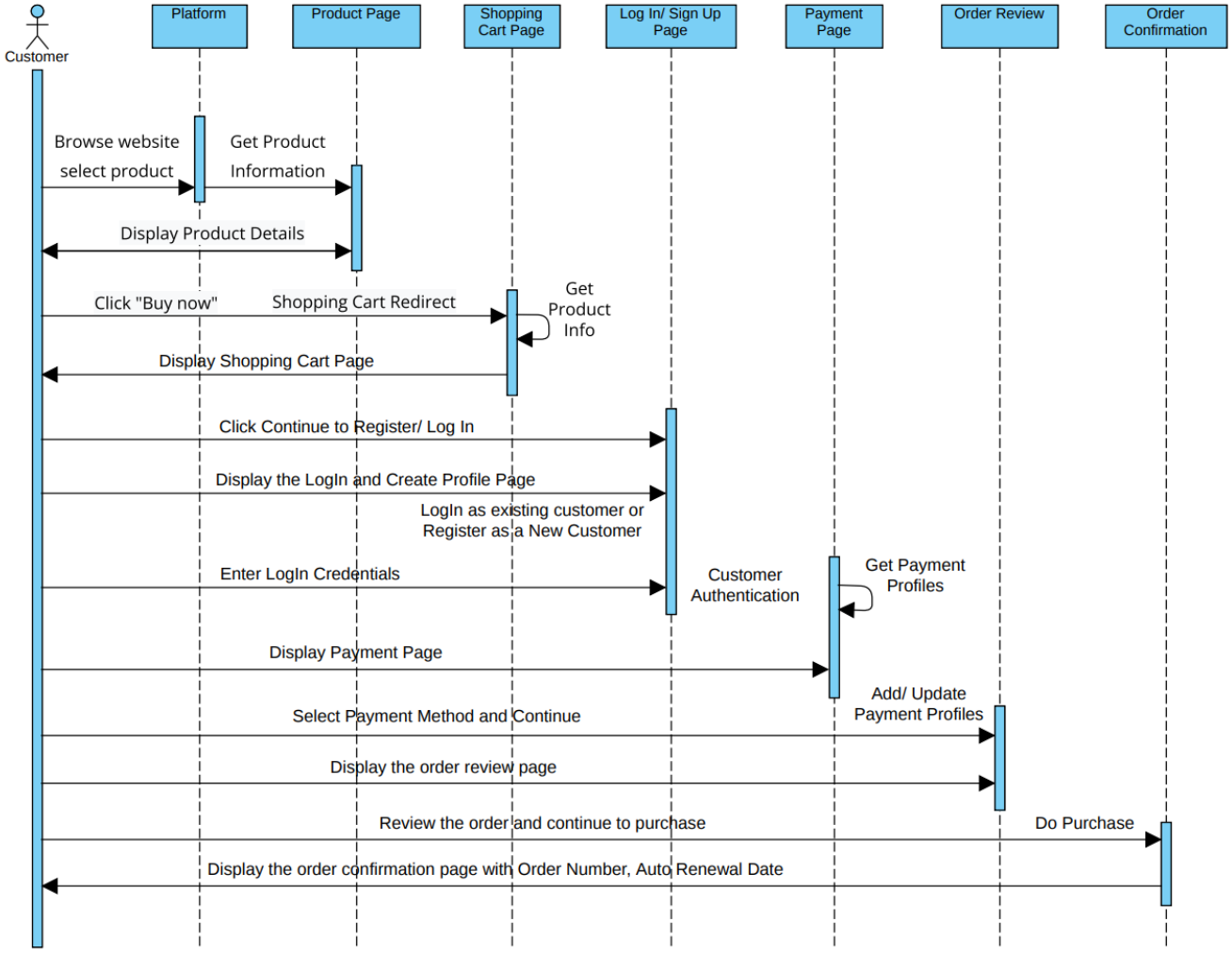

Figure 4.6.1 Sequence diagram

4.7 Data Flow Diagram

4.7.1 Login DFD

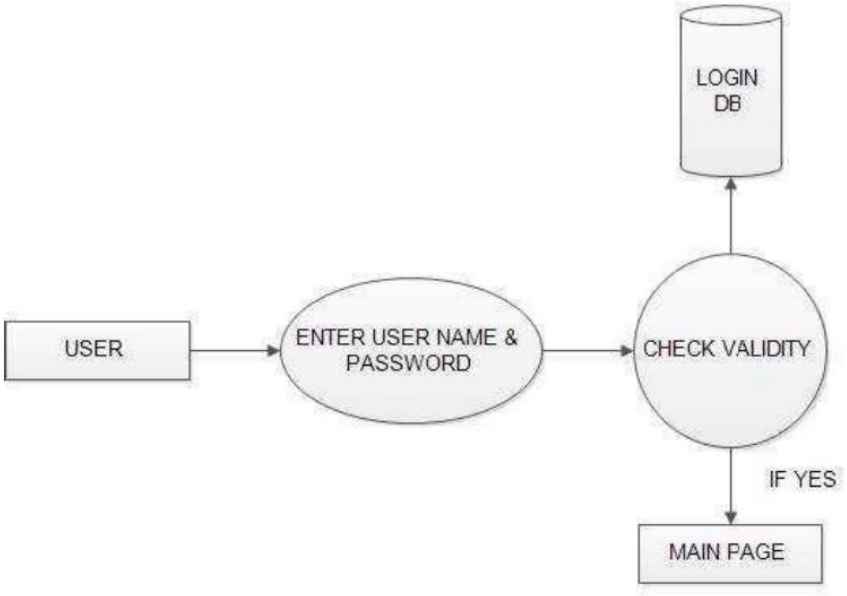

Figure 4.7.1.1 Login DFD

4.7.2 Registration DFD

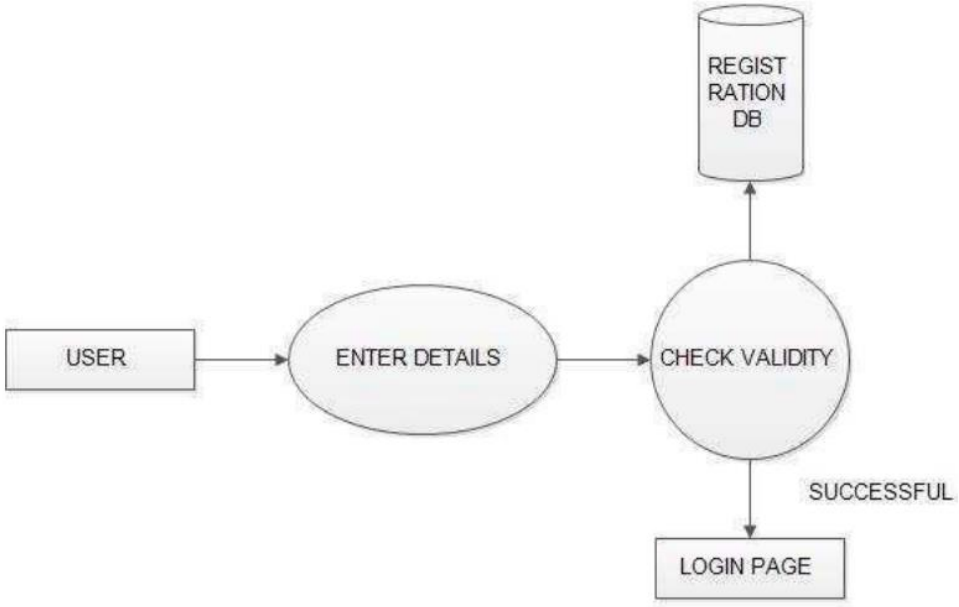

Figure 4.7.2.1 Registration DFD

4.7.3 Admin DFD

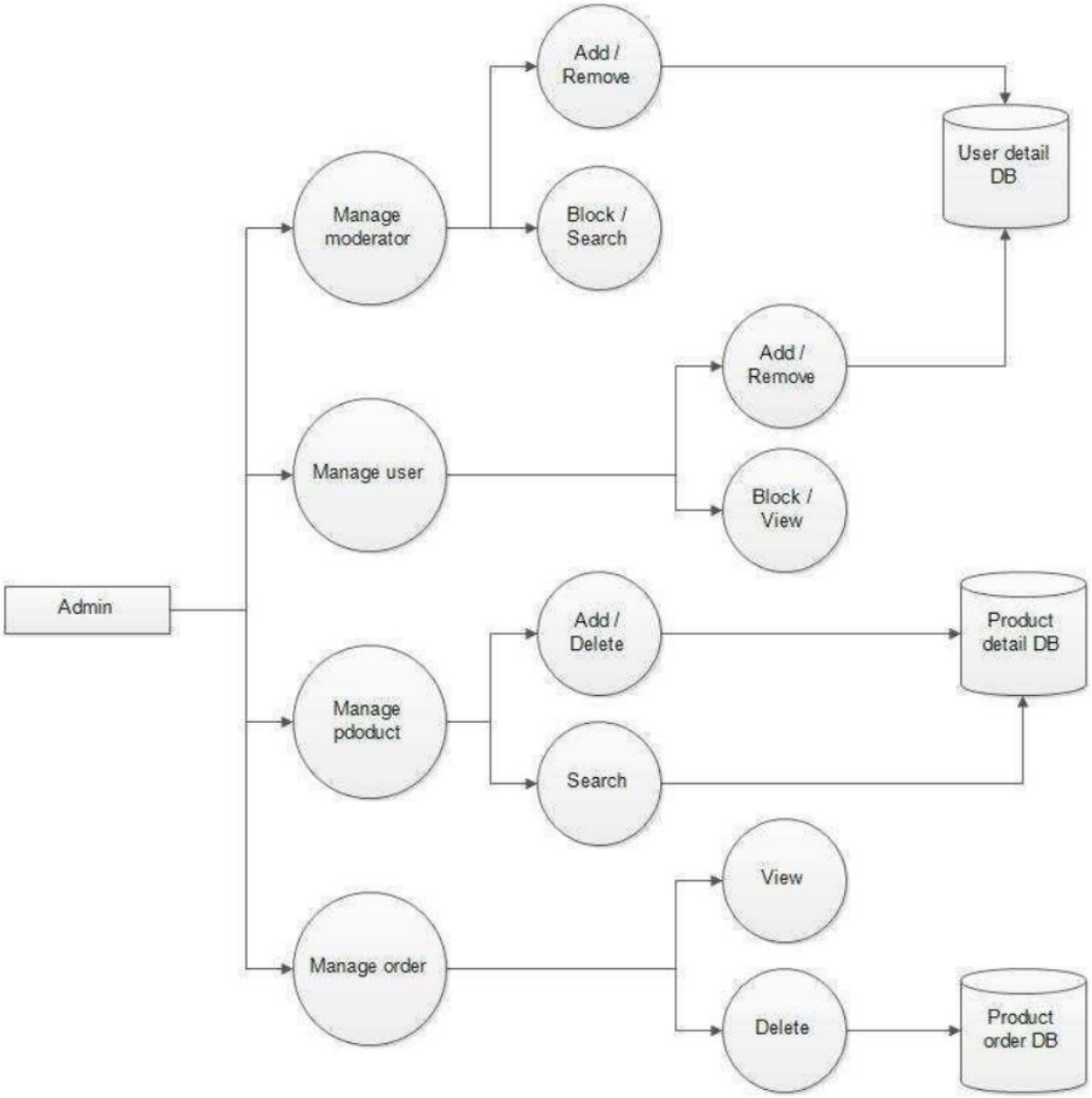

Figure 4.7.3.1 Admin DFD

5. CODE IMPLEMENTATION

5.1 Implementation Environment

Challenges identified for successful design and implementation of this project are dominated by:

- Complexity, reliability/availability, transparent data access. The project was a result of a group consensus. The team was having two members. The team was guided by project manager. The team structure depends on the management style of the organization, the no. of people in the team, their skill levels and the problem difficulty.

5.2 Program/Module Specification

- System GUI must be as simple and user friendly as anyone can use it. At front side we implemented login form to access the system.
- A Session is maintained throughout the system when a particular user enters into the system. The Session is regularly checked whenever it is required.
- Proper validation is placed as and when it is required.

5.3 Coding Standards

Normally, good software development organization requires their programmers to maintain some well-defined and standard style of coding called coding standard.

5.3.2 Comment Standards:

- The comment should describe what is happening, how it is being done, what parameters mean, which global are used and which are modified, and any registration or bugs.
- The standards I have followed are:
- Comment may also be used in the body of the Cascading style sheets to explain individual sections or lines of codes to easily get access and easily review or manage the classes or properties for the pages.
- Inline comments should be made with the //. Comment style and should be indented at the same level as the code described.
- For multiple line comments we write between /* .... */.

6. TESTING

6.1 Testing Strategy

A strategy for software testing integrates software test case design method into a well-planned series of steps that result in the successful construction of the software. The strategy provides the roadmap that describes the steps to be conducted as a part of testing, then these steps are planned and then undertaken, and how much effort, time and resource will be required.

6.2 Testing Method

6.2.1 Unit Testing

The unit testing is meant for testing smallest unit of software. There are two approaches namely bottom-up and top-down. In bottom up approach the last module is tested and then moving towards the first module while top down approach reverses the action. In present work we opt for the first one. The bottom up approach for the current project is carried out as shown in.

6.2.2 Validation Testing

After the integration testing software is completely assembled as a package, interfacing error have been uncovered and corrected, and then validation testing may begin. Validation can be defined in many ways but a simple definition is what a validation succeeds when software functions in a manner that can be reasonably accepted by the user.

6.2.3 Integration Testing

The integration testing is meant to test all the modules simultaneously because it is possible that all the modules may function correctly when tested individually. But they may not work altogether and may lead to unexpected outcome.

7. Limitations

7.1 Limitations:

Though I tried my best in developing this software but as limitations are more parts of any software so are of my software. Some limitations of Amazon Clone are as under:

- Issue with performance
- Online payment is only available via GPay and Apple Pay
- Weak security

8. Conclusion

The world has moved online – a fact that businesses have to accept and put up a proper application to address. Amazon is a prime example of that with all the key elements making up a good e-commerce seller. The was initially put together with simple HTML, CSS and JavaScript. But as time progressed and different frameworks came into the limelight, the website got a makeover. This project we are building an e-commerce application using Flutter framework and MongoDB, which is inspired by Amazon. Several user-friendly coding has also adopted. This package shall prove to be a powerful package in satisfying all the requirements of the organization. The objective of software planning is to provide a frame work that enables the manger to make reasonable estimates made within a limited time frame at the beginning of the software project and should be updated regularly as the project progresses.

This project helped us in gaining valuable information and practical knowledge on several topics like designing UI using Flutter & Dart, usage of various packages, designing of Web/Android/IOS applications, and management of database using ExpressJS and MongoDB. The project also helped us understanding about the development phases of a project and software development life cycle. We learned how to test different features of a project.

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9. References

1 https://stackoverflow.com
2 https://docs.flutter.dev/
3 https://dart.dev/
4 https://pub.dev/packages/
5 https://devdocs.io/express-express/
6 https://www.mongodb.com/docs/