

VITIAN LAUNDRY PRO

A REPORT

Submitted by

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To
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for the lab

SOFTWARE ENGINEERING LAB

BCSE301P

in

B. Tech. Computer Science and Engineering



VIT
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

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1. ABSTRACT

Aim

To Frame a project team, analyze and identify a Software project. To create a business case and Arrive at a Problem Statement for the Laundry Management System.

Project Title: VITIAN LAUNDRY PRO

Description:

ONE PAGE BUSINESS CASE TEMPLATE

1.1 THE PROJECT

- This project aims to develop an application for eliminating unnecessary confusions that goes on in the laundry process.
- It is an application where all students will possess individual accounts. Students will be able to login into their accounts in the application and will be able to specify number and type of clothes that they will be giving for laundry. Delivery and pick-up dates will also be mentioned.
- Students will be able to specify what needs to be done with their clothes. For example, if clothes just need to be ironed, or, if clothes need to be hand washed. Extra charges can be taken for the additional services which will also be mentioned in the application.
- The application will also have a section where students will be able to click pictures of their clothes and upload it just to keep track of the clothes that are been given to the laundry.
- The application will also provide visibility of the entire laundry to the service provider which will enable better monitoring.

THE HISTORY

- The present laundry process in most places is manual and complex and needs to be streamlined.
- The process generally involves a more traditional method of maintaining a notepad where all information about clothes given to the laundry are noted.
- We cannot specify what needs to be done to our clothes.

LIMITATIONS

- Lack of proper training.
- Communication problems amongst employees.
- Lack of education.
- Shortage of manpower.
- Inadequate knowledge on working of software
- Poor internet connection might pose as a threat

APPROACH

- Creative approach to make an attractive and user-friendly application.
- Coding Knowledge on web and application development.

BENEFITS

- Smooth, organized and streamlined laundry process
- Reduction in manpower
- Ability to track clothes
- Satisfaction of customers

1.2 PROBLEM STATEMENT Project Description

This project aims to develop an application for eliminating unnecessary confusion that goes on in the laundry process in organizations such as hostels. It is a web-based application for laundry management wherein the students/ service provider will possess individual accounts. Students will be able to login into their accounts in the web application and will be able to specify number and type of clothes that they will be giving for laundry. Delivery and pick-up dates will also be mentioned. Students will be able to specify what needs to be done with their clothes. For example, if clothes just need to be ironed, or, if clothes need to be hand washed etc.

Laundry charges including extra charges which will be taken for additional services which will also be mentioned in the application. The application will also have a section where students will be able to click pictures of their clothes and upload it just to keep track of the clothes that are being given to the laundry. The application will also provide visibility of the entire laundry to the service provider which will enable better monitoring, quicker service and better customer satisfaction.

The web page will have two sections one for the students or the customer and one for the service provider. In the students or customer section the students will be able to fill in the details of the clothes being provided by them at a particular time and on a particular day. They will be provided options for filling in the type of number of clothes they are giving for laundry. On the web application they would also be able to give out any special instructions which they want to give for their clothes like handwashing, washing and ironing, only ironing, clothes to be provided on hanger, etc. The students will also be able to mention if the delivery is normal, urgent or express.

The web application will have a provision for giving alerts to the students or the customer when their laundry is ready and date and time when it will be delivered. There will also be a provision to confirm that the laundry has been delivered. They will also be able to raise any issues with respect to the delivered laundry whether it is the quality of the service or non-delivery of any of the clothes. The web

application will have a historic record of all the laundry provided by the student thus making it easier to search details when required.

In the section for the service provider the agency providing the laundry services will be able to monitor the laundry state at any given moment. He will be able to plan collection and delivery of laundry to the customers on any particular day. On his section of the web page the service provider will have visibility of the entire laundry inventory on any particular day.

In addition to the above section the web page will have an access for the hostel authorities where they will be able to have visibility at any time how the laundry services are performing, whether the laundry service provider is able to provide timely services as mandated in the contract or not and also if the students are satisfied with the quality of the laundry services or not.

1.3 Problem Constraints

- At present in the entire laundry process, all the work is manually done due to which there is a lot of confusion which results in a lot of dissatisfaction amongst the students or the customers. Problems faced on a daily basis are loss of clothes, exchange of clothes, delay in delivery and pick-up, damage to the clothes, poor quality of washing and ironing, etc. To overcome these problems, it is essential that the entire process is web based.
Therefore, this project aims at making a web page which will improve the efficiency of the service provider, give better satisfaction to the students or the customers as well as provide the hostel authorities a method to gauge the performance of the laundry service provider.
- The major questions that need to be answered are as given below:
 - Date and time: when the clothes are being picked up
 - Date and time: when the clothes will be delivered
 - The name of the student and the address from where the clothes are being picked up
 - What needs to be done with the clothes? (Washing only, only ironing, washing and ironing, stain removal, clothes to be delivered folded or on a hanger.)
 - The key issues that need to be answered are as given below:
 - All the clients of the web page i.e., the students, the laundry service provider, the delivery men, the hostel authorities need to be aware about the functioning of the web page.
 - Data of all the students in the hostel along with their address need to be fed in the data base.
 - The service provider should be able to access the entire clothes inventory at any one time.
 - The web site should have a provision of regular feedback from the students.
 - The hostel authorities should be able to gauge the performance of the laundry service provider at any time in terms of delays in delivery, losses or damages to the clothes etc. They should also be able to regularly get an idea of the satisfaction level amongst the students.

- Provision of monthly payment of the charges for the additional services provided by the laundry service provider by various means.
- The objective of this project is to streamline the process of laundry in the hostels by developing a web application. The goal is also to make the entire process automated, organized and easier for both the students and the firm providing the laundry services. As an added benefit the project will also subsequent optimization of man power in the entire process. The web page will also provide a tool to the Hostel authorities to gauge the performance of the laundry service provider and also see if the students are satisfied with the services or not. Analysis of the historical database thus created will also enable the Institute authorities to make better and informed decisions with respect to laundry services for the Institute in the future.
- The audience of the project are the students, the laundry service provider as well as the Institute and Hostel authorities
- As of now the entire process of the laundry in the hostel is in the manual mode. Details of the students and their room numbers and those who have opted for the laundry services are readily available with the hostel authorities and can be used as such. All the other data like the type of clothes, type of service to be provided, additional charges, details of staff of the service provider etc will however have to be populated in the database of the web page.

Schedule, Resource and budget constraints

- Since the project involves development of a web page which will primarily involve coding the requirement of budget will be minimal. However, some funds (Approx. Rs 4 to 5 K) would be required to meet the daily cost of website development and utilization of the internet.
- Commencement of examinations or other academic commitments are likely to hinder the development of the website and may cause unavoidable delays.
- The college library provides adequate number of books on all coding languages which helps in building an effective laundry managing website for the project. The team members previous knowledge and learning focused on web development would contribute considerably to the quality of the project.

Result

Thus, the project team formed, the project is described, the business case was prepared and the problem statement was arrived.

2. Literature Survey

The literature survey is a review of the existing work on the topic of laundry management systems. This includes research papers, articles, and other publications that discuss the challenges and opportunities of laundry management, as well as the different approaches that have been taken to address these challenges.

2.1. Survey of the Existing Work

The survey of the existing work should identify the different types of laundry management systems that have been developed, as well as the benefits and drawbacks of each approach. It should also identify the gaps in the existing literature, i.e., the areas where there is still a need for research.

2.2. Gaps identified in the Survey

The gaps identified in the survey should be discussed in detail. This includes discussing the reasons why these gaps exist, as well as the potential impact of these gaps on the development of laundry management systems.

Here are some specific examples of gaps that could be identified in the survey:

- There is a lack of research on the use of mobile devices for laundry management.
- There is a lack of research on the use of big data analytics for laundry management.
- There is a lack of research on the use of cloud computing for laundry management.

These are just a few examples, and the specific gaps that are identified will depend on the focus of the literature survey. However, by identifying these gaps, the authors of the literature survey can help to guide future research on laundry management systems.

The literature survey is an important part of any research project. It helps to identify the gaps in the existing knowledge, and to provide a foundation for the development of new research. In the case of laundry management systems, the literature survey would need to review the existing work on the following topics:

The challenges and opportunities of laundry management

The different approaches that have been taken to address these challenges

The different types of laundry management systems that have been developed

The benefits and drawbacks of each approach

The gaps in the existing literature

The survey of the existing work should be comprehensive and up-to-date. It should include research papers, articles, and other publications from a variety of sources. The survey should also be critical, and should identify the strengths and weaknesses of the existing work.

The gaps identified in the survey should be discussed in detail. This includes discussing the reasons why these gaps exist, as well as the potential impact of these gaps on the development of laundry management systems.

The literature survey should conclude with a discussion of the implications of the findings for future research. This includes discussing the areas where further research is needed, and the potential benefits of such research.

Here are some specific examples of gaps that could be identified in the literature survey:

There is a lack of research on the use of mobile devices for laundry management. This is a significant gap, as mobile devices are becoming increasingly popular, and could be used to improve the efficiency and effectiveness of laundry management systems.

There is a lack of research on the use of big data analytics for laundry management. Big data analytics could be used to improve the efficiency of laundry management systems by identifying patterns and trends in laundry usage.

There is a lack of research on the use of cloud computing for laundry management. Cloud computing could be used to reduce the cost of laundry management systems by providing a scalable and cost-effective platform for hosting laundry management applications.

These are just a few examples, and the specific gaps that are identified will depend on the focus of the literature survey. However, by identifying these gaps, the authors of the literature survey can help to guide future research on laundry management systems

Sure, here is the proposed system requirements analysis and design for the laundry management system:

3.1. Introduction

The laundry management system is a web-based application that will be used to streamline the laundry process in hostels. The system will allow students to submit laundry requests, track the status of their laundry, and provide feedback on the quality of the service. The system will also be used by the laundry service provider to manage their inventory and track the progress of laundry orders.

3.2. Requirement Analysis

The following are the requirements for the laundry management system:

- The system must be web-based and accessible from any device with an internet connection.
- The system must allow students to submit laundry requests, including the type of laundry, the number of items, and any special instructions.
- The system must allow students to track the status of their laundry, including the date and time it was picked up, the date and time it was delivered, and the cost of the service.
- The system must allow students to provide feedback on the quality of the laundry service.
- The system must allow the laundry service provider to manage their inventory and track the progress of laundry orders.

3.3. System Design

The laundry management system will be designed as a three-tier architecture:

- The presentation tier will be responsible for displaying the user interface and interacting with the user.
- The application tier will be responsible for processing the user's requests and communicating with the database

- The database tier will store the data for the laundry management system.

The system will be developed using the following technologies:

- The presentation tier will be developed using HTML, CSS, and JavaScript.
- The application tier will be developed using Java or Python.
- The database tier will be a MySQL database.

The system will be deployed on a cloud computing platform, such as Amazon Web Services or Google Cloud Platform.

I hope this is helpful!

3.2.1 STAKEHOLDERS AND PROCESS METHODOLOGY

Aim

To identify the appropriate Process Model for the project and prepare Stakeholder and User Description.

Selection of Methodology

The project uses the “Agile process method” as it is faster and the risk factor is low. Agile model breaks down the tasks into smaller steps or iterations which no longer requires long duration for processing each step. The breakdown of steps benefits by increasing the speed of the functioning. The requirements are finalized at the start of the development process.

This project is broken down into steps like requirement gathering, developing, designing, managing, reviewing and implementation.

The basic requirements of the laundry management system is first analyzed and then the developers and designers make sure that the project coding and interface is made in a user friendly manner. The tester makes sure that the project is having no errors to debug and then finally it is sent for implementation.

In this way of processing a project, the advantages include – Speeder results, risk factor is low, transparency in the process procedure and the requirements and implementation methodology is analyzed at the start.

STAKEHOLDERS:

The primary and secondary stakeholders involved in this project are-

Stakeholder Name	Activity/ Area /Phase	Interest	Influence	Priority (High/ Medium/ Low)
Team / project Leader	Regulates the functioning of the project	High	High	1
Developers	Project implementation, delivery and estimation	High	High	1
Customers	Approves or supplements the project with new implementation points	Medium	Low	5
People involved in the management	Manages the project once Done	Medium	Low	4
Business analyst	analyze and evaluate the project ideas, requirements and the budget	High	High	1
Designer	makes the project interface user-friendly and understandable	High	Medium	2
End user	Target audience	Medium	Medium	3

STAKEHOLDER	INTEREST	ESTIMATED PROJECT IMPACT	ESTIMATED PRIORITY
Team / project Leader	The role of a team/project leader is to make sure that the project is carried out in an efficient and effective manner	High	1
Developers	they are in charge of project coding, estimation and implementation process	High	1
Customers	Customers either accept or come up with new ideas for the project enhancement	Low	5
People involved in the management	Handles the final stage of project	Low	4
Business analyst	Analyst is in charge of analyzing the requirements, budget constraints and evaluating the end project	High	1
Designer	Enhances the user interface	Medium	2
End user	They are the target audience	Medium	3

Result:

Thus, the Project Methodology was identified and the stakeholders were described.

3.2.2 Functional Requirements

- User will be able to login into their respective accounts.
- A forgot password option is provided in the login page.
- User will be able to track their order.
- There will be a page where the user can file complaints.
- “Not connected to the Internet” page is shown when the Internet stops working.
- There is a section in the webpage where the user can specify what needs to be done to the clothes.
- For special requests (like Dry cleaning) the user will be taken to separate section where extra charges have to be paid.
- The system should allow students to login to their accounts and specify the number and type of clothes they will be giving for laundry.
-
- The system should allow students to specify what needs to be done with their clothes, such as washing, ironing, or stain removal.
-
- The system should allow students to choose the delivery date and time.
-
- The system should allow students to track the status of their laundry.
-
- The system should allow students to provide feedback on the quality of the laundry service.
-
- The system should allow the laundry service provider to view the laundry inventory and schedule deliveries.
-
- The system should allow the hostel authorities to view the performance of the laundry service provider and the satisfaction level of the students.

3.2.3 Non-Functional Requirements

- System will function 24/7.
- Privacy of personal information is maintained.
- System will be portable.
- The system will prompt user to change the password automatically in case of more than 5 incorrect password attempts.
- System will handle 1000 users per day with slot booking based on the user login time.
- The system should be user-friendly and easy to use.
- The system should be secure and protect the privacy of users' data.
- The system should be scalable to accommodate a large number of users.
- The system should be reliable and available 24/7.

Result

Thus, the requirements were identified and accordingly described.

Aim

To identify the system, functional and non-functional requirements for the project.

3.2.4 System Requirements

- Internet access should be there at all time when the website is in use.
- Camera required for uploading the pictures of the clothes.
- Must work on all operating systems and browsers.

3.2.4.2 Hardware requirements:

1. The system must be hosted on a cloud computing platform, such as Amazon Web Services or Google Cloud Platform.
2. The system must have a minimum of 1 GB of RAM and 1 CPU core.
3. The system must have a minimum of 10 GB of storage space.

3.2.4.2 Software requirements:

1. The system must be developed using the following technologies:
2. HTML, CSS, and JavaScript for the presentation tier
3. Java or Python for the application tier
4. MySQL database for the database tier

The system must be compatible with the following browsers:

1. Chrome
2. Firefox
3. Safari
4. Edge

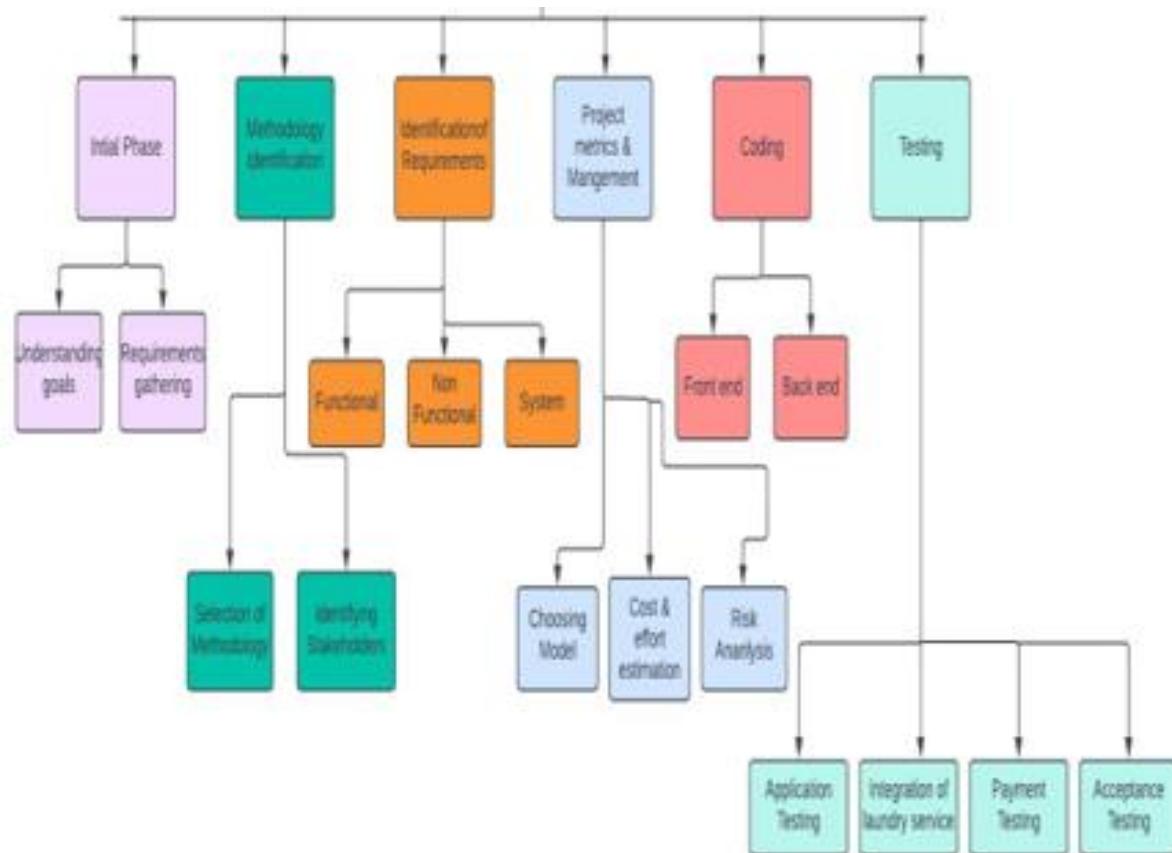
In addition to the above requirements, the system must also meet the following security requirements:

- The system must be protected from unauthorized access.
- The system must be protected from malicious attacks.
- The system must be able to recover from data loss or corruption.

Aim

To Prepare Work breakdown structure, Timeline chart and Risk identification table

3.2.5 WBS -WORK BREAKDOWN STRUCTURE



Initial Phase

- 1.1 Understanding goals
- 1.2 Requirements gathering
- 2. Methodology identification
 - 2.1 Selection of methodology
 - 2.2 Identifying stakeholders

3. Identification of requirements

- 3.1 Functional Requirements
- 3.2 Non-functional Requirements
- 3.3 System Requirements

4. Project metrics and management

- 4.1 Choosing model
- 4.2 Cost and effort estimation
- 4.3 Risk analysis

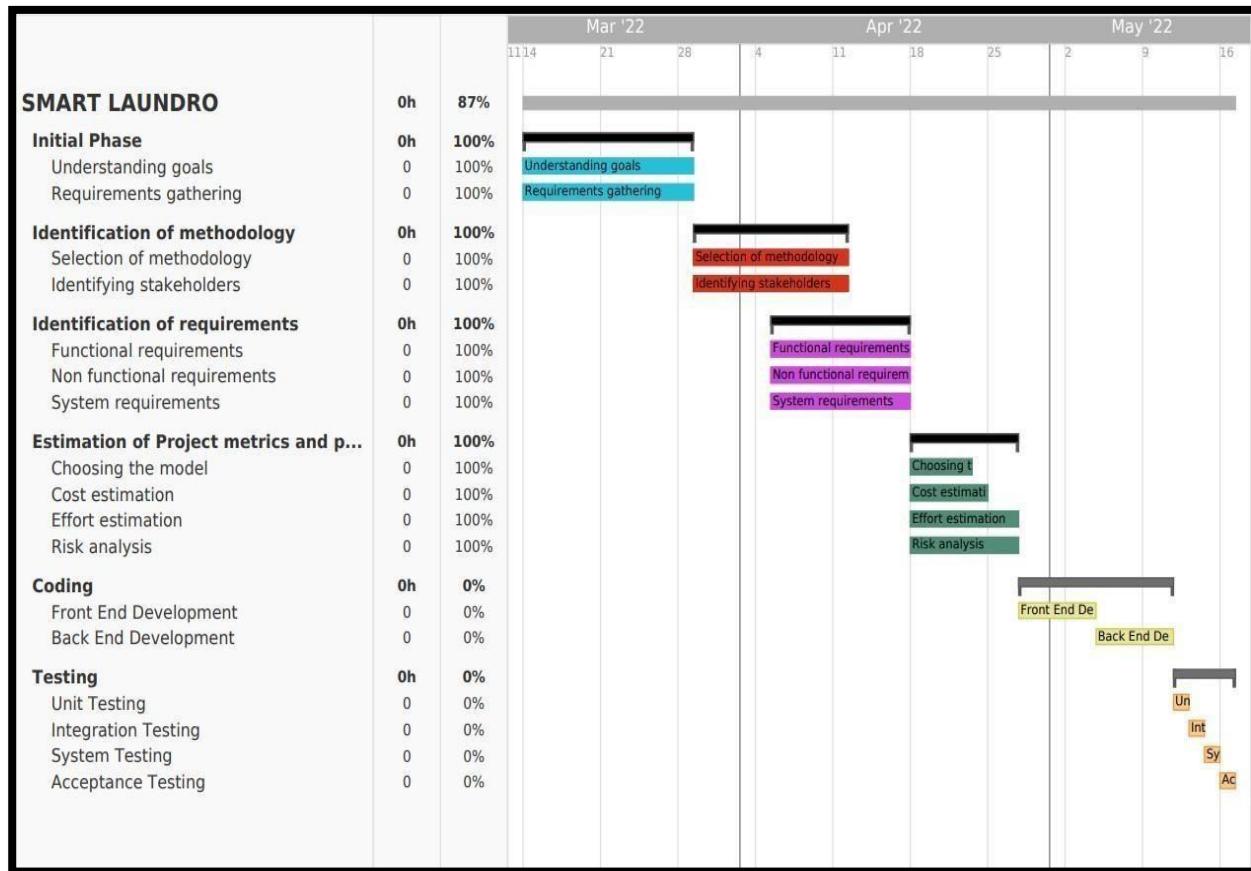
5. Coding

- 5.1 Front End Development
- 5.2 Back End Development

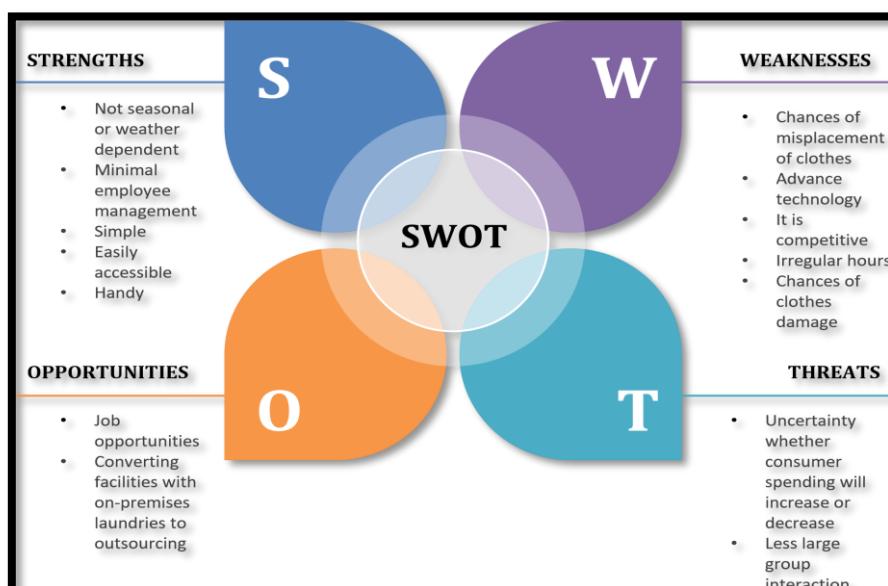
6. Testing

- 6.1 Application Testing
- 6.2 Integration of laundry Testing
- 6.3 Payment Testing

3.2.6 TIMELINE – GANTT CHART



RISK ANALYSIS – SWOT & RMMM



Risk Management Framework

Response	Strategy	Examples
Avoid	Risk avoidance is a strategy where the project team takes action to remove the threat of the risk or protect the impact.	
Transfer	Risk transference involves shifting or transferring the risk threat and impact to a third party. Rather transfer the responsibility and ownership .	
Mitigate	Risk mitigation is a strategy whereby the project team takes a action to reduce the probability of the risk occurring. This does not risk or potential impact, but rather reduces the likelihood of it becoming real.	
Accept	Risk acceptance means the team acknowledges the risk and its potential impact, but decides not to take any preemptive action to prevent it, it is dealt with only if it occurs.	

Result:

Thus, the work breakdown structure with timeline chart and risk table were formulated successfully.

4. Design of the Proposed System

Aim

To Prepare Project Plan based on scope, Calculate Project effort based on resources, Find Job roles and responsibilities

Requirements:

4.1. Project Management Plan

FOCUS AREA	DETAILS
Scope Management	Scope statement Requirements (information, working of the software, database management, constraint stakeholders) Task allocation (clothes giving and collecting management)
Schedule Management	Provision of laundry service on time
Cost management	Budget management Efficient effort calculation Minimizing the cost increasing factors
Resource management	Finance: budget requirement Technology: proper setup with internet access Skills: ability to code/access the site
Stakeholder	Identifying, Analyzing & Engaging Stakeholders
Communication Management	Communication with the user – method of communication and the medium of communication
Risk Management	Identification of risk factors Analyzing proper ideologies to overcome the risk threats Prioritizing and eradication of risk causing factors

ESTIMATION:

EFFORT AND COST ESTIMATION

Activity Description	Sub-Task	Sub-Task Description	Effort (in hours)	Cost in INR
Design of the interface	E1R1A1T1	Display the user privacy policy KLOC=0.5	0.23	196
	E1R1A1T2 Home screen	The website prompts to the home screen which asks the user for user requirements. KLOC=0.5	1.38	1173
	E1R1A1T3 User login	The page which makes sure that the credentials are entered and further directs the user to their account. KLOC=0.4	1.07	910
	E1R1A1T4 Main Page	The main page provides with variety of options for the user to choose one according to their desire. KLOC=1	3	2550
	E1R1A1T5 Cloths specification page	A specified column will also be provided for the specifications of laundry process (whites to be done separately, steamiron, etc) KLOC=1	3	2550
	E1R1A1T6 Tracking Page	Ensures the tracking of the clothes KLOC=1.5	4.72	4012

	E1R1A1T7 Payment Page	Highly secure and maintains the database of the transactions in payment process. KLOC=1	3	2550
Database Management	E1R1A2T1 Backend	It stores and arranges data, and also makes sure everything on the client-side of the website works fine KLOC=4	18	15300
Effort (hr)		Cost (INR)		
1		850		

Basic COCOMO (semi-detached)

It is semi-detached as the team size is comparatively small with 3 people, coding knowledge is required and complexity of development is a little high compared to organic

Software Projects	a	b	c	d
Organic	2.4	1.05	2.5	0.38
Semi Detached	3.0	1.12	2.5	0.35
Embedded	3.6	1.20	2.5	0.32

FORMULAS:

$$\text{Effort } E = a \text{ (KLOC)}^b$$

$$\text{Time} = c \text{ (Effort)}^d$$

Person required = Effort / time

Staff size = 3

- for E1R1A1T1, KLOC = 0.5,

$$\begin{aligned} \text{Effort } E &= 3 (0.1)^{1.12} \\ &= 0.23 \end{aligned}$$

2. E1R1A1T2, KLOC = 0.5

Effort E = $3(0.5)^{1.12} = 1.38$

3. E1R1A1T3, KLOC=0.4

Effort E= $3(0.4)^{1.12}=1.07$

4. E1R1A1T4, KLOC=1

Effort E= $3(1)^{1.12}=3$

5. E1R1A1T5, KLOC=1

Effort E= $3(1)^{1.12}=3$

6. E1R1A1T6, KLOC=1.5

Effort E= $3(1.5)^{1.12}=4.72$

7. E1R1A1T7, KLOC=1

Effort E= $3(1)^{1.12}=3$

8. E1R1A2T1, KLOC=5

Effort E= $3(5)^{1.12}=18$

Infrastructure/Resource Cost [CapEx]

Infrastructure Requirement	Qty	Cost per qty	Cost per item
Washing machine	2	22,000	44,000
Washer-dryer	1	40,000	40,000

Maintenance and Support Cost [OpExq]

Category	Details	Qty	Cost per qty per annum	Cost per item
infrastructure		1	96000	96000
License	Operating System Database Middleware IDE	1	30000	30000

1. Project Team Formation

1.1. Identification Team members

Name	Role	Responsibilities
Charan kanakala	Key Business User (Product Owner)	Provide clear business and user requirements
	Project Manager	Manage the working and functioning of the project
	Frontend Developer	Develops the user interface

Madduri likhith	Technical Lead	Design the end-to-end architecture of the website
	UX Designer	Design the user experience
	Cloud Architect	Design the cost effective, highly available and scalable architecture
Manikanta setti	Business Analyst	Regulates the Documentation Requirements
	Tester	Define Test Cases and Perform Testing
	Backend Developer	Design & Development

1.2. Responsibility Assignment Matrix

RACI Matrix		Team Members			
Activity	Name (BA)- (Manikanta setti)	Name (Developer) – (Madduri likhith)	Name (Project Manager) – (Charan kanakala)	Key Business User	
User Requirement Documentation	A	C/I	I	R	
Website designing	I	A	R		
Data integration & security	C	A/R	A/R		
Database management	R	I/A	R		

A	Accountable
R	Responsible
C	Consult
I	Inform

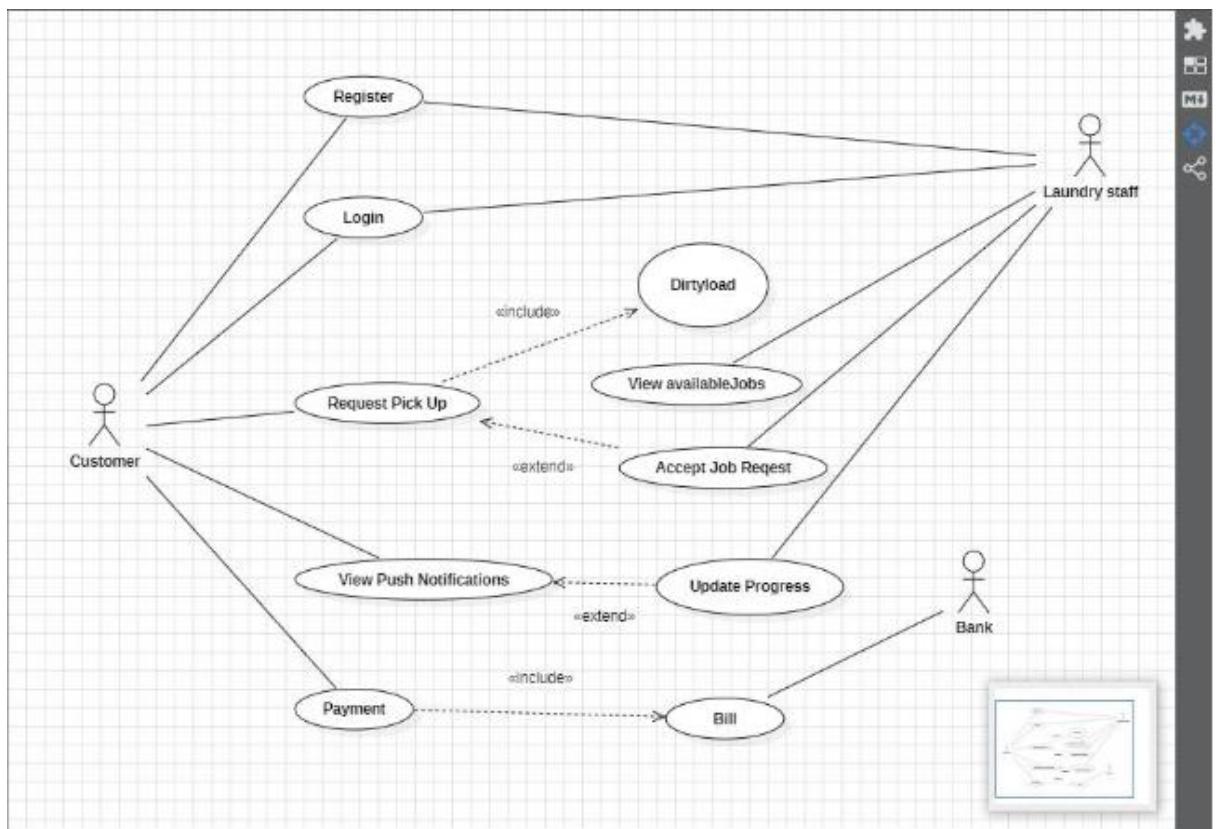
Result:

Thus, the Project Plan was documented successfully.

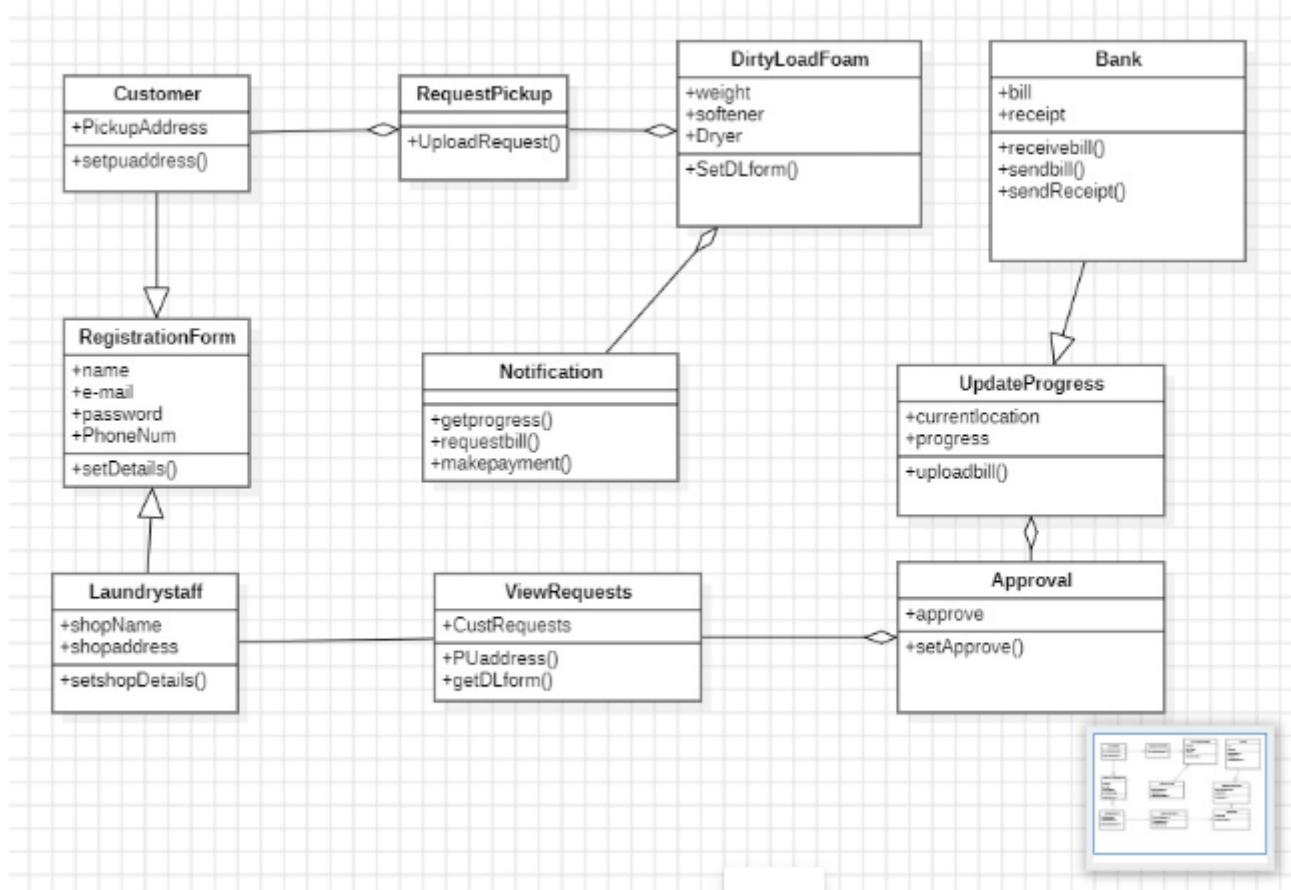
4.2 Aim

To Design a System Architecture, Use case and Class Diagram

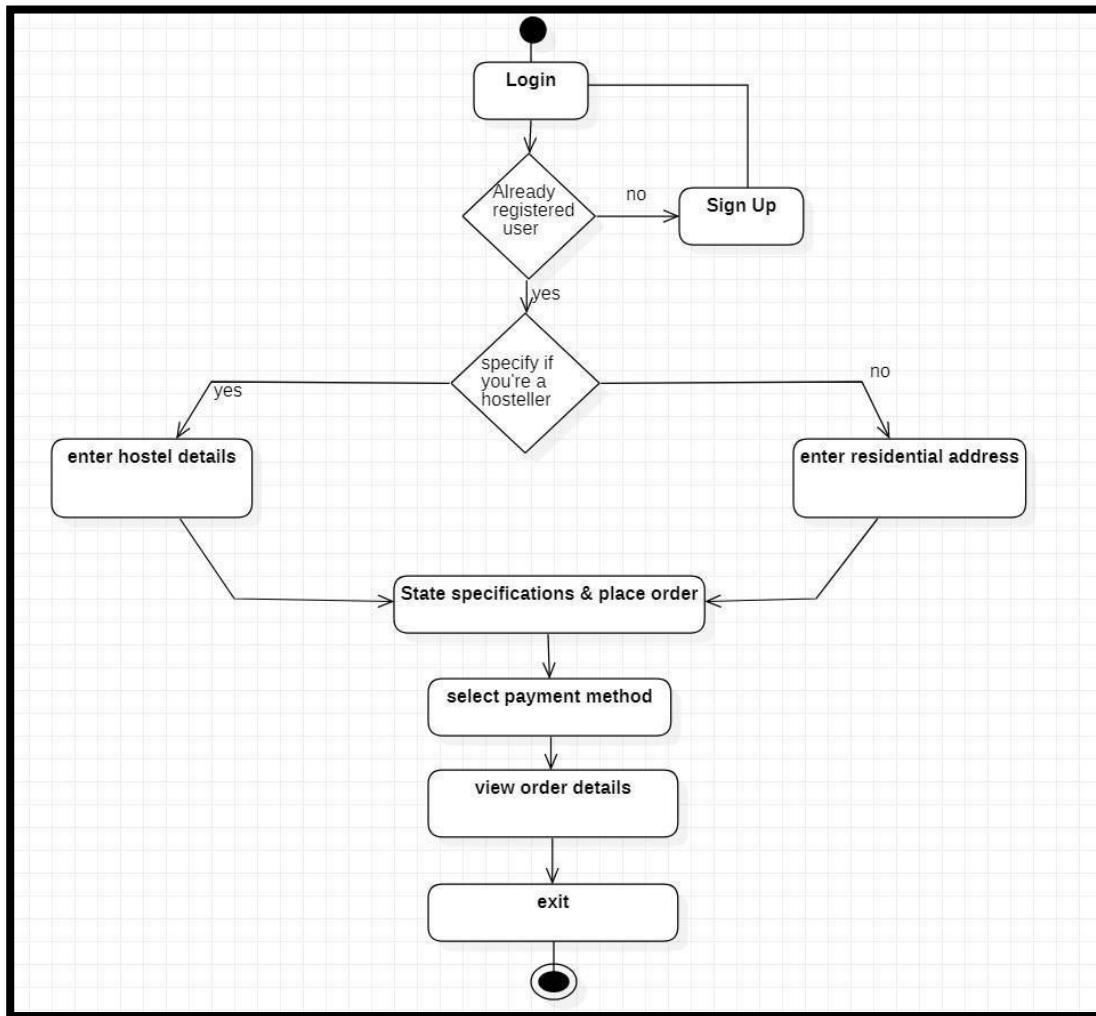
4.2.1 USE CASE DIAGRAM:



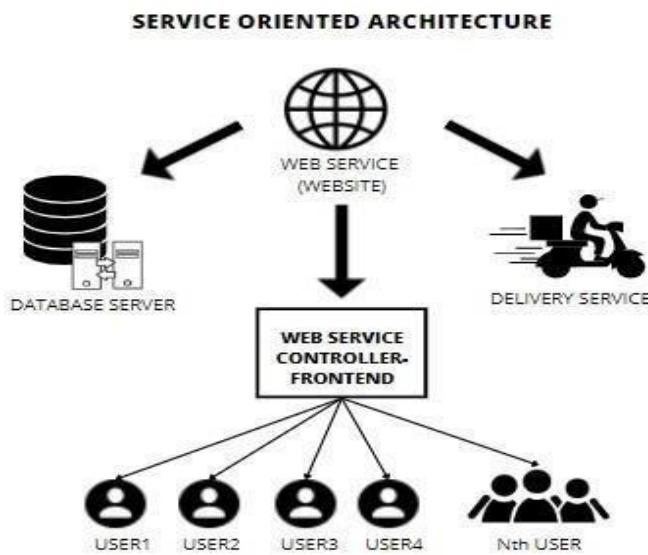
4.2.2 CLASS DIAGRAM:



4.2.3 ACTIVITY DIAGRAM:



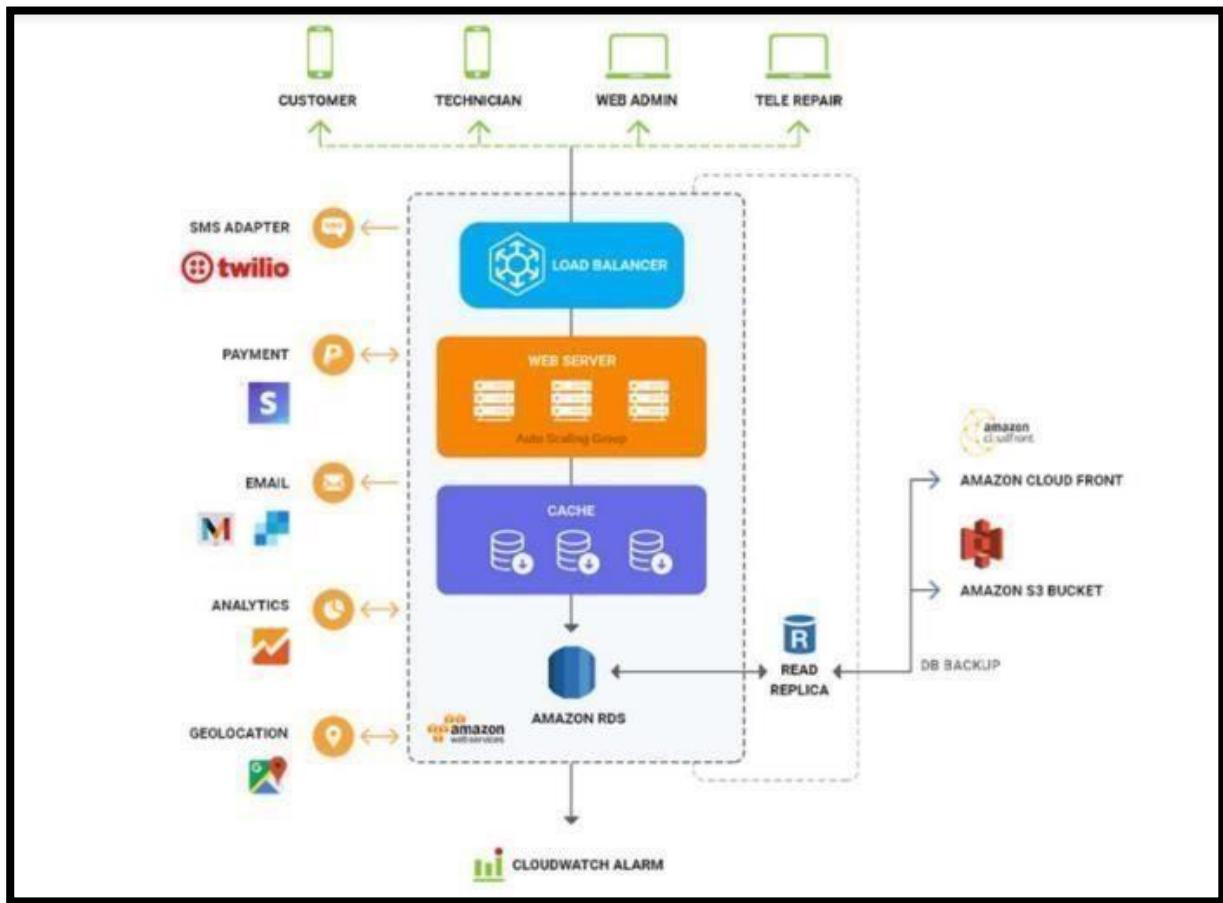
4.2.3 SYSTEM ARCHITECTURE:



Result:

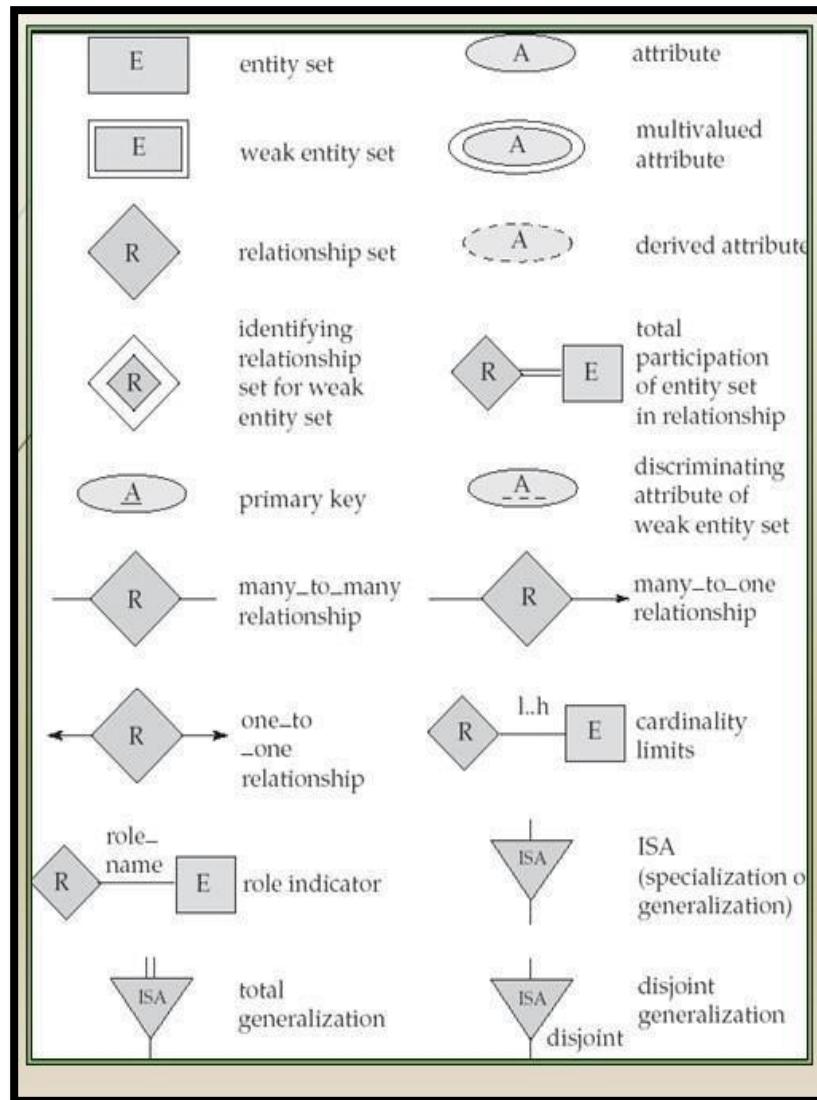
Thus, the system architecture, use case and class diagram created successfully.

SYSTEM ARCHITECTURE – Example

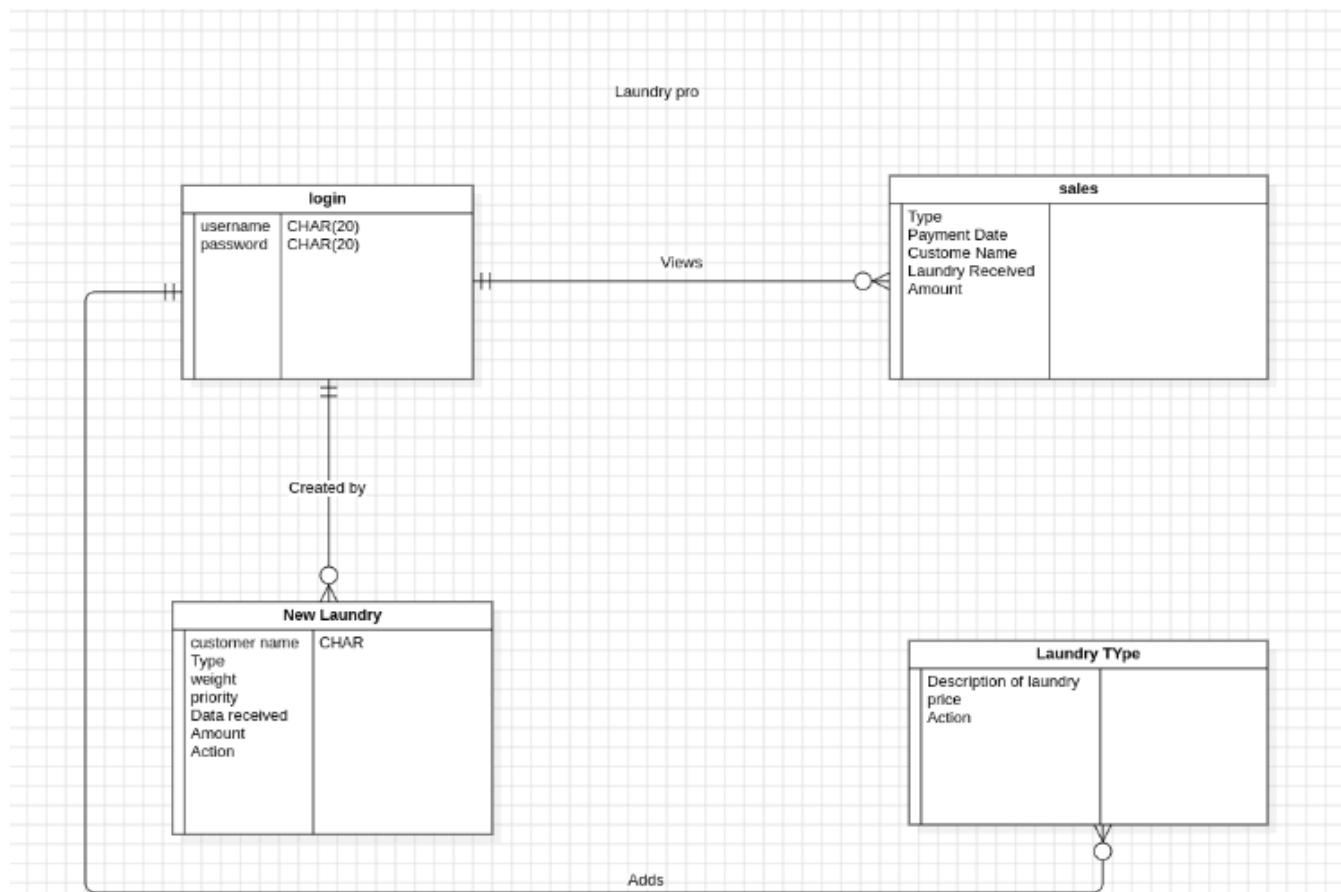


Aim

To create the Entity Relationship Diagram



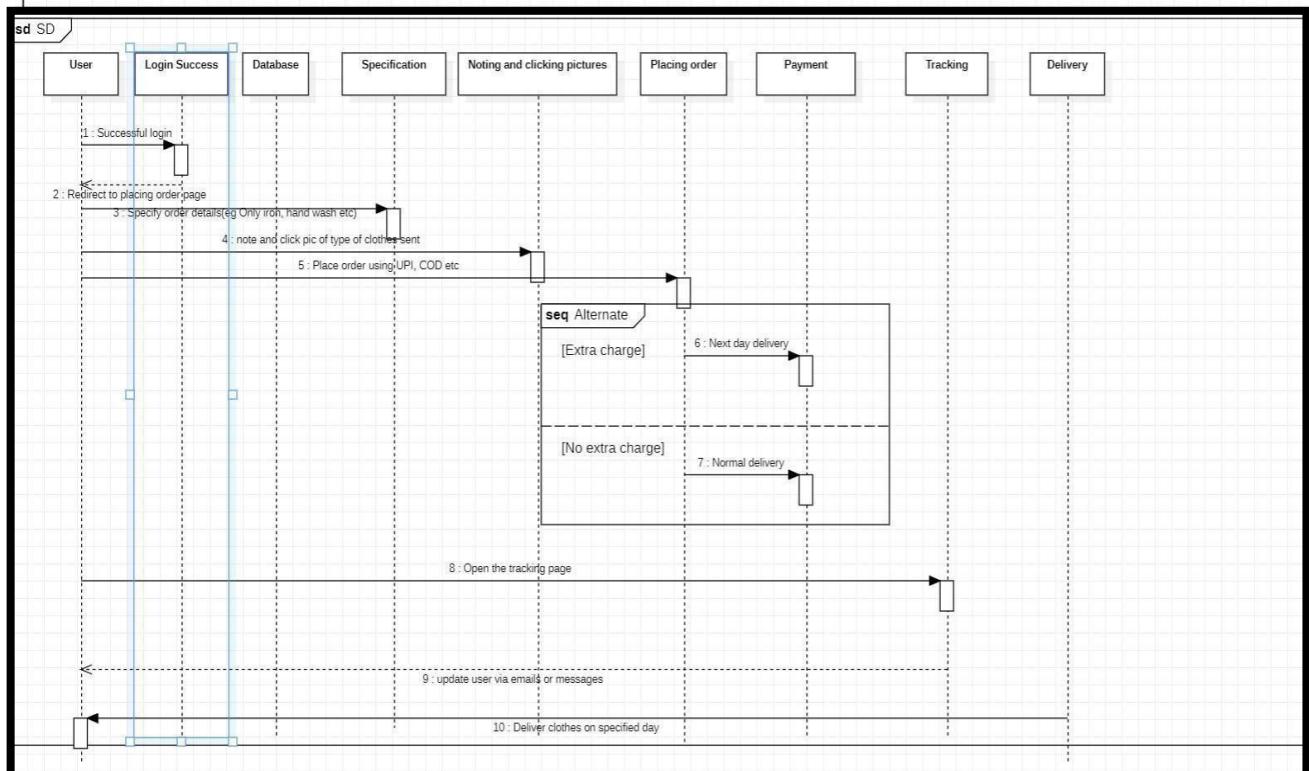
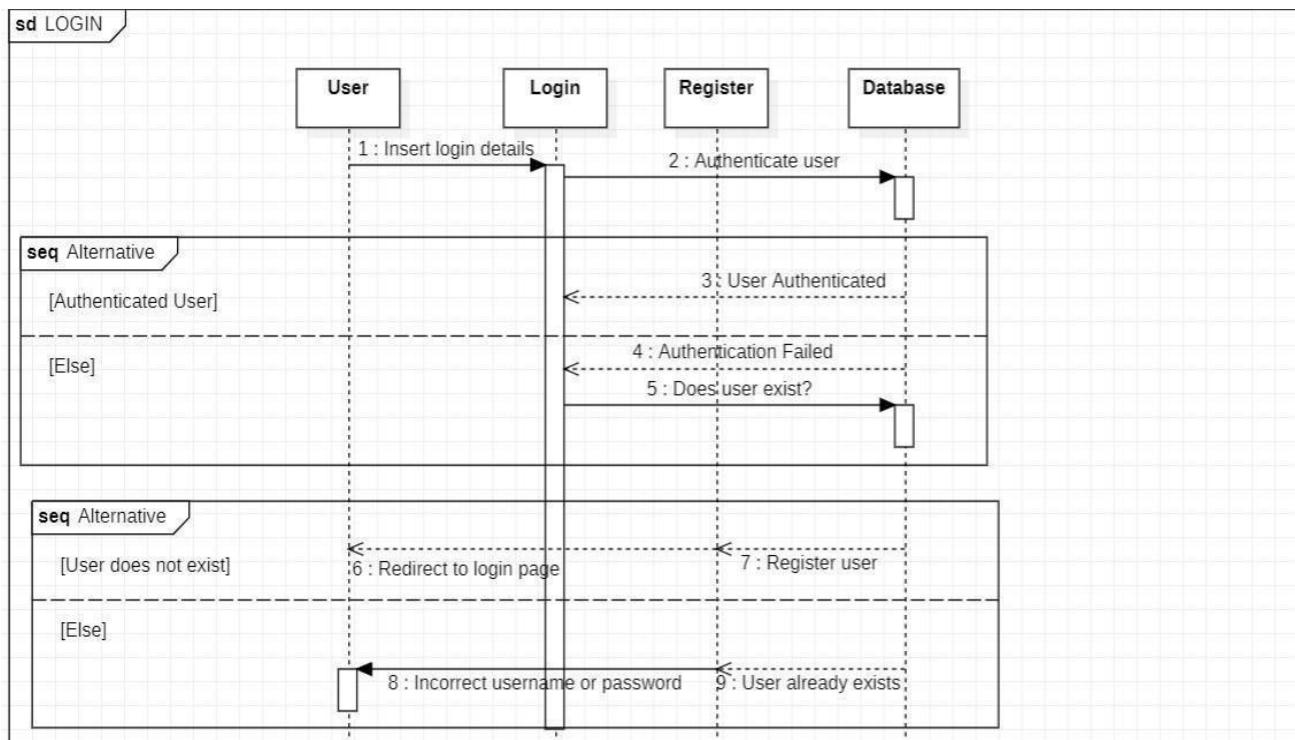
4.3 ER -Diagram of Laundry management



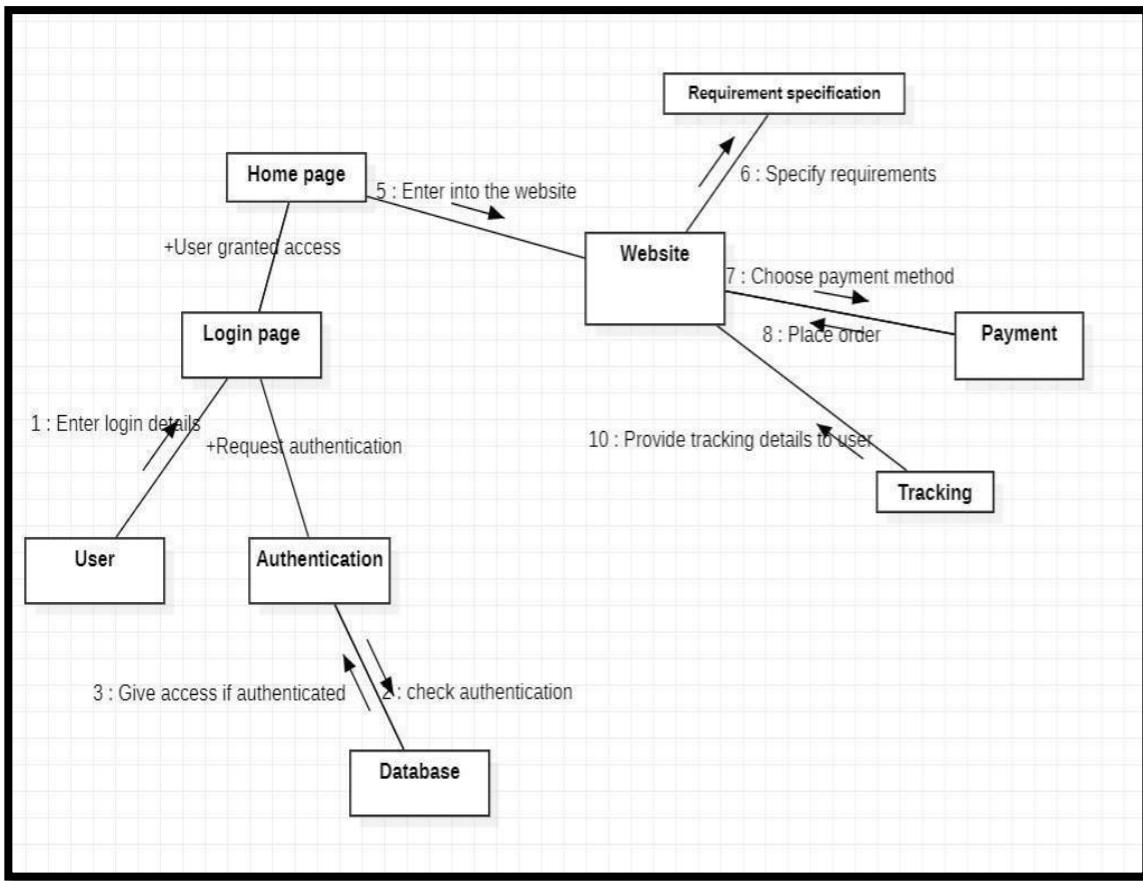
Aim

To create the sequence and collaboration diagram for the <project name> **Team Members:**

4.3.1 Sequence Diagram



4.3.2 Collaboration Diagram

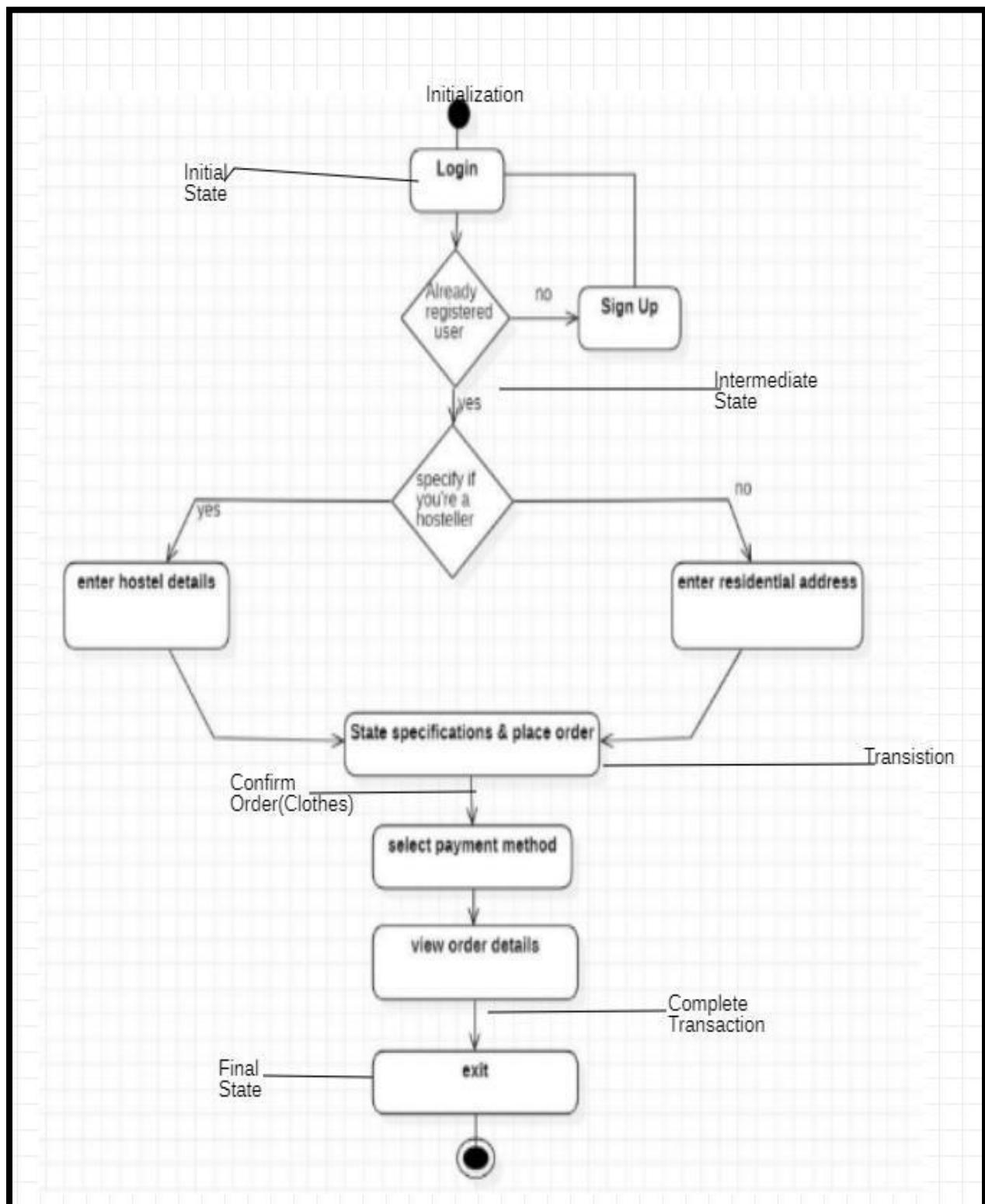


Result:

Thus, the sequence and collaboration diagrams were created for the VITIAN LAUNDRY PRO.



4.3.3 STATE DIAGRAM:

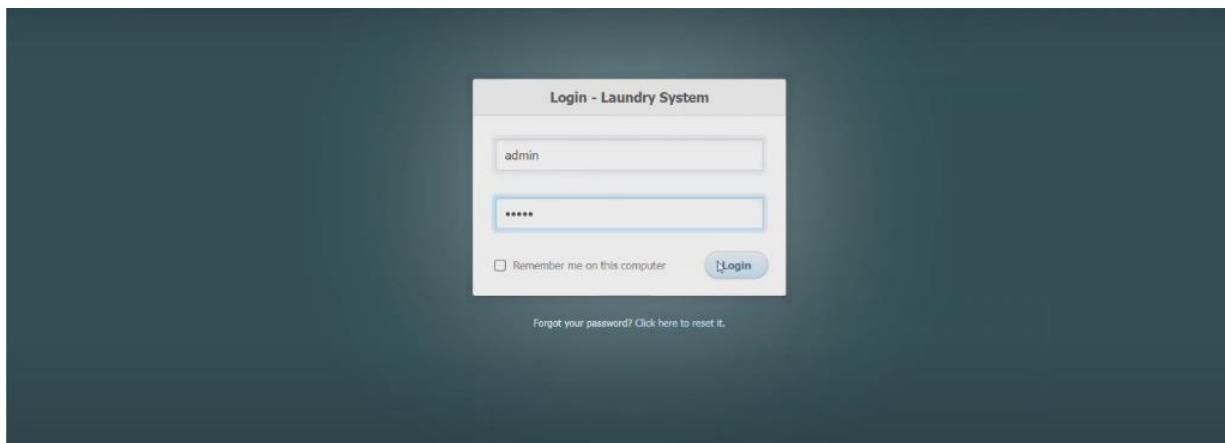


Aim

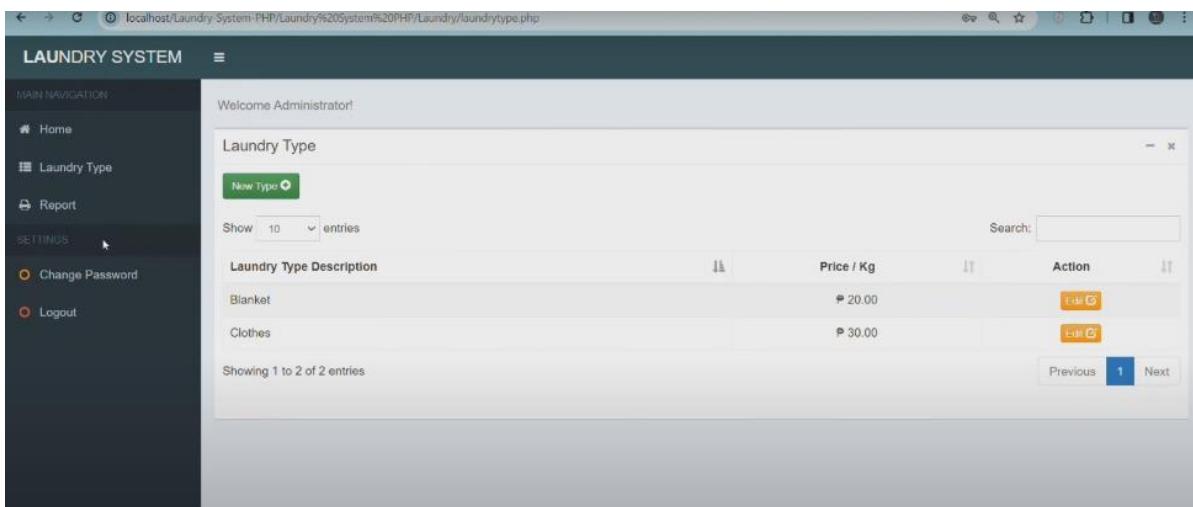
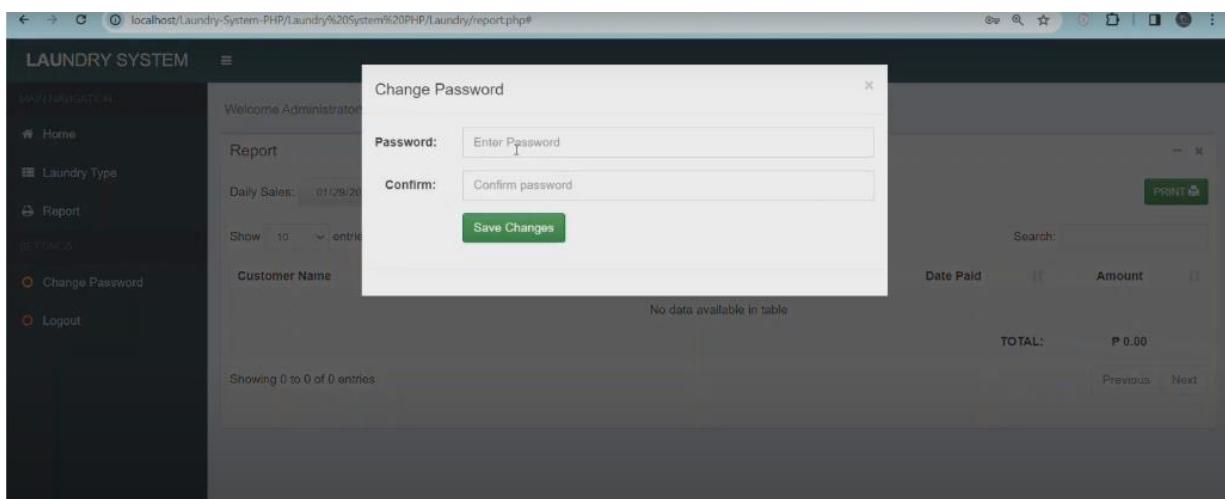
To develop the testing framework and/or user interface framework for VITIAN LAUNDRY PRO.

4.4 USER- INTERFACE MODULE OF THE LOGIN PAGE:

EXAMPLE INTERFACE OR SIMILAR ONE:



USER PASSWORD CHANGES:



After Adding the clothes:

The screenshot shows a web-based laundry management system. The left sidebar has a dark theme with white text and icons. It includes links for Home, Laundry Type (which is currently selected and highlighted in blue), Report, Change Password, and Logout. The main content area has a light gray background. At the top, it says "Welcome Administrator!". Below that is a section titled "Laundry Type" with a green "New Type" button. A search bar and a dropdown for "Show 10 entries" are also present. The main table lists laundry types with columns for "Laundry Type Description", "Price / Kg", and "Action". The data is as follows:

Laundry Type Description	Price / Kg	Action
Blanket	₱ 20.00	Edit Delete
Clothes	₱ 30.00	Edit Delete
Sample	₱ 50.00	Edit Delete

At the bottom of the table, it says "Showing 1 to 3 of 3 entries".

Executive Summary

The project “**VITIAN LAUNDRY PRO**” aims in developing the present laundry system which is done manually. It provides a better way of handling the system. It focuses of carrying out the laundry process in an oriented manner and reduces the chance of clothes getting lost.

It provides features like – washing, dry clean, steam iron, ironing for the users. The users will have to register and maintain their account. Placement of order will be done by the users through the site and once the order is placed, every update about their clothes will be sent to the respective user including the delivery date, time and venue. Premium users will also be able to get their clothes done within a day. The site enhances and conducts the laundry management system in the most organized manner ensuring the customers a trustful service

5. Types of Testing, Methodology, Tools

Black Box Testing:

The Black Box Test is a test that only considers the external behavior of the system and the internal workings of the software are not taken into account. A tester provides input and observes the output generated by the system under test. Black box testing can be applied to three main types of tests: functional, non-functional, and regression testing.

White Box Testing:

White-box testing is a method of software testing that test internal structures or workings of an application, as opposed to its functionality. In white-box testing an internal perspective of the system, as well as programming skills, are used to design test cases.

MODULES

MODULE 1 consists of the sign-up page

MODULE 2 consists of the login page

MODULE 3 consists of the payment page

MODULE	METHODOLOGY
Module 1- sign-up page	Black box testing
Module 2- Login page	Black box testing
Module 3- payment page	Black box testing
GUI Interface	White box testing

Result: Thus, the testing framework/user interface framework has been created for VITIAN LAUNDRY PRO.

Aim :

To develop the test cases manual for LAUNDRO—A LAUNDRY MANAGEMENT SYSTEM

MODULE 1:

USER-LOGIN PANEL



5.2 .2 TEST CASE

FUNCTIONAL TEST CASE:

Test ID (#)	Test Scenario	Test Case	Execution Steps	Expected Outcome	Actual Outcome	Status	Remarks
1	Username entry	Username to be an existing user	Enter the username in the username credentials column	Valid existing username	Valid existing username	Pass	Success

2	Username entry	Username to not exceed the character length	Enter the username in the username credentials column	Valid existing username	Valid existing username	Pass	Success
3	Password entry	Password to be unique	Enter the password in the password credentials column	Valid strong password	Valid strong password	Pass	Success
4	Password entry	Password to be within character length	Enter the password in the password credentials column	Valid strong password	Valid password	Pass	Success
5	SUBMIT button	The button to be in bold highlighted text	Click on the submit button given.	Valid	Valid	Pass	Success
6	SUBMIT button	The submit button should direct to the next page of the website.	Click on the submit button given.	Valid	Valid	Pass	Success

NON-FUNCTIONAL TEST CASE:

Test ID (#)	Test Scenario	Test Case	Execution Steps	Expected Outcome	Actual Outcome	Status	Remarks
1	“New user? Sign up”	To bring in a sign-up page for non-existing users	Click on the “new user? Sign up” option	Valid	Valid	Pass	success
2	Forgot password	Helps users in case if they’re forgotten /lost their password for logging in	Click on the forgot password And a mail or a sms will be sent to the user for entering a new password	Valid	Valid	Pass	success

3	Logo present in the top right	Assures that the user has entered the correct and authentic site	-	Valid	Valid	Pass	Success
4	Password auto-save	Password gets autosaved in the site when it is logged in once	User to enter password in the password column	Valid	Valid	Pass	Success
5	Hidden password	Password to be visible only if user wants (encrypted)	User to enter password in the password column	Valid	Valid	Pass	Success

TEST CASES:
FUNCTIONAL TEST CASE

Test ID (#)	Test Scenario	Test Case	Execution Steps	Expected Outcome	Actual Outcome	Status	Remarks
1	username entry	Username length<3	Enter the username in the username column	Invalid username	Invalid username	Pass	success
2	Username entry	Username length >3 & <8	Enter the username in the username column.	Valid username	Valid username	Pass	success
3	username entry	Username length>8	Enter the username in the username column	Invalid username	Invalid username	Pass	success
4	Username entry	Username to start with alphabets	Enter the username in the username column.	Valid username	Valid username	Pass	success
5	username entry	Username to have special characters	Enter the username in the username column	valid username	valid username	Pass	success
6	username entry	Username to be only numeric	Enter the username in the username column	Invalid username	Invalid username	Pass	success
7	username entry	Username to be a mixture of both upper and lowercase	Enter the username in the username column	valid username	valid username	Pass	success

8	username entry	Username starting with special characters	Enter the username in the username column	Invalid username	Invalid username	Pass	success
9	username entry	Username starting with numeric value	Enter the username in the username column	Invalid username	Invalid username	Pass	success
10	Hosteller/nonhosteller	User to choose if they're hosteller or non-hosteller	Choose the button respectively	One choice to be selected	One choice marked	Pass	success
11	Address entry	User to enter their address	Enter the address in the	valid	valid	pass	success

		Hosteller- room number and building name Non-hosteller- to enter residential address	address entry column				
12	Address entry	Entered address should have pincode	Enter the address in the address entry column	Valid address	Valid address	pass	success
13	Address entry	Entered address to have more than 10 characters	Enter the address in the address entry column	Valid address	Valid address	pass	success
14	Address entry	Address to not have special characters	Enter the address in the address entry column	Valid address	Valid address	pass	Success
15	Mobile number entry	Entered number should be a valid mobile number	Enter the mobile number in the given slot	Valid number	Valid number	pass	Success
16	Mobile number entry	Entered number to be an Indian number	Enter the mobile number in the given slot	Valid number	Valid number	pass	Success
17	Mobile number entry	User mobile number to not have special characters	Enter the mobile number in the given slot	Invalid number	Invalid number	pass	Success

18	Mobile number entry	User mobile number to not exceed 10 digits	Enter the mobile number in the given slot	Valid number	Valid number	pass	Success
19	Mobile number entry	User mobile number to have alphanumeric characters	Enter the mobile number in the given slot	invalid number	invalid number	pass	Success
20	Email id entry	Entered email id to be an authentic/ existing email id	Enter the email id in the given column	Valid email id	Valid email id	Pass	Success
21	Email id entry	Entered id to end with .com	Enter the email id in the given column	Valid email	Valid email id	pass	Success
22	Email id entry	Entered email id to be a in use email id	Enter the email id in the given column	Valid email	Valid email id	pass	Success
23	Password entry	Password length<5	User to create a strong	Invalid password	Invalid password	pass	Success

			password and enter in the password column				
24	Password entry	Password length >5 and password length<8	User to create a strong password and enter in the password column	valid password	valid password	pass	Success
25	Password entry	Password length >8	User to create a strong password and enter in the password column	Invalid password	Invalid password	pass	Success
26	Password entry	Password starting with numbers	User to create a strong password and enter in the password column	Invalid password	invalid password	pass	Success

27	Password entry	Password containing only alphabets	User to create a strong password and enter in the password column	invalid password	invalid password	pass	Success
28	Password entry	Password to start with an alphabet	User to create a strong password and enter in the password column	valid password	valid password	pass	Success
29	Password entry	Password to contain special characters	User to create a strong password and enter in the password column	valid password	valid password	pass	Success
30	Password entry	Password to start with special characters	User to create a strong password and enter in the password column	invalid password	invalid password	pass	Success
31	Password entry	Password to be alphanumeric	User to create a strong password and enter in the password column	valid password	valid password	pass	Success
32	Password entry	Password to contain only	User to create a strong	invalid password	invalid password	pass	Success

		uppercase letters	password and enter in the password column				
33	Password entry	Password to contain only lowercase letters	User to create a strong password and enter in the password column	invalid password	invalid password	pass	Success
34	Password entry	Password to contain both uppercase and lowercase letters	User to create a strong password and enter in the password column	valid password	valid password	pass	Success

35	Confirm Password entry	Password length<5	User to create a strong password and enter in the password column	Invalid password	Invalid password	pass	Success
36	Confirm Password entry	Password length >5 and password length<8	User to create a strong password and enter in the password column	valid password	valid password	pass	Success
37	Confirm Password entry	Password length >8	User to create a strong password and enter in the password column	Invalid password	Invalid password	pass	Success
38	Confirm Password entry	Password starting with numbers	User to create a strong password and enter in the password column	Invalid password	invalid password	pass	Success
39	Confirm Password entry	Password containing only alphabets	User to create a strong password and enter in the password column	invalid password	invalid password	pass	Success
40	Confirm Password entry	Password to start with an alphabet	User to create a strong password and enter in the password column	valid password	valid password	pass	Success
41	Confirm Password entry	Password to contain special characters	User to create a strong password and enter in the password column	valid password	valid password	pass	Success
42	Confirm Password entry	Password to start with special characters	User to create a strong password and enter in the password column	invalid password	invalid password	pass	Success

43	Confirm Password entry	Password to be alphanumeric	User to create a strong password and enter in the password column	valid password	valid password	pass	Success
44	Confirm Password entry	Password to contain only uppercase letters	User to create a strong password and enter in the password column	invalid password	invalid password	pass	Success
45	Confirm Password entry	Password to contain only lowercase letters	User to create a strong password and enter in the password column	invalid password	invalid password	pass	Success
46	Confirm Password entry	Password to contain both uppercase and lowercase letters	User to create a strong password and enter in the password column	valid password	valid password	pass	Success
47	Submit button	Button to be in highlighted bold text	User to click on submit button after entering their data to further proceed to the next page.	valid	valid	pass	Success
48	Submit button	Button to be present in the bottom right corner	User to click on submit button after entering their data to further proceed to the next page.	valid	valid	pass	Success

49	Submit button	Button to be present at the end of the page after entering the data	User to click on submit button after entering their data to further proceed to the next page.	valid	valid	pass	Success
50	Submit button	The button should navigate to the next page	User to click on submit button after entering their data to further proceed to the next page.	valid	valid	pass	Success
51	Verify Email	A verification will be sent to the entered email.	User has to enter the email in the	Valid email	Valid email	Pass	Success
			field and submit it				
52	Phone number validation	A SMS verification will be sent to the entered mobile number	User to enter the mobile number and click on submit button	Valid phone number	Valid phone number	Pass	Success

NON- FUNCTIONAL TEST CASE:

Test ID (#)	Test Scenario	Test Case	Execution Steps	Expected Outcome	Actual Outcome	Status	Remarks
1	LOGO	To be present at the side to confirm that the site is authentic	-	Valid	Valid	Pass	success

2	Submit button	To be present in the end only.	User to click on submit button after entering their data to further proceed to	Valid	Valid	Pass	success
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			the next page.				
3	Submit button	Button to be accessible only after filling in the details	User to click on submit button after entering their data to further proceed to the next page.	Valid	Valid	Pass	success

4	Submit button	In case of any column left emptied, the site should pop up a notification hinting to fill in the column	User to click on submit button after entering their data to further proceed to the next page.	Valid	Valid	Pass	success
5	Password entry	Password entered should be hidden	User to enter the password in the password column	Valid password	Valid password	pass	success
6	Confirm password entry	Password entered should match with the already entered password	User to reenter the password in the confirm password column	Valid password	Valid password	pass	Success

7	Password entry	User to be provided with a small eye button enabling them to view their entered password	User to enter the password in the password column	Valid password	Valid Password	pass	Success
8	Confirm password	User to be provided with a small eye button enabling them to view their entry in the confirm password	User to enter the entered password in the confirm password column	Valid password	Valid password	pass	Success
9	Password and confirm password	Password and confirm password do not match	User to fill in both the columns	Invalid password	Invalid password	Pass	Success
10	Data entry	Entered data to be added in the database	User to fill in all the details	Valid details	Valid details	pass	success
11	Mobile number entry	A confirmation message to be sent to the user after entering the data	User to fill in all the details	Valid	Valid	pass	success
12	Password save	Password to get autosaved after submitting	User to enter the password in the password column and reconfirm it by filling in the confirm password column	valid	valid	pass	success

13	Default logged in	Account to get default logged in saving the user from logging in every time	-	valid	valid	pass	success
14	Data autosave	The data to get autosaved immediately after typing	-	valid	valid	pass	success
15	Email verification	An email to be sent to the user to verify the email id	User to enter the in-use email id	Valid email-id	Valid email-id	pass	success

FUNCTIONAL TEST CASE

Test ID (#)	Test Scenario	Test Case	Execution Steps	Expected Outcome	Actual Outcome	Status	Remarks

1	Payment Option	All payment options are selectable	Click on payment options	Valid	Valid	Pass	Success
2	Currency Type	All types of currencies available or not	Scroll option with all available currencies	Valid	Valid	Pass	Success
3	Wrong credit or debit card number/Right CVV/Right Date	To check the card credentials	User to input credit/debit card information	Invalid	Invalid	Pass	Success
4	Right credit or debit card number/		User to input	Invalid	Invalid	Pass	Success

	Wrong CVV/Right date		credit/Debit card details				
5	Confirmation message	User should receive confirmation message in mail and SMS	User to complete the payment process	Valid	Valid	Pass	Success
6	Pop up message at expiration	A pop-up message should appear showing “session expired”	Appears when the session times out	Valid	Valid	Pass	Success

7	Wrong UPI ID	Pop-up message showing invalid UPI ID	User to enter the UPI ID	Invalid	Invalid	Pass	Success
8	UPI Scan	To show QR code on the page	User to choose UPI scan QR code option	Valid	Valid	Pass	Success
9	Amount paid	A message showing on the screen the total amount paid by the user	-	Valid	Valid	Pass	Success
10	Pay button	Only accessible when all the fields are filled	User to click on the pay button after filling all details	Valid	Valid	Pass	Success
11	Send OTP	A message should be sent to the user when the payment is initialized	User should click on the pay button after which the OTP would be sent	Valid	Valid	Pass	Success

12	Invalid OTP entered	The payment should be terminated if an invalid OTP is entered	User should enter the OTP	Invalid	Invalid	Pass	Success
14	Resend OTP	An option should be shown to resend the OTP after a certain time limit.	-	Valid	Valid	Pass	Success

NON-FUNCTIONAL TEST CASE

Test ID (#)	Test Scenario	Test Case	Execution Steps	Expected Outcome	Actual Outcome	Status	Remarks
1	Card Information	Save the card information	User should enter the card number, Expiry	Valid	Valid	Pass	Success

			date and CVV				
2	Multiple cards	Add multiple credit or debit cards	User should enter the details of the cards	Valid	Valid	Pass	Success

3	UPI scan alternative	Should have an option to connect to the bank using UPI ID if the QR code does not work	-	Valid	Valid	Pass	Success
4	Autofill details	Autofill card details when the card number is entered	Enter the card number	Valid	Valid	Pass	Success
5	Limit number of cards added	There should only be maximum of 4 banks that can be added for paying	-	Valid	Valid	Pass	Success
6	Special request option	For next day delivery, extra charge will be added to the overall bill	-	Valid	Valid	Pass	Success
7	Display card number	The card number should be masked	User should enter the card number	Valid	Valid	Pass	Success
8	Expired card	Payment process should be terminated in	-	Invalid	Invalid	Pass	Success
		case of expired/Blocked card					

Result:

Thus, the test case manual has been created for LAUNDRO- A laundry management system.

Aim

To prepare the manual test case report for the VITIAN LAUNDRY PRO

Category	Progress Against Plan	Status
Username to be an existing user	GREEN	COMPLETED
Username to not exceed the character length	GREEN	COMPLETED
Password to be unique	GREEN	COMPLETED
Password to be within character length	GREEN	COMPLETED
The button to be in bold	GREEN	COMPLETED
highlighted text		
The submit button should direct to the next page of the website.	GREEN	COMPLETED

NON-FUNCTIONAL TEST CASE:

Category	Progress against plan	Status
To bring in a sign- up page for non-existing users	GREEN	COMPLETED
Helps users in case if they're forgotten /lost their password for logging in	GREEN	COMPLETED
Assures that the user has entered the correct and authentic site	GREEN	COMPLETED
Password gets autosaved in the site when it is logged in once	GREEN	COMPLETED
Password to be visible	GREEN	COMPLETED
only if user wants (encrypted)		

MODULE 2- SIGN UP**PAGE****FUNCTIONAL**

Category	Progress against plan	Status
Username length<3	GREEN	COMPLETED
Username length >3 & <8	GREEN	COMPLETED
Username length>8	GREEN	COMPLETED
Username to start with alphabets	GREEN	COMPLETED
Username to have special characters	GREEN	COMPLETED
Username to be only numeric	GREEN	COMPLETED
Username to be a mixture of both upper and lowercase	GREEN	COMPLETED
Username starting with special characters	GREEN	COMPLETED
Username starting with numeric value	GREEN	COMPLETED

User to choose if they're hosteller or non- hosteller	GREEN	COMPLETED
User to enter their address Hosteller- room number and building name Non-hosteller- to enter residential address		COMPLETED
Entered address should have pincode	GREEN	COMPLETED
Entered address to have more than 10 characters	GREEN	COMPLETED
Address to not have special characters	GREEN	COMPLETED
Entered number should be a valid mobile number	GREEN	COMPLETED
Entered number to be an Indian number	GREEN	COMPLETED
User mobile number to not have special characters	GREEN	COMPLETED

User mobile number to not exceed 10 digits	GREEN	COMPLETED
User mobile number to	GREEN	COMPLETED

have alphanumeric characters		
Entered email id to be an authentic/ existing email id	GREEN	COMPLETED
Entered id to end with .com	GREEN	COMPLETED
Entered email id to be a in use email id	GREEN	COMPLETED
Password length<5	GREEN	COMPLETED
Password length >5 and password length<8	GREEN	COMPLETED
Password length >8	GREEN	COMPLETED
Password starting with numbers	GREEN	COMPLETED
Password containing only alphabets	GREEN	COMPLETED
Password to start with an alphabet	GREEN	COMPLETED

Password to contain special characters	GREEN	COMPLETED
Password to start with special characters	GREEN	COMPLETED
Password to be alphanumeric	GREEN	COMPLETED
Password to contain only uppercase letters	GREEN	COMPLETED

Password to contain only lowercase letters	GREEN	COMPLETED
Password to contain both uppercase and lowercase letters	GREEN	COMPLETED
Password length<5	GREEN	COMPLETED
Password length >5 and password length<8	GREEN	COMPLETED
Password length >8	GREEN	COMPLETED

Password starting with numbers	GREEN	COMPLETED
Password containing only alphabets	GREEN	COMPLETED

Password to start with an alphabet	GREEN	COMPLETED
Password to contain special characters	GREEN	COMPLETED
Password to start with special characters	GREEN	COMPLETED
Password to be alphanumeric	GREEN	COMPLETED
Password to contain only uppercase letters	GREEN	COMPLETED
Password to contain only lowercase letters	GREEN	COMPLETED
Password to contain both uppercase and lowercase letters	GREEN	COMPLETED
Button to be in highlighted bold text	GREEN	COMPLETED
Button to be present in the bottom right corner	GREEN	COMPLETED
Button to be present at the end of the page after entering the data	GREEN	COMPLETED

The button should navigate to the next page	GREEN	COMPLETED
A verification will be sent to the entered email.	GREEN	COMPLETED
A SMS verification will be sent to the entered mobile number	GREEN	COMPLETED

NON-FUNCTIONAL:

Category	Progress against plan	Status
To be present at the side to confirm that the site is authentic	AMBER	IN-PROGRESS
To be present in the end only.	AMBER	IN-PROGRESS

Button to be accessible only after filling in the details	AMBER	IN-PROGRESS
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In case of any column left emptied, the site should pop up a notification hinting to fill in the column	AMBER	IN-PROGRESS
Password entered should be hidden	AMBER	IN-PROGRESS
Password entered should match with the already entered password	AMBER	IN-PROGRESS
User to be provided with a small eye button enabling them to view their entered password	AMBER	IN-PROGRESS
User to be provided with a small eye button enabling them to view their entry in the confirm password	AMBER	IN-PROGRESS
Password and confirm	AMBER	IN-PROGRESS
password do not match		

Entered data to be added in the database	AMBER	IN-PROGRESS
A confirmation message to be sent to the user after entering the data	AMBER	IN-PROGRESS
Password to get autosaved after submitting	AMBER	IN-PROGRESS
Account to get default logged in saving the user from logging in every time	AMBER	IN-PROGRESS
The data to get autosaved immediately after typing	AMBER	IN-PROGRESS
An email to be sent to the user to verify the email id	AMBER	IN-PROGRESS

MODULE 3

Payment Page

FUNCTIONAL TEST CASE

Category	Progress against plan	Status
All payment options are selectable	AMBER	IN-PROGRESS
All types of currencies available or not	AMBER	IN-PROGRESS
To check the card credentials	AMBER	IN-PROGRESS
	AMBER	IN-PROGRESS
User should receive confirmation message in mail and SMS	AMBER	IN-PROGRESS
A pop-up message should appear showing “session expired”	AMBER	IN-PROGRESS

Pop-up message showing invalid UPI ID	AMBER	IN-PROGRESS
To show QR code on the page	AMBER	IN-PROGRESS

A message showing on the screen the total amount paid by the user	AMBER	IN-PROGRESS
Only accessible when all the fields are filled	AMBER	IN-PROGRESS
A message should be sent to the user when the payment is initialized	AMBER	IN-PROGRESS

The payment should be terminated if an invalid OTP is entered	AMBER	IN-PROGRESS
An option should be shown to resend the OTP after a certain time limit.	AMBER	IN-PROGRESS

NON-FUNCTIONAL TEST CASE

Category	Progress against plan	Status
Save the card information	RED	NOT STARTED
Add multiple credit or debit cards	RED	NOT STARTED
Should have an option to connect to the bank using UPI ID if the QR code does not work	RED	NOT STARTED
Autofill card details when the card number is entered	RED	NOT STARTED

Functional	Test Case Coverage (%)	Status
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There should only be maximum of 4 banks that can be added for paying	RED	NOT STARTED
For next day delivery, extra charge will be added to the overall bill	RED	NOT STARTED
The card number should be masked	RED	NOT STARTED
Payment process should be terminated in case of expired/Blocked card	RED	NOT STARTED

<u>USER-LOGIN PANEL</u>	100%	COMPLETED
<u>SIGN UP PAGE</u>	50%	IN -PROGRESS
Payment Page	20%	NOT STARTED

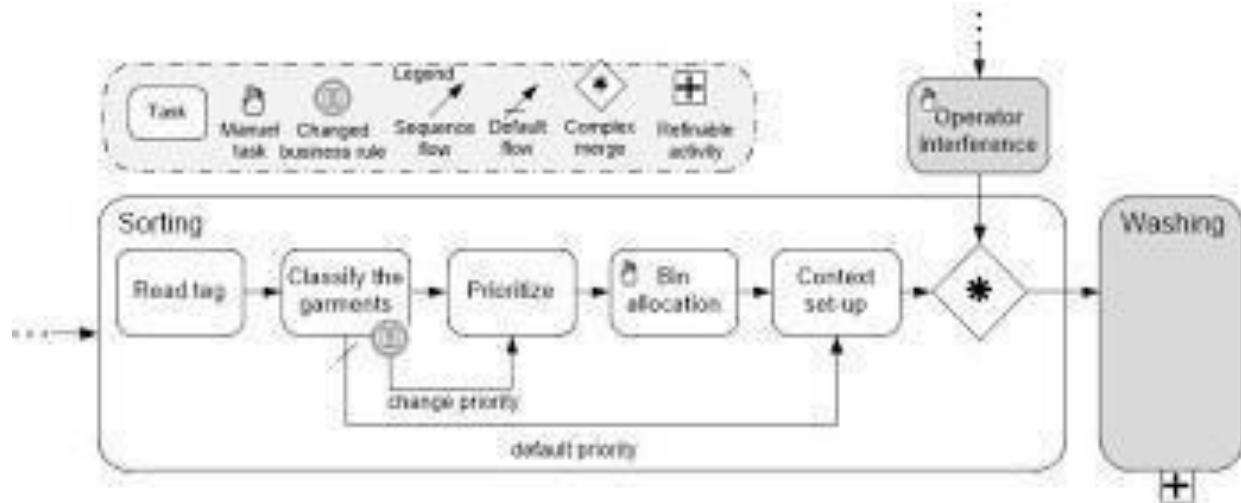
Result:

Thus, the test case report has been created for the VITIAN LAUNDRY PRO.

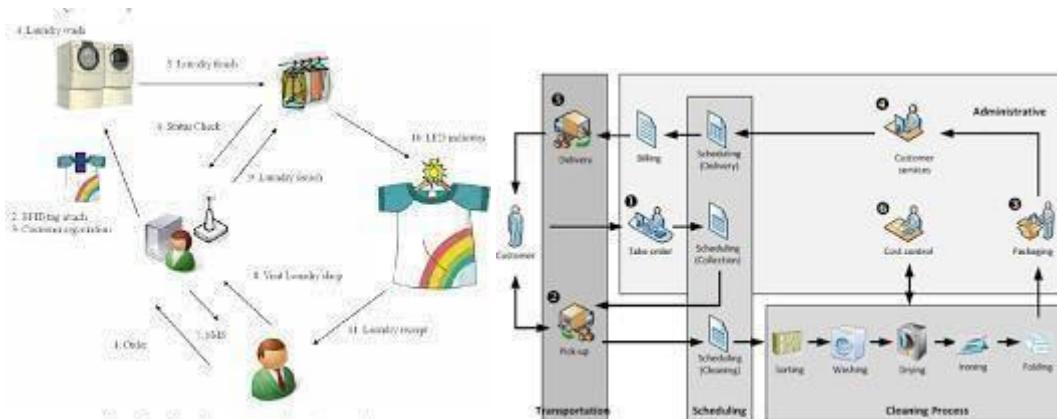
Aim

To provide the details of architectural design/framework/implementation

Architectural design:



Framework:



Implementation: Design implementation refers to the real live running of the designed program.

This section consists of the program modules, showing what they do, system can be deployed

The screenshot shows a web-based laundry system interface. The left sidebar contains a main navigation bar with 'LAUNDRY SYSTEM' at the top, followed by 'MAIN NAVIGATION' with 'Home', 'Laundry Type', 'Report', and 'SETTINGS' sections, which include 'Change Password' and 'Logout'. The main content area has a header 'Welcome Administrator!' and a sub-header 'Laundry Type'. It features a green 'New Type' button. Below this is a table with columns: 'Laundry Type Description', 'Price / Kg', and 'Action'. The table lists three entries: 'Blanket' at ₦ 20.00, 'Clothes' at ₦ 30.00, and 'Sample' at ₦ 50.00. Each entry has an orange 'Edit' button with a pencil icon and a red 'Delete' button with a trash icon. At the bottom of the table, it says 'Showing 1 to 3 of 3 entries'. There are also 'Previous' and 'Next' buttons.

Laundry Type Description	Price / Kg	Action
Blanket	₦ 20.00	
Clothes	₦ 30.00	
Sample	₦ 50.00	

Result:

Thus, the details of architectural design/framework/implementation along with the screenshots were provided.

6. Conclusion:

The conclusion of the project should summarize the key findings and recommendations of the project. It should also discuss the implications of the project for the students, the laundry service provider, and the hostel authorities.

Limitations:

The limitations section should discuss any shortcomings of the project. This could include factors such as the limited budget, the short timeframe, or the lack of resources.

Scope for Future Work

The scope for future work section should discuss any potential extensions to the project. This could include adding new features, expanding the system to other hostels, or incorporating other laundry services.

Here are some specific examples of limitations and scope for future work that could be included in the project:

Limitations:

The project was limited by a small budget and a short timeframe.

The project was limited to a single hostel.

The project did not include all possible laundry services.

Scope for Future Work:

The project could be expanded to include other hostels.

The project could be expanded to include additional laundry services.

The project could be expanded to include a mobile app.

7. REFERENCES

- A Web-based Laundry Management System:
https://www.researchgate.net/publication/326493512_Design_and_Implementation_of_a_Laundry_Management_System
- Laundry Management System: Design and Implementation:
<https://www.spec-india.com/business-solutions/laundry-management-system>

THANK YOU