

Research and Development of  
On-Demand Service Booking Management System  
using Web-based Application  
for HomeShine Cleaning Service Organization



**L5DC SECTION (98)**

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## **Abstract**

The HomeShine project aims to develop a comprehensive web-based on-demand service application. It is designed to enhance operational efficiency and customer experience for entirely processes in HomeShine. This application addresses existing challenges within the company's manual processes, such as double bookings, miscommunication, and inefficient payment tracking. Transition from the current manual system to an automated platform will provide a user-friendly interface for HomeShine's customers to easily book services, track their bookings and make secure payments.

Key features of the application include an online booking system for customers and a management dashboard for both administrators and cleaners. The project follows an Agile methodology to make iterative improvements based on user feedback. It is predicted that the new system will increase customer satisfaction and operational efficiency and decrease operational inefficiencies. Overall, the project will directly improve the business processes of HomeShine and its customers.

## Acknowledgement

I would like to express my heartfelt gratitude to several individuals and the HomeShine Company itself for contributing significantly to the HomeShine project.

First and foremost, I would like to thank Mr. Aung Kyaw, the manager of HomeShine, for his invaluable insights and support throughout the requirement collection process. His willingness to share information about the current business challenges played a crucial part in this project.

I am also grateful to the entire HomeShine team, especially the cleaners and administrative staff. They actively participated in the testing phases and gave insightful feedbacks. Their constructive criticism and suggestions played a direct role in refining the user interface and overall functionality.

Additionally, I would like to acknowledge the support of my peers and mentors especially Sayar Shain. They willingly offered insights and gave various advices based on their experiences. They also patiently answered my various questions concerning the scope and complexity of the project itself.

Finally, I wish to express my gratitude to my family and friends for their physical and mental support throughout the development of this project. Their encouragement kept me motivated and stay focused even when I felt overwhelmed or under pressure.

This project would not have been possible without the combined contributions of all these each individual. I look forward to seeing how the HomeShine web application transforms the business as whole.

# **Project Proposal**

# **Project Proposal**

## **0.1 Overview**

HomeShine Cleaning Service is a small yet popular home cleaning service company based in Yangon, Myanmar. The business was founded in 2015 by U Mya Win as a humble family business. The cleaning company eventually evolved as a door to door cleaning service around the townships of Yangon. Since after the economic change of 2020, the company has improved and expand their business successfully, covering 20 of the 33 townships. The company is well loved by locals and its reputation is built on being both affordable and delivering exceptional quality.

HomeShine offers both residential and commercial cleaning services. The company offers a number of services including general house and office cleaning, deep cleaning, carpet cleaning, Yard cleaning and many more. They also have specialized services that can be tailored to the customer's preferences. The company's cleaners are professionally trained and the services bring their own professional equipment necessary for the cleaning. This allows the cleaning to be convenient for the customer.

The company's customer base started to significantly expand after 2020. They were able to achieve this despite not having any website, information page or any platforms for customers to get in touch with them. Their fame solely relies on to its consistent service quality and strong word-of-mouth referrals.

All of the processes done in the small company from tracking customer's bookings to managing the schedules are done manually. The traditional way of manually managing is less efficient and often prone to mistakes due to natural human error. Recognizing that the customer experience and operational efficiency needs to be improved, HomeShine is now looking to new web-based application to streamline its processes and offer an enhanced, user-friendly experience for its customers.

## **0.2 Current Business History**

HomeShine started as a small cleaning service provider with a handful of clients. Initially, the business operations were managed entirely on paper using ledger books, with bookings, schedules, and customer information recorded manually. As the company grew, it started to adopt basic digital tools such as spreadsheets and email to manage its increasing volume of bookings and customer data.

The company currently does not have any website, information page or any platforms for customers to get in touch with them. Their marketing strategies are also primarily traditional with paper flyers and local newspaper advertisements. But their customers' word-of-mouth referrals are their prime source of promotion.

Customers has no way of reaching out or checking out their business aside from their hotline and company phone number. Even the customer's bookings are through phone calls or in-person visits to the office. Despite the growth in business, the current manual processes has resulted in inefficiencies and operational challenges.

## **0.3 Current Business Process**

The current business process has **5** main processes that are currently running. This includes **Booking services**, **Managing bookings**, **Assigning cleaners**, **Processing payment**, and **Profiling customer**.

### **0.3.1 Cleaning Service Booking Process**

The customers have to book the company services by either calling the company hotline or visiting HomeShine office physically to book a cleaning service. The booking needs to be made at least 2 days ahead. The customer explains what kind of cleaning service they want for their booking with the staff from the reception assisting them throughout the whole interaction.

Then, they agree on the service they want and the customer give their details. The details includes the number of bedrooms, bathrooms, address and special remarks. Then, the booking's date, time and duration are recorded. They offers Credit card payment, KBZ Pay and Cash payment. Depending on the service, they also offers Cash on delivery payment, allowing the customer to pay when the service comes to their doorstep.

### **0.3.2 Booking Management Process**

The customer's booking details are recorded by the staff at the reception. It is manually recorded using physical ledger books and Excel spreadsheets. The booking has 3 main status they keep track off. Which is the status of the booking (canceled or confirmed), the status of payment and the status of assignment of cleaners. These statuses are also tracked and updated manually, with margins for error.

### **0.3.3 Cleaner Assignment Process**

After the booking has been confirmed, the receptionist checks the availability of the cleaners. Then the available cleaners are schedules and assigned to the respective cleaners.

The details of the assignment is announced via phone calls and messages and is also shared on the office calendar. Conflicts and double bookings are quite common and are handled manually by the supervisor. Then, to deliver the service to the customers, the cleaners are dropped off at the customer's address at the scheduled time including the cleaning equipment via the company van.

### **0.3.4 Payment Processing Process**

After completing the service, the full payment is made. They offers Credit card payment, KBZ Pay and Cash payment. Depending on the service, they also offers Cash on delivery payment, given to the cleaners, including tips and feedback by filling out a feedback form.

Finally, the receptionist collects the payment and feedback, and if the feedback wasn't made, the receptionist calls the customer to ask for feedback via calls. All the payment records and details are recorded manually in the ledgers by the receptionist. Payments such as credit card payments and KBZ Pay are specially recorded to track the status of the payment.

### **0.3.5 Customer Profile Management**

After customer interaction, Each customer's profile is created manually. The profile is made together with personal details, booking details and feedback. The customer profile made and recorded in physical ledger books and Excel Spreadsheets.

## **0.4 Current Business Issues (Manual System Issues)**

### **0.4.1 Inefficient Booking Process:**

The current manual booking process involves customers reaching out via phone calls or walk-in appointments, which consumes considerable time and is vulnerable to human error. This method also relies heavily on manual scheduling, which make it difficult for the company to track bookings accurately.

This results in being, an increased risk of double bookings or errors in appointment scheduling. The lack of an automated system also makes it difficult to manage last-minute changes or cancellations. This can increase disorganization on the booking managements ultimately creating dissatisfied customers due to scheduling conflicts or overlooked bookings.

### **0.4.2 Limited Customer Reach:**

HomeShine's reliance on traditional marketing methods, such as word-of-mouth and offline advertising. This severely limits its exposure to a wider audience especially in this digital age where people get in touch with businesses mainly over online platforms such as websites and social media.

This results in a significant gap between the business's potential customer base and its actual reach. And even more so as the company lacks any form of online booking system, missing out on customers who prefer digital interactions.

### **0.4.3 Communication Gaps:**

Manual assigning and scheduling of cleaning staff is a process prone to miscommunication for HomeShine. Even more as the whole process mainly relies on

phone calls or text messages, which are not always timely or reliable. And there are a lot of rooms left of misunderstanding, especially regarding job details, timings, and locations.

This can potentially result in cleaners receiving incomplete or incorrect information, leading to more miscommunication and confusion. It also makes it difficult to ensure that the right staff is assigned to the right job. These inefficiencies can build up and negatively impact the quality of service and overall customer satisfaction.

#### **0.4.4 Lack of Real-time Updates:**

The current system does not provide real-time updates on the status of bookings and cleaning jobs, as all the records are in one ledger controlled by the receptionist. This creates unnecessary coordination challenges as the staffs ,that don't have access to the ledger, are left in the dark regarding the status of appointments, job progress, or schedule changes.

This lack of visibility results in hindering effectiveness on their resource allocation and job tracking. And as the customer is not able to get real time updates regarding their booking's details, they might feel disconnected from the service. This leads to inefficiencies for both customers and staff.

#### **0.4.5 Customer Inconvenience:**

Nowadays in this age, Customers find it inconvenient to check out and book services through phone calls or in-person visits. People prefers digital platforms such as website and applications more as they are far more flexible and accessible.

Their current system still uses phone calls or in-person visits, which is not only time-consuming but also inconvenient for customers who have busy schedules and prefer the ease of booking services online.

This can result in significantly limiting customer engagement and reduces the likelihood of repeat business, as customers may seek out competitors with more flexible and accessible booking options.

#### **0.4.6 Weak Feedback Management:**

The company currently manages customer feedback manually, which poses several challenges in terms of tracking, organizing, and responding to customer concerns. As feedbacks are more sophisticated, such as having different types of feedbacks whether it is a customer's complaint or a question. This makes manually tracking feedbacks both inefficient and inaccurate.

This can also result in increasing the risk of customer complaints being overlooked or addressed too late, leading to potential loss of customer trust. Furthermore, it makes it challenging to analyze trends in customer satisfaction.

### **0.5 Proposed System Scope**

The proposed system is a web-based application designed to improve Home Shine's operational efficiency and enhance the customer experience. The new system will include the following functionalities.

#### **Entry (Master Data) - CRUD Operations:**

- **Customer Management:** Allow for the **creation, updating, and deletion** of customer profiles. Customers can register, update their information, and manage their accounts online on the web application.
- **Booking Management:** Allows admins and staffs to **Retrieve** and **keep track** of each bookings including the statuses and details in real time.
- **Service Management:** Enable administrators to **add, update, and delete** service offerings, including descriptions and pricing.
- **Cleaner Assignment:** Allow admins to **assign** the bookings to available cleaners. And **edit and delete** cleaner profiles, availability, and assignments.
- **Cleaner Management:** Allow each cleaner to **create** and **edit** their own accounts and **retrieve** the details of the bookings and jobs they are assigned to.

## **Transactions:**

### **Online Booking:**

Customers can book cleaning services online by selecting the type of service, date, and time. Additional information such as address, special remarks will also be able to be made.

### **Scheduling and Dispatching**

The system will check cleaner availability for the admin to assign them to jobs. Cleaners will receive real-time notifications of their assignments through their own accounts.

### **Online Payment:**

Integration with secure payment gateways to allow customers to pay for services online. It will include credit card and KBZ payment. Cash option will also be available by the user digitally signing a payment agreement.

### **Real Time Booking Tracking:**

The system will allow the admins to control the status such as job status, payment status and booking status of each booking. And any last minute changes made will also be automatically be updated on both the cleaner and admin interfaces.

## **Search & Report:**

**Booking History:** Customers would be able to view the bookings they've made in the past and keep track of the bookings in progress.

**Service Search:** Customers will be able to search for their preferred services through the search bar.

**Booking Search:** Admins will be able to search and manage bookings, payments, customers, cleaners and jobs based on any values such as Customer Name, Township or time.

**Overview Report:** Admins will be able to see the comprehensive overview of the number and status of the bookings and payments on the admin dashboard.

### **0.5.1 Cleaning Service Booking Process**

Customers would be able to book the company's cleaning services through the web application. It will allow customers to view the details of the services and customize the service as much as they please before confirming the booking. This allows customers to grasp more about the services they provide and provides transparency in prices.

### **0.5.2 Booking Management Process**

After a booking has been successfully made and confirmed by a customer, the details of the bookings will be automatically inserted in the database and automatically updated in the admin's dashboard. The 3 main status, booking status, job status and payment status can all be tracked and updated by the admin.

### **0.5.3 Cleaner Assignment Process**

Each booking will be shown on the "Job assignment" part of the Admin's interface. Based on the status of the booking's job status (assigned and unassigned), the admin would be able to view and assign the available cleaners to the bookings via the application.

The assigned cleaners would also be able to view and track real time data and detail of the jobs they are assigned to.

### **0.5.4 Payment Processing Process**

Through the multiple payment gateways, customers will be able to pay for their bookings on the web application via Credit Card and KBZ Pay. Cash option will be also available with the customer digitally signing and agreeing to the payment policy of the company. E-Receipt of the customer will also be available for customers to download as a pdf file.

Likewise, admins would also be able to keep track of the payments done in and process and update to approve or unapproved the payments made.

#### **0.5.5 Customer Profile Management**

As customers need to create their own accounts to book a service, the customer profiles will be automatically created. It will include their personal information, current and past bookings and payment information.

Admins will be able to view and stay in touch with the customers by with these customer profiles which can be accessed via the admin dashboard.

#### **0.5.6 Customer Feedback Management**

Customers will be able to provide feedback to the company via the “Contact us” page in the web application. Customers can choose to give feedback on 3 types, complaint, help or suggestion.

Likewise, admins will be able to view all the details of the feedbacks and filter by the types. This will allow the company to have a better comprehension on the feedbacks and respond to them accordingly.

## **Aims and Objectives**

### **Aims**

The primary aim of the Home Shine project is to develop a web-based on-demand service application to improve both efficiency and convenience for both the company and customers. This project will greatly assist the company in transitioning their current manual and fragmented system to an organized, automated platform. Which directly improves the management of the process involved.

By integrating modern web technologies such as online booking, real time tracking and online payment gateways, the developed web application will unify the system. Thus, providing a seamless, user-friendly experience for customers, administrators, and cleaners alike.

The new system will improve the convenience and reliability of the interaction between the customers and the company. By allowing customers to independently customize their own bookings and allowing them to also keep track of their booking real time will also improve the customer stratification.

Additionally, the platform will enable Home Shine's administrators to manage operations more effectively. This technological advancement is expected to reduce operational inefficiencies and minimize human errors. It is also expected to improve the communication between admins, customers and cleaners. Ultimately, the project aims to provide the company with more room for efficiency and less for mistakes. Allowing HomeShine to deliver better services and grow as a leading cleaning provider in Yangon.

## **Objectives**

### **Analysis**

- Requirements Collect (Interview) (1 day)
- SWOT Analysis (1 day)
- Similar System Research (2 days)
  - o Functional Comparison
  - o Non-functional Comparison
- Feasibility Study (2 days)
  - o Technical Feasibility Study
  - o DSDM Feasibility Study
  - o LESPI Study

### **Design**

- Functional Requirements (1 day)
- Time Box Planning (1 day)
- MOSCOW Prioritization (1 day)
- Non-functional Requirements (1 day)
- Risk Management (2 days)
  - o Risk Assessment
  - o Risk Matrix
- Critical Success Factors (1 day)

### **Implementation**

- Holistic Diagrams (2 days)
  - o Use Case Diagram
  - o Class Diagrams
  - o Sequence Diagrams
- Prototyping (3 days)
  - o Low Level Prototype
  - o High Level Prototype
  - o Screen Design
  - o Summary
- Development for Timebox (1) (3 weeks)

- Development for Timebox (2) (2 weeks)
- Development for Timebox (3) (2 weeks)

## **Testing**

- Functional Testing (2 day)
  - o Test plans
  - o Test scripts
- Usability Testing (1 day)
- Iterative Development (2 day)

## **Training**

- Deployment (1 day)
  - o Deployment planning
  - o Deployment Diagram
- Data Migration (2 day)
  - o Data Migration Plan
- Training Plan (1 day)
- User Manual(1 day)

## **Evaluation**

- Evaluation against Aims and Objectives (1 day)
- Evaluation against similar system (1 day)
- Evaluation against Justification Made (1 day)
- Evaluation against Time Box Plan (1 day)
- Personal Evaluation (1 day)
- Strength & Weakness of HomeShine Web-Application (1 day)
- Future Amendment (1 day)

## **Estimate Cost and Duration**

### **Estimated Cost**

#### **Hardware Cost**

Item	Unit Price (USD)	Total Quantity	Total Cost (USD)	Description
Desktop Computer	\$1000	2	\$2000	<b>Dell OptiPlex 7080</b>  High-performance business desktop with Intel Core i5/i7 processor, 8-16GB RAM, 256GB-1TB SSD, and integrated graphics. Suitable for running web applications and multitasking efficiently.
External Hard Drive	\$95	1	\$95	<b>Western Digital My Passport 4TB Portable External Hard Drive</b>  4TB storage capacity, USB 3.2 Gen 1, Data transfer speed: 130MB/s, Hardware encryption for security, 3-year warranty  is a trusted storage solution with automatic backup software and password protection, providing an extra layer of security for sensitive data.
<b>Total Hardware Cost:</b>		\$2095		

## **Software Cost**

<b>Item</b>	<b>Unit Price (USD)</b>	<b>Total Quantity</b>	<b>Total Cost (USD)</b>	<b>Description</b>
Operating System	\$199	1	\$199	<b>Window 10 Pro</b>  Business-oriented OS with enhanced security and management features.
Antivirus	\$69/yr	1	\$69	<b>Avast Premium Security</b>  Comprehensive antivirus solution with advanced protection features.
Browser	\$0	1	\$0	<b>Google Chrome, Microsoft Edge, Mozilla Firefox</b>
PDF File Viewer	\$0	1	\$0	<b>Adobe Acrobat Reader (free)</b>
<b>Total Software Cost :</b>			<b>\$268</b>	

## **Development Cost**

<b>Item</b>	<b>Unit Price (USD)</b>	<b>Total Quantity</b>	<b>Total Cost (USD)</b>	<b>Description</b>
Web Development Cost	\$7000	1	\$7000	Web development Training: FOC
PHP Development Tools	\$0	1	\$0	Open-source PHP development tools
MySQL Database	\$0	1	\$0	Open-source MySQL database
Web Server (Apache)	\$0	1	\$0	Open-source Apache web server
Domain Name Registration	\$15/yr	1	\$15	GoDaddy Domain Registration for 1 year (home-shine.com), with full domain protection
<b>Total Development Cost:</b>		<b>\$7015</b>		

## **Summary Cost**

<b>Category</b>	<b>Cost (USD)</b>
<b>Software</b>	\$268
<b>Hardware</b>	\$2,095
<b>Development</b>	\$7,015
<b>Total</b>	<b>\$9,378</b>

## **Summary of Estimated Cost.**

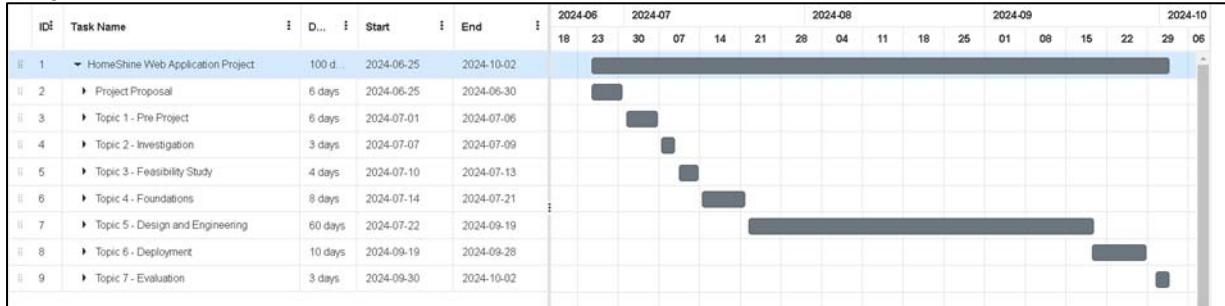
The total estimated cost for the HomeShine project amounts to **\$9,378**. This cost is broken down into three main categories: **hardware, software, and development**.

- **Hardware Cost (\$2,095):** This covers the purchase of two high-performance Dell OptiPlex desktop computers, equipped with powerful processors, ample RAM, and solid-state drives. These computers are necessary for running the web application smoothly and efficiently managing business operations. It also include Western Digital My Passport Portable External Hard Drive, for secure data backing up.
- **Software Cost (\$268):** The software costs include purchasing Windows 10 Pro for business-oriented functionality and enhanced security, as well as Avast Premium Security for antivirus protection. Essential software like web browsers and PDF viewers are free, keeping software costs minimal.
- **Development Cost (\$7,015):** The development cost is the largest portion, covering the web development process, which includes building the web-based platform, setting up the database, and ensuring system functionality. Domain name registration for the website is also included. The use of open-source development tools (PHP, MySQL, Apache) significantly reduces additional software expenses in this category.

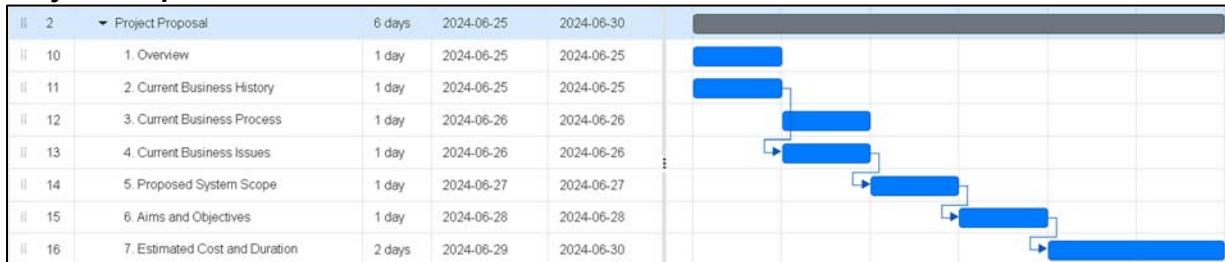
These costs are essential to transitioning HomeShine to a more efficient, automated platform and ensuring smooth operation. The costs are estimated based on the prices of the market by the time this project was developed.

## Estimated Duration

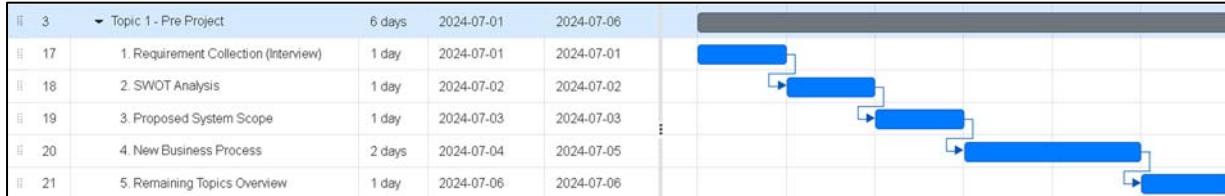
### Project Plan (Gantt Chart)



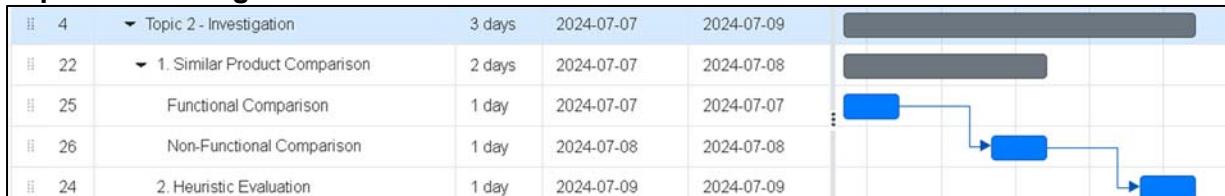
### Project Proposal



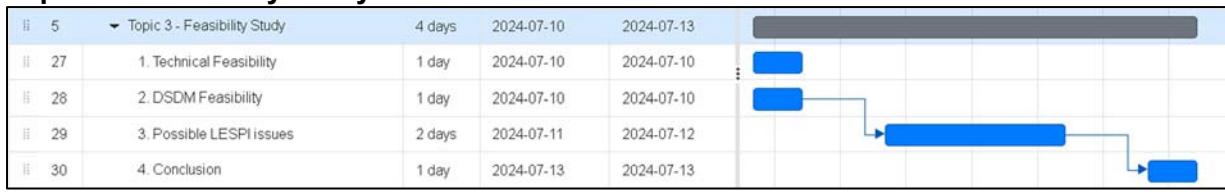
### Topic 1 – Pre-Project



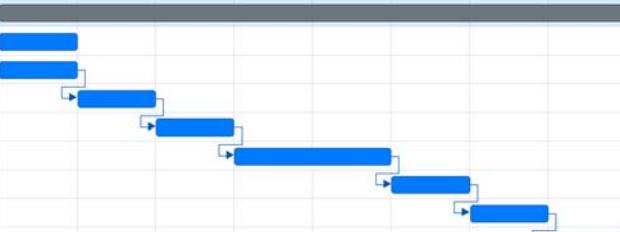
### Topic 2 – Investigation



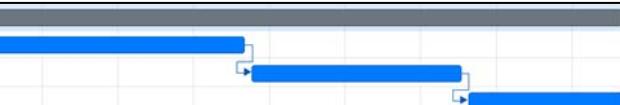
### Topic 3 – Feasibility Study



## Topic 4 – Foundations

II	6	▼ Topic 4 - Foundations	8 days	2024-07-14	2024-07-21	
II	31	1. Target Users	1 day	2024-07-14	2024-07-14	
II	32	2. Functional Requirements	1 day	2024-07-14	2024-07-14	
II	33	3. MOSCOW Prioritization	1 day	2024-07-15	2024-07-15	
II	34	4. Non-Functional Requirements	1 day	2024-07-16	2024-07-16	
II	35	5. Time Box Plan	2 days	2024-07-17	2024-07-18	
II	36	6. Risk Management	1 day	2024-07-19	2024-07-19	
II	37	7. Critical Success Factors	1 day	2024-07-20	2024-07-20	
II	38	8. Use Case and Class Diagram	1 day	2024-07-21	2024-07-21	

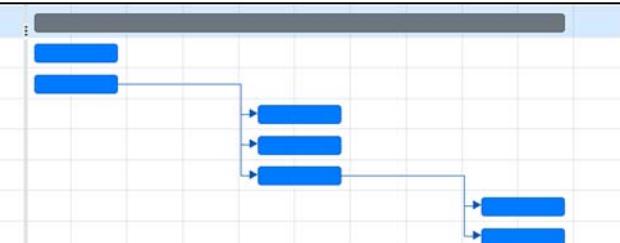
## Topic 5 – Design and Engineering

II	7	▼ Topic 5 - Design and Engineering	60 days	2024-07-22	2024-09-19	
II	39	Development of Time Box 1	25 days	2024-07-22	2024-08-15	
II	40	Development of Time Box 2	20 days	2024-08-16	2024-09-04	
II	41	Development of Time Box 3:	15 days	2024-09-05	2024-09-19	

## Topic 6 – Deployment

II	8	▼ Topic 6 - Deployment	10 days	2024-09-19	2024-09-28	
II	42	1. Deployment Diagram	1 day	2024-09-19	2024-09-19	
II	43	2. Data Migration	5 days	2024-09-19	2024-09-23	
II	44	3. Training	5 days	2024-09-24	2024-09-28	

## Topic 7 – Evaluation

II	9	▼ Topic 7 - Evaluation	3 days	2024-09-30	2024-10-02	
II	45	1. Evaluation against Aims and Objectives	1 day	2024-09-30	2024-09-30	
II	46	2. Evaluation against Similar System	1 day	2024-09-30	2024-09-30	
II	47	3. Evaluation against Justification Made	1 day	2024-10-01	2024-10-01	
II	48	4. Evaluation against Time Box Plan	1 day	2024-10-01	2024-10-01	
II	49	5. Personal Evaluation	1 day	2024-10-01	2024-10-01	
II	50	6. Strength and Weakness of HomeShi...	1 day	2024-10-02	2024-10-02	
II	51	7. Future Amendment	1 day	2024-10-02	2024-10-02	



# **Topic 1**

# **Pre-Project**

# **Topic – 1 Pre-Project**

## **1.0 System Background**

HomeShine Cleaning Service is a small yet popular home cleaning service company based in Yangon, Myanmar. The business was founded in 2015 by U Mya Win as a humble family business. The cleaning company eventually evolved as a door to door cleaning service around the townships of Yangon. Since after the economic change of 2020, the company has improved and expanded their business successfully, covering 20 of the 33 townships. The company is well loved by locals and its reputation is built on being both affordable and delivering exceptional quality.

HomeShine offers both residential and commercial cleaning services. The company offers a number of services including general house and office cleaning, deep cleaning, carpet cleaning, Yard cleaning and many more. They also have specialized services that can be tailored to the customer's preferences. The company's cleaners are professionally trained and the services bring their own professional equipment necessary for the cleaning. This allows the cleaning to be convenient for the customer.

The company's customer base started to significantly expand after 2020. They were able to achieve this despite not having any website, information page or any platforms for customers to get in touch with them. Their fame solely relies on its consistent service quality and strong word-of-mouth referrals.

All of the processes done in the small company from tracking customer's bookings to managing the schedules are done manually. The traditional way of manually managing is less efficient and often prone to mistakes due to natural human error. Recognizing that the customer experience and operational efficiency needs to be improved, HomeShine is now looking to new web-based application to streamline its processes and offer an enhanced, user-friendly experience for its customers.

## **1.1 Current Business History**

HomeShine started as a small cleaning service provider with a handful of clients. Initially, the business operations were managed entirely on paper using ledger books, with bookings, schedules, and customer information recorded manually. As the company grew, it started to adopt basic digital tools such as spreadsheets and email to manage its increasing volume of bookings and customer data.

The company currently does not have any website, information page or any platforms for customers to get in touch with them. Their marketing strategies are also primarily traditional with paper flyers and local newspaper advertisements. But their customers' word-of-mouth referrals are their prime source of promotion.

Customers has no way of reaching out or checking out their business aside from their hotline and company phone number. Even the customer's bookings are through phone calls or in-person visits to the office. Despite the growth in business, the current manual processes has resulted in inefficiencies and operational challenges.

## **1.2 Current Business Process**

The current business process has 5 main processes that are currently running. This includes Booking services, Managing bookings, Assigning cleaners, Processing payment, and Profiling customer.

### **1.2.1 Cleaning Service Booking Process**

The customers have to book the company services by either calling the company hotline or visiting HomeShine office physically to book a cleaning service. The booking needs to be made at least 2 days ahead. The customer explains what kind of cleaning service they want for their booking with the staff from the reception assisting them throughout the whole interaction.

Then, they agree on the service they want and the customer give their details. The details includes the number of bedrooms, bathrooms, address and special remarks. Then, the booking's date, time and duration are recorded. They offers Credit card payment, KBZ Pay and Cash payment. Depending on the service, they also offers Cash on delivery payment, allowing the customer to pay when the service comes to their doorstep.

#### **1.2.2 Booking Management Process**

The customer's booking details are recorded by the staff at the reception. It is manually recorded using physical ledger books and Excel spreadsheets. The booking has 3 main status they keep track off. Which is the status of the booking (canceled or confirmed), the status of payment and the status of assignment of cleaners. These statuses are also tracked and updated manually, with margins for error.

#### **1.2.3 Cleaner Assignment Process**

After the booking has been confirmed, the receptionist checks the availability of the cleaners. Then the available cleaners are schedules and assigned to the respective cleaners.

The details of the assignment is announced via phone calls and messages and is also shared on the office calendar. Conflicts and double bookings are quite common and are handled manually by the supervisor. Then, to deliver the service to the customers, the cleaners are dropped off at the customer's address at the scheduled time including the cleaning equipment via the company van.

#### **1.2.4 Payment Processing Process**

After completing the service, the full payment is made. They offers Credit card payment, KBZ Pay and Cash payment. Depending on the service, they also offers Cash on delivery payment, given to the cleaners, including tips and feedback by filling out a feedback form.

Finally, the receptionist collects the payment and feedback, and if the feedback wasn't made, the receptionist calls the customer to ask for feedback via calls. All the payment records and details are recorded manually in the ledgers by the receptionist. Payments such as credit card payments and KBZ Pay are specially recorded to track the status of the payment.

### **1.2.5 Customer Profile Management**

After customer interaction, Each customer's profile is created manually. The profile is made together with personal details, booking details and feedback. The customer profile made and recorded in physical ledger books and Excel Spreadsheets.

## **1.3 Current Business Issues (Manual System Issues)**

### **1.3.1 Inefficient Booking Process:**

The current manual booking process involves customers reaching out via phone calls or walk-in appointments, which consumes considerable time and is vulnerable to human error. This method also relies heavily on manual scheduling, which make it difficult for the company to track bookings accurately.

This results in being, an increased risk of double bookings or errors in appointment scheduling. The lack of an automated system also makes it difficult to manage last-minute changes or cancellations. This can increase disorganization on the booking managements ultimately creating dissatisfied customers due to scheduling conflicts or overlooked bookings.

### **1.3.2 Limited Customer Reach:**

HomeShine's reliance on traditional marketing methods, such as word-of-mouth and offline advertising. This severely limits its exposure to a wider audience especially in this digital age where people get in touch with businesses mainly over online platforms such as websites and social media.

This results in a significant gap between the business's potential customer base and its actual reach. And even more so as the company lacks any form of online booking system, missing out on customers who prefer digital interactions.

### **1.3.3 Communication Gaps:**

Manual assigning and scheduling of cleaning staff is a process prone to miscommunication for HomeShine. Even more as the whole process mainly relies on phone calls or text messages, which are not always timely or reliable. And there are a lot of rooms left of misunderstanding, especially regarding job details, timings, and locations.

This can potentially result in cleaners receiving incomplete or incorrect information, leading to more miscommunication and confusion. It also makes it difficult to ensure that the right staff is assigned to the right job. These inefficiencies can build up and negatively impact the quality of service and overall customer satisfaction.

#### **1.3.4 Lack of Real-time Updates:**

The current system does not provide real-time updates on the status of bookings and cleaning jobs, as all the records are in one ledger controlled by the receptionist. This creates unnecessary coordination challenges as the staffs ,that don't have access to the ledger, are left in the dark regarding the status of appointments, job progress, or schedule changes.

This lack of visibility results staffs in hindering effectiveness on their resource allocation and job tracking. And as the customer is not able to get real time updates regarding their booking's details, they might feel disconnected from the service. This leads to inefficiencies for both customers and staff.

#### **1.3.5 Customer Inconvenience:**

Nowadays in this age, Customers find it inconvenient to check out and book services through phone calls or in-person visits. People prefers digital platforms such as website and applications more as they are far more flexible and accessible.

Their current system still uses phone calls or in-person visits, which is not only time-consuming but also inconvenient for customers who have busy schedules and prefer the ease of booking services online.

This can result in significantly limiting customer engagement and reduces the likelihood of repeat business, as customers may seek out competitors with more flexible and accessible booking options.

#### **1.3.6 Weak Feedback Management:**

The company currently manages customer feedback manually, which poses several challenges in terms of tracking, organizing, and responding to customer concerns. As feedbacks are more sophisticated, such as having different types of feedbacks whether it is a customer's complaint or a question. This makes manually tracking feedbacks both inefficient and inaccurate.

This can also result in increasing the risk of customer complaints being overlooked or addressed too late, leading to potential loss of customer trust. Furthermore, it makes it challenging to analyze trends in customer satisfaction.

## 1.4 Requirements Collection (Interview)

To ensure the successful development of Home Shine's on-demand service application, a comprehensive requirement collection interview process was initiated on July 1<sup>st</sup> 2024. This interview was conducted online with the developer(interviewer) and Mr. Aung Kyaw, the manager of Home Shine. The main goal of this interview was to get a better understanding of the company's current operations, challenges, and the functional requirements for the development of the project.

Mr. Aung Kyaw started by providing an overview of HomeShine's operations. He described how HomeShine has established itself as a leading house cleaning service provider in Myanmar. However, he acknowledged that the current manual system was lacks some degree of efficiency which can be improved with technical solutions. *"Our team spends a lot of time managing bookings, schedules, and payments manually, which often leads to errors and delays,"* he explained.

When asked about the specific pain points, Mr. Aung Kyaw highlighted common issues such as double bookings, miscommunications between cleaners and customers, and difficulties in tracking payment statuses. He also mentioned the absence of an organized platform for customers to provide feedback *"We rely heavily on phone calls and spreadsheets, which are not only time-consuming but also prone to mistakes,"* he added.

Mr. Aung Kyaw emphasized the importance of a user-friendly interface in the new system. This would include a simple way for customers and the company to processes booking and payments. It was explained how it would be great for their customers to be able to conveniently book services online, track the status of their cleaning appointments, and make secure payments with ease.

Additionally, he stressed the need for a dashboard that would allow the respective staff to manage and keep track of their processes including the bookings, payments and services. It was also suggested that communication tools that would allow cleaners to receive assignments would also be included.

The interview concluded with a discussion of the anticipated benefits of the new system. Mr. Aung Kyaw expressed confidence that the application would not only streamline daily operations but also improve customer experience as a whole. The insights gathered from this interview with Mr. Aung Kyaw formed the foundation for the project's requirements specification. This ensure that the system to be developed addresses the identified needs to included. (Kyaw, 2024)

## 1.5 SWOT Analysis

### Strengths(S)

- **Established Market Presence:** HomeShine already has a strong reputation and presences in Yangon's house cleaning market industry. This kind of position allows the company to have a solid foundation for launching the new web-based system. This ensure a smoother adoption processes as HomeShine already has a loyal customer base. (Uhlhorn, 2024)
- **Customer Trust:** HomeShine's fame was solely built up on word-of-mouth referrals and its service quality by trusted customers. This means the customers have enough trust in the company to adopt and embrace to changes. And the new automated system will also increase customer satisfaction by providing greater convenience. (Indeed, 2024)
- **Personalized Service Offerings:** What makes HomeShine's stand out in the industry is its ability to tailor services to customer needs. Being affordable and charging based on the number of rooms rather than the service itself is the company's unique strength. The new system can enhance this by allowing customers to further customize their bookings such as add on and special remarks.

## **Weaknesses(W)**

- **Limited Technical Expertise:** Along with the current manual system, the existing team might lack the technical skills to operate and maintain a web-based system. With the company long history of using manual systems, the learning curve can be steep for the staff. Potentially, leading to increased training costs as well as potential mistakes in the early stages of using the system.
- **Budget Constraints:** Although HomeShine's success has been thriving in these past years, allocating sufficient resources and budget for the development of a new system can be inevitably challenging. It can also directly impact and limit the scope of the project's functionalities and features.
- **Resistance to Change:** HomeShine with its long history of solely relying on traditional manual system, employes accustomed to the manual system might resist the new automated system. The same goes for customers especially older customers who finds it more comfortable to use the manual method.

## **Opportunities (O)**

- **Customer Base Expansion:** As more people prefer making bookings online rather than the traditional phone callings, the new system will attract more customers. The new system can also use as a platform for potential customers to check out the company, thus allowing more and more customers to access the services.
- **Enhanced Customer Experience:** The new system introduces new features to improve the customer experience mainly time service tracking, online booking, and secure online payment methods. Customers will have a better experience interacting with the process as a whole, significantly improving the user satisfaction compared to the manual system.
- **Innovative Marketing Strategies:** The new web application can be launched can be used greatly for marketing and promoting new services. Furthermore, as

the customer data is collected and tracked, HomeShine can use this data to develop more effective and targeted marketing strategies. This is improved both customer engagement and attract new customers.

## **Threats (T)**

- **Technical Challenges:** Because of the complexity and sheer sophistication of developing and implementing a web-based application, it can be prone to many technical challenges. This includes software bugs, integration issues, and cybersecurity threats. These challenges can directly delay both the time and performance of the system as a whole.
- **User Adoption:** Ensuring that all users, especially those who are less familiar with technology, adapt smoothly to the new system is highly important and critical. Extensive training and a user-friendly interface are necessary to avoid any hinderance for user adoption to the new system. Failing to achieve user adoption can undermine the investment of the new system. (Yackey, 024)
- **System Downtime:** All technical systems are prone to downtime especially during periods where an overwhelming amount of operations needs to be processed at once. This risks HomeShine's customers to feel frustrated, as the system can potentially crash or perform poorly during peak hours, such as weekends or holiday seasons when cleaning services are in high demand

## **1.6 Proposed System Scope**

The proposed system is a web-based application designed to improve Home Shine's operational efficiency and enhance the customer experience. The new system will include the following functionalities.

### **1.6.1 Entry (Master Data) - CRUD Operations:**

- **Customer Management:** Allow for the creation, updating, and deletion of customer profiles. Customers can register, update their information, and manage their accounts online on the web application.
- **Booking Management:** Allows admins and staffs to Retrieve and keep track of each bookings including the statuses and details in real time.
- **Service Management:** Enable administrators to add, update, and delete service offerings, including descriptions and pricing.
- **Cleaner Assignment:** Allow admins to assign the bookings to available cleaners. And edit and delete cleaner profiles, availability, and assignments.
- **Cleaner Management:** Allow each cleaner to create and edit their own accounts and retrieve the details of the bookings and jobs they are assigned to.

### **1.6.2 Transactions:**

#### **Online Booking**

Customers can book cleaning services online by selecting the type of service, date, and time. Additional information such as address, special remarks will also be able to be made.

#### **Scheduling and Dispatching**

The system will check cleaner availability for the admin to assign them to jobs. Cleaners will receive real-time notifications of their assignments through their own accounts.

### **Online Payment**

Integration with secure payment gateways to allow customers to pay for services online. It will include credit card and KBZ payment. Cash option will also be available by the user digitally signing a payment agreement.

### **Real Time Booking Tracking**

The system will allow the admins to control the status such as job status, payment status and booking status of each booking. And any last minute changes made will also be automatically be updated on both the cleaner and admin interfaces.

#### **1.6.3 Search & Report:**

**Booking History:** Customers would be able to view the bookings they've made in the past and keep track of the bookings in progress.

**Service Search:** Customers will be able to search for their preferred services through the search bar.

**Booking Search:** Admins will be able to search and manage bookings, payments, customers, cleaners and jobs based on any values such as Customer Name, Township or time.

**Overview Report:** Admins will be able to see the comprehensive overview of the number and status of the bookings and payments on the admin dashboard.

## **1.7 New Business Process**

### **1.7.1 Cleaning Service Booking Process**

Customers would be able to book the company's cleaning services through the web application. It will allow customers to view the details of the services and customize the service as much as they please before confirming the booking. This allows customers to grasp more about the services they provide and provides transparency in prices.

### **1.7.2 Booking Management Process**

After a booking has been successfully made and confirmed by a customer, the details of the bookings will be automatically inserted in the database and automatically updated in the admin's dashboard. The 3 main status, booking status, job status and payment status can all be tracked and updated by the admin.

### **1.7.3 Cleaner Assignment Process**

Each booking will be shown on the "Job assignment" part of the Admin's interface. Based on the status of the booking's job status (assigned and unassigned), the admin would be able to view and assign the available cleaners to the bookings via the application.

The assigned cleaners would also be able to view and track real time data and detail of the jobs they are assigned to.

### **1.7.4 Payment Processing Process**

Through the multiple payment gateways, customers will be able to pay for their bookings on the web application via Credit Card and KBZ Pay. Cash option will be also available with the customer digitally signing and agreeing to the payment policy of the company. E-Receipt of the customer will also be available for customers to download as a pdf file.

Likewise, admins would also be able to keep track of the payments done in and process and update to approve or unapproved the payments made.

### **1.7.5 Customer Profile Management**

As customers need to create their own accounts to book a service, the customer profiles will be automatically created. It will include their personal information, current and past bookings and payment information.

Admins will be able to view and stay in touch with the customers by with these customer profiles which can be accessed via the admin dashboard.

### **1.7.6 Customer Feedback Management**

Customers will be able to provide feedback to the company via the “Contact us” page in the web application. Customers can choose to give feedback on 3 types, complaint, help or suggestion.

Likewise, admins will be able to view all the details of the feedbacks and filter by the types. This will allow the company to have a better comprehension on the feedbacks and respond to them accordingly.

## **1.8 Aims & Objectives of the Project**

### **Aims**

The primary aim of the Home Shine project is to develop a web-based on-demand service application to improve both efficiency and convenience for both the company and customers. This project will greatly assist the company in transitioning their current manual and fragmented system to an organized, automated platform. Which directly improves the management of the process involved.

By integrating modern web technologies such as online booking, real time tracking and online payment gateways, the developed web application will unify the system. Thus, providing a seamless, user-friendly experience for customers, administrators, and cleaners alike.

The new system will improve the convenience and reliability of the interaction between the customers and the company. By allowing customers to independently customize their own bookings and allowing them to also keep track of their booking real time will also improve the customer stratification.

Additionally, the platform will enable Home Shine's administrators to manage operations more effectively. This technological advancement is expected to reduce operational inefficiencies, minimize human errors, and improve the communication between admins, customers and cleaners. Ultimately, the project aims to provide the company with more room for efficiency and less for mistakes. Allowing HomeShine to deliver better services and grow as a leading cleaning provider in Yangon.

## **Objectives**

### **Objectives**

#### **Analysis**

- Requirements Collect (Interview) (1 day)
- SWOT Analysis (1 day)
- Similar System Research (2 days)
  - o Functional Comparison
  - o Non-functional Comparison
- Feasibility Study (3 days)
  - o Technical Feasibility Study
  - o DSDM Feasibility Study
  - o LESPI Study

#### **Design**

- Functional Requirements (1 day)
- Time Box Planning (1 day)
- MOSCOW Prioritization (1 day)
- Non-functional Requirements (1 day)
- Risk Management (2 days)
  - o Risk Assessment
  - o Rish Matrix
- Critical Success Factors (1 day)

#### **Implementation**

- Holistic Diagrams (2 days)
  - o Use Case Diagram
  - o Class Diagrams
  - o Sequence Diagrams
- Prototyping (3 days)
  - o Low Level Prototype
  - o High Level Prototype
  - o Screen Design
  - o Summary

- Development for Timebox (1) (3 weeks)
- Development for Timebox (2) (2 weeks)
- Development for Timebox (3) (2 weeks)

## **Testing**

- Functional Testing (2 day)
  - o Test plans
  - o Test scripts
- Usability Testing (1 day)
- Iterative Development (2 day)

## **Training**

- Deployment (1 day)
  - o Deployment planning
  - o Deployment Diagram
- Data Migration (2 day)
  - o Data Migration Plan
- Training Plan (1 day)
- User Manual(1 day)

## **Evaluation**

- Evaluation against Aims and Objectives (1 day)
- Evaluation against similar system (1 day)
- Evaluation against Justification Made (1 day)
- Evaluation against Time Box Plan (1 day)
- Personal Evaluation (1 day)
- Strength & Weakness of HomeShine Web-Application (1 day)
- Future Amendment (1 day)

## 1.9 Short overview of the remaining Topics

There are a total of 7 topics, each representing the phases of the project, as this is topic 1 -Pre Project, there are 6 more topics left from topic 2 to 7.

**Topic (2): Investigation :** This topic compares similar products, focusing on functional and non-functional features, including heuristic evaluations. The analysis will guide how HomeShine's system should improve in relation to competitors.

**Topic (3): Feasibility Study:** This topic evaluates the technical feasibility of the project, suitability of the DSDM framework, and identifies legal, ethical, and professional considerations (LESPI) to ensure the project's compliance.

**Topic (4): Foundations:** The foundation of the system is defined, including target users, functional and non-functional requirements, risk management, and use case diagrams. The time-box plan is introduced to manage development phases.

**Topic (5): Exploration and Engineering:** This topic details the system development over several time-boxes, focusing on booking management, customer interaction, and job assignment.

**Topic (6): Deployment:** Covers the deployment phase, including the deployment diagram, data migration, and the training plan for users and staff.

**Topic (7): Conclusion and Evaluation:** Evaluates the system's success against its goals, time-box plan, and competing systems. It includes personal reflections, strengths and weaknesses, and suggestions for future amendments.

# **Topic 2**

# **Investigation**

# Topic – 2 Investigation

## 2.0 Similar Product Comparison

### 2.0.1 Introduction of the 2 products (Websites)

In today's digital age, websites serve as critical touchpoints for both the businesses themselves and their customers. This means it is important to prioritize usability and design of the web-based application for HomeShine's development. As it can significantly influence user engagement, satisfaction, and overall experience. This comparison focuses on two famously used websites used to book house cleaning services like HomeShine, **Urban Company** and **MyClean**, which both serve similar purposes but differ in their approach to both user experience and design.

#### Urban Company

**Urban Company** is a well-established technology platform known for its offer on a variety of home services. With over 45,000 trained professional and operating in 107 cities worldwide, the website of **Urban Company** allow their customers to book services from massages to cleaning and plumbing. Their website allows these services to be seamlessly delivered to their customer's doorsteps with their online booking system. (Urban Company, 2024)

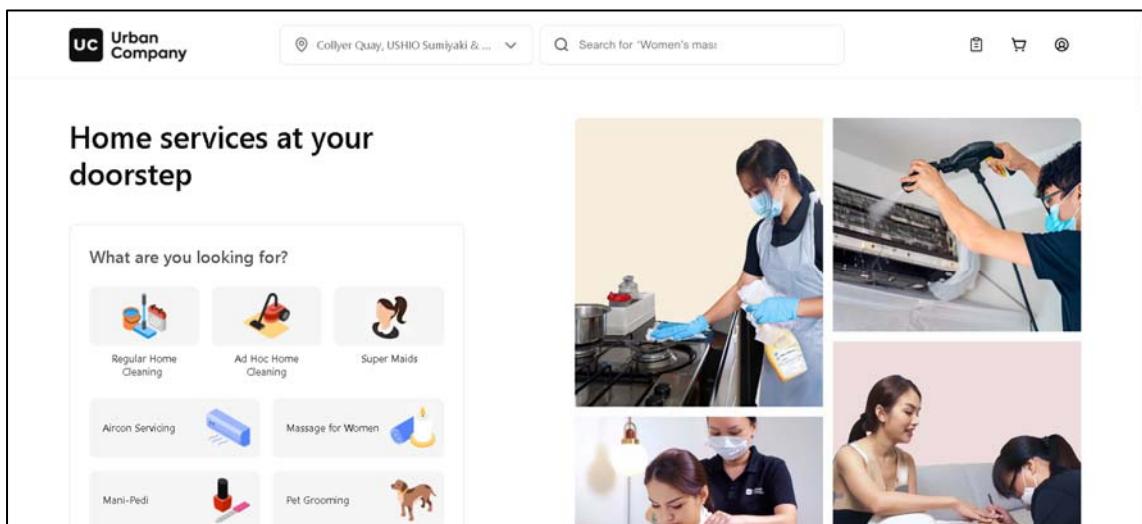


Figure 1.1.1 – Home page of Urban Company(Singapore)

## MyClean

**MyClean** went from being a simple online booking platform in 2009 to a fully staffed cleaning company fully embracing technology today. They hold a reputation for valuing their cleaners within their careers and encourages applicants to come work with them. Their seamless yet simple website has been the main reason for their success with their customer-base in the thousands. Their website allows customers to book their available services and even offers ways to make quotation for industrial cleaning services. (MyClean, 2024)

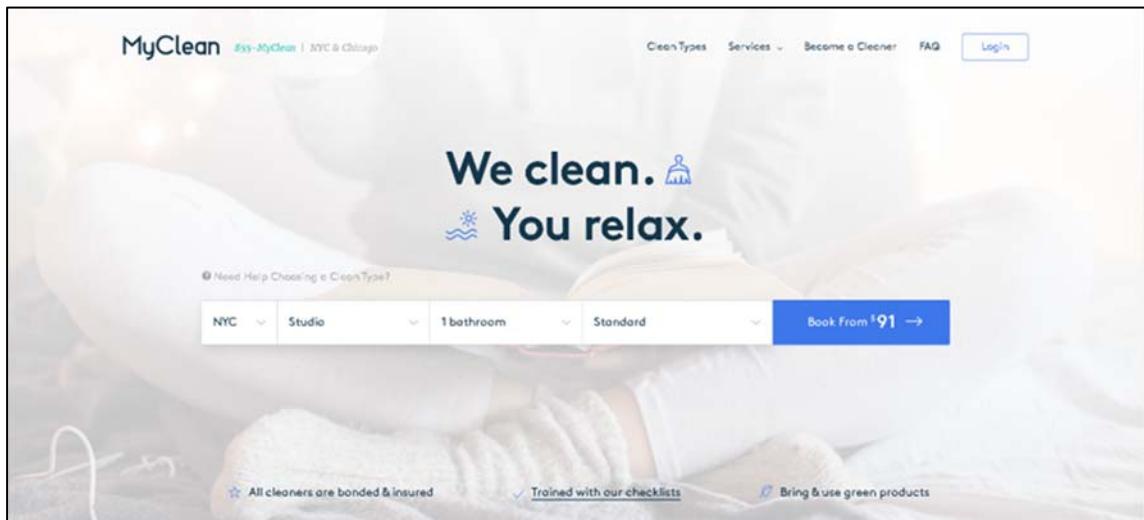


Figure 1.1.2 – Home page of MyClean

## 2.1 Functional Comparison

### 1. Sign Up

#### Urban Company

Urban Company's Sign Up (Register) interface is as mentioned below in *Figure 2.1.1 & 2.1.2*. They uses a simple form and asks for the customer's phone number, with country code included to determine the customer's country, email, a gender choosing drop box, name text box and completed with email textbox. Then a verification code is sent to the phone number to complete the account creation process.

The interface is clean and only ask minimum information for customer convenience, making it more likely for potential customers to create an account.

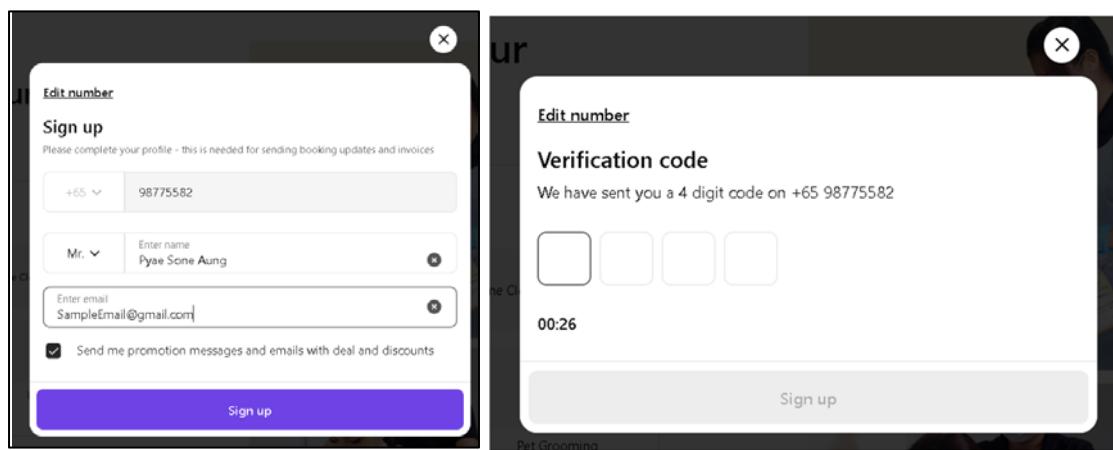


Figure 2.1.1 & 2.1.2 – Sign Up page of Urban Company

## MyClean

**MyClean's Sign Up (Register)** has two parts and the interfaces are mentioned below in *Figure 2.1.3 & 2.1.3*. As MyClean offers both industrial and home cleaning services, they require a lot of information and they ask this in 2 separate forms. The first one is about the company's information including, industry type, company name and detailed address. The second part asks for personal information such as First and Last name, Phone Number, email and password for the newly created account.

The information is useful and customers wouldn't be asked again during other processes. But potential customers might be hesitant to create an account as the registration process requires about company's information which can be deemed sensitive.

**Step 1: Company Information**

Industry \*: Pyae Sone

Address \*: Aung

Apartment, suite...: +65 9788-2237

Company name \*: SampleEmail@gmail.com

**Step 2: Personal Information**

First Name \*: Pyae Sone

Last Name \*: Aung

Phone Number \*: +65 9788-2237

Email \*: SampleEmail@gmail.com

Password \*: Must be at least 8 characters

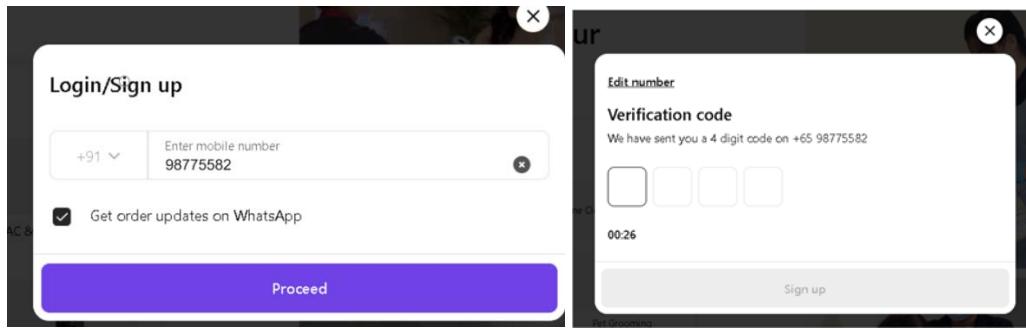
Create account

*Figure 2.1.3 & 2.1.3 – Sign Up page of MyClean*

## 2. Log In

### Urban Company

Urban Company's Log in interface is shown in *Figure 2.2.1 & 2.2.2*. The website only asks for the user's mobile number and verifies it by sending a verification code to the phone number. It is fast and efficient and doesn't require the customer to remember their password.



*Figure 2.2.1 & 2.2.2 – Log In Pages of Urban Company*

### MyClean

MyClean's Log in interface is shown in *Figure 2.2.3*. The website uses the traditional method of asking the email and password. Overall, the interface is clean and allows users to log in comfortably as the log in process is just like any other ordinary websites with the users are mostly used to.

*Figure 2.2.3 – Log In Page of MyClean*

### **3. Service Selection**

#### **Urban Company**

**Urban Company's** service selection is shown in 2.3.1 & 2.3.2. They allow customers to choose their cleaning service in two ways, by hour and by area. Both have predefined values ready to be chosen by customers. They use a “add to cart” interface that allows customers to book the same way as buying a product.

The figure consists of two screenshots of the Urban Company website. The top screenshot shows the 'Book by Hour' section. It features three service options: '3 Hours' (starting from \$19/hour), '2.5 Hours' (starting from \$21/hour), and '2 Hours'. Each option includes a small image of a living room, a rating, and a 'View details' link. To the right is a 'Cart' summary showing '3 Hours' selected at '\$\$57.59hr-' with a 'Select Frequency' button. Below the cart is a 'UC Promise' box with three checked items: 'Verified Professionals', 'Hassle Free Booking', and 'Transparent Pricing', each accompanied by a circular icon. The bottom screenshot shows the 'Book By Area' section. It features a large image of a cleaner working on a toilet with a 'FULL HOME CLEANING' sign. Below it is a service for '3 Bedroom Home' (starting from \$22.59hr) with a 'View details' link and an 'Add' button. To the right is a 'Cart' summary showing '3 Hours' selected at '\$\$57.59hr-' with a 'Select Frequency' button. Below the cart is a 'UC Promise' box with three checked items: 'Verified Professionals', 'Hassle Free Booking', and 'Transparent Pricing', each accompanied by a circular icon.

*Figure 2.3.1 & 2.3.2 – Service Selection Pages of Urban Company*

## MyClean

MyClean's service selection interface is shown in *Figure 2.3.3 & 2.3.4*. Unlike Urban Company, MyClean offers a more personalized and customizable way to book their service. The customer can choose specifications such as the number of bedrooms, bathrooms, clean types etc. This allows users to customize the service to be tailored to their preferences with a seamless interface.

The top screenshot displays a service selection interface. At the top, it says "We clean. 🧹 You relax." Below this, there are dropdown menus for location ("NYC"), room type ("Studio"), and bathroom count ("1 bathroom"). To the right, a button says "Book From \$91 →". A sidebar on the right lists service options:

- Standard** | ~2.00 hours  
Our basic clean, 40pt Checklist.
- Standard Plus** | 2.25-2.75 hours  
Our most popular, 50pt Checklist with 50% more time.
- Deep Clean** | 4-4.50 hours  
We've got work to do. 50pt Checklist with 150% more time + extra add ons.
- Moving in/out** | 4-4.50 hours  
So many tasks to do when moving. Let us check off cleaning.

The bottom screenshot shows a detailed configuration for a "Deep Clean" service. It specifies "1" bedroom and "1" bathroom. The total price is listed as "\$325". The configuration fields include:

- BEDROOM:** Studio (selected)
- BATHROOM:** 1 (selected)
- CLEAN TYPE:** Deep Clean (selected)
- LOCATION:** NYC (selected)
- NUMBER OF BEDROOMS:** Studio (selected)
- NUMBER OF BATHROOMS:** 1 (selected)
- CLEAN TYPE:** Deep Clean (selected)

*Figure 2.3.3 & 2.3.4 – Service Selection Pages of MyClean*

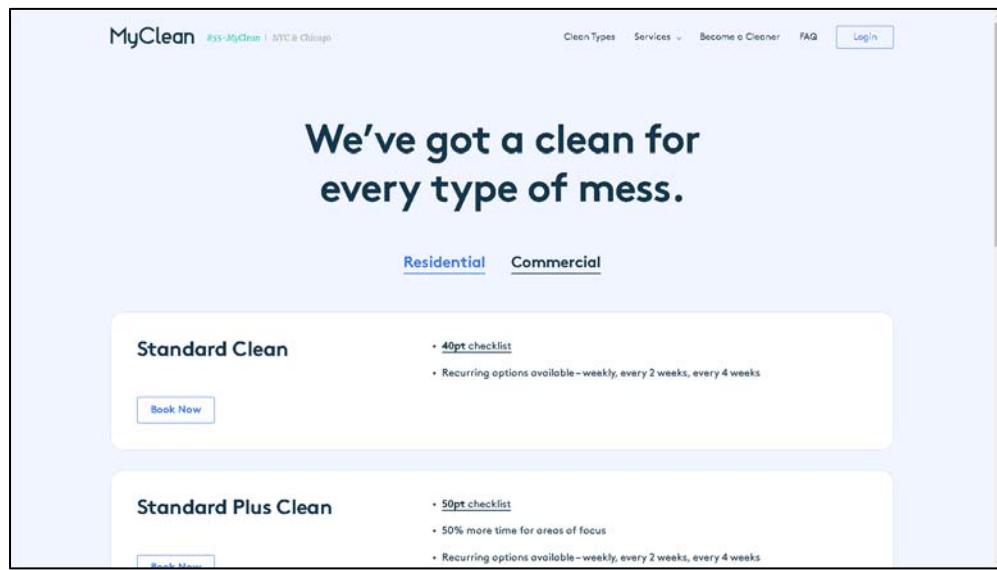
## 4. Category Viewing

### **Urban Company**

**Urban Company** unfortunately doesn't have a separate category viewing interface and the products are only categorized in the service selection interface.

### **MyClean**

**MyClean**'s category viewing interface is shown in *Figure 2.4.1*. The category includes types of cleaning and their details as well as options, separated with residential and commercial. The webpage utilizes a clean yet detailed interface to cleverly explain their categories of their cleaning services.

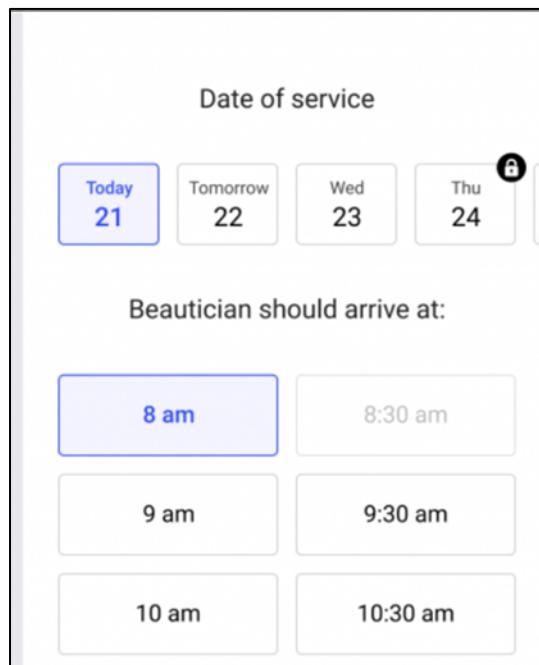


*Figure 2.4.1 – Category viewing page of MyClean*

## 5. Scheduling

### Urban Company

**Urban Company's** scheduling interface is shown in *Figure 2.5.1*. It's a simple design and only requires the customers to choose the date and time. The unavailable options are greyed out to avoid the customers from choosing them.



*Figure 2.5.1 – Scheduling Page of Urban Company*

## MyClean

MyClean's scheduling interface is shown in *Figure 2.5.2 & 2.5.3*. It has two parts, one for picking the date and the other for the time. It uses a calendar like interface to allow customers to easily schedule their bookings.

The figure consists of two vertically stacked screenshots of the MyClean scheduling interface.

**Top Screenshot:** A monthly calendar view for July and August. The month of July is fully visible, showing days from 30 to 27. The day July 29 is highlighted in blue. The month of August is partially visible at the end of the month. Below the calendar, there is a button labeled "Next". Above the calendar, the service details are listed: "MyClean Studio 1", "1 BEDROOM BATHROOM", "1.00 hours CLEAN TYPE", "Every 2 weeks RECURRING", "July 29, 2024 SCHEDULE DATE", and a subtotal of "\$118". A note below the calendar says "Save even more by booking off-peak dates and times."

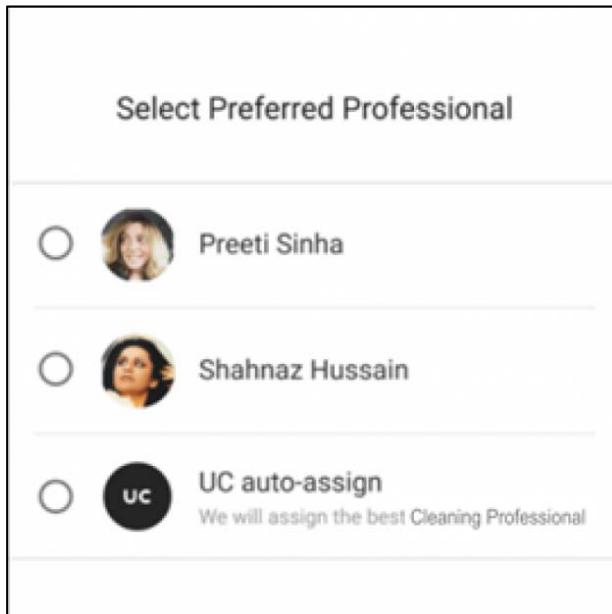
**Bottom Screenshot:** A detailed view of the July 29, 2024, booking. It shows a timeline from 08:00 AM to 11:30 AM. The hour 10:00 AM is highlighted in blue, indicating it is the selected time slot. Other times are shown in white with a "Save \$5.00" link next to them. Above this detailed view, the service details are identical to the top screenshot: "MyClean Studio 1", "1 BEDROOM BATHROOM", "1.00 hours CLEAN TYPE", "Every 2 weeks RECURRING", "July 29, 2024 SCHEDULE DATE", and a subtotal of "\$113". The specific time slots listed are 08:00 AM, 08:30 AM, 09:00 AM, 09:30 AM, 10:00 AM, 10:30 AM, 11:00 AM, and 11:30 AM.

Figure 2.5.2 & 2.5.3 – Scheduling pages of MyClean

## **6. Cleaner Selection**

### **Urban Company**

**Urban Company** has an interface that allows customers to choose their preferred cleaners for the cleaning service shown in *Figure 2.6.1*. Customers can choose to select the professionals individually based on preference or choose the option for automatically assigning the best available professionals chosen by Urban Company.



*Figure 2.6.1 – Cleaner Selection Page of Urban Company*

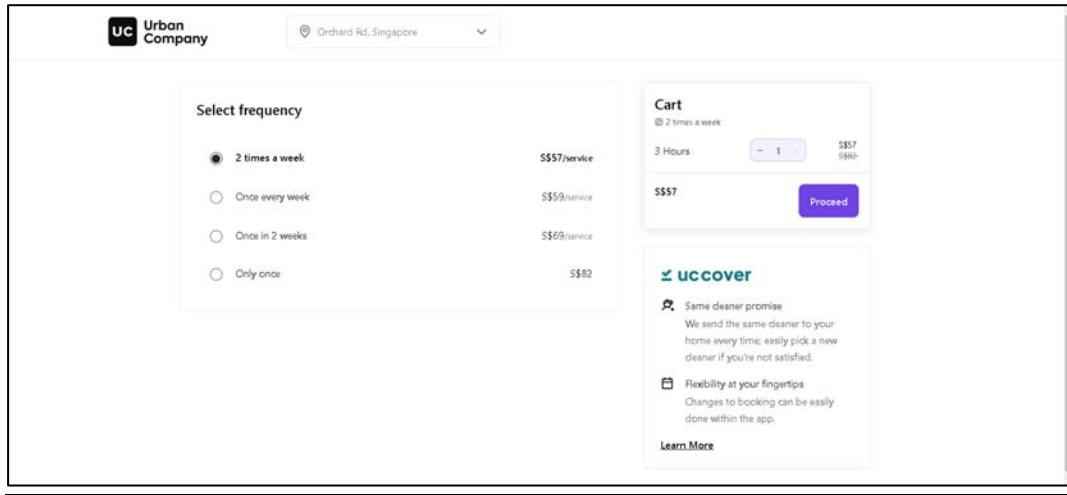
### **MyClean**

Unfortunatley, **MyClean** doesn't allow customers to choose the professionals (Cleaners) on their preference and are only assigned by the company themselves.

## 7. Frequency Selection

### Urban Company

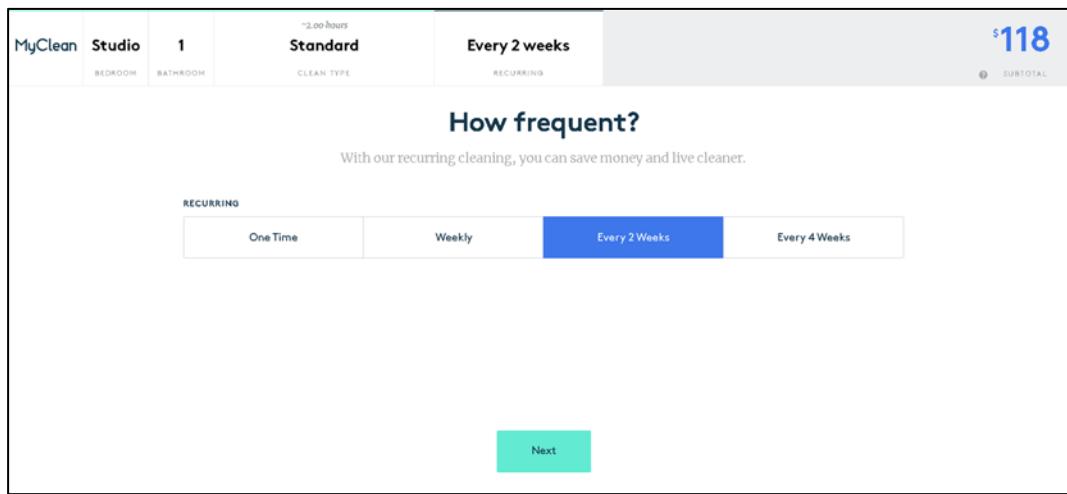
**Urban Company's** frequency selection interface is shown in *Figure 2.7.1*. It has a simple and seamless design showcasing the changes in prices according to the chosen frequency.



*Figure 2.7.1 – Frequency Selection Page of Urban Company*

### MyClean

**MyClean's** frequency selection interface is shown in *Figure 2.7.2*. It utilizes a simple selection box for selecting the recurring frequency for their services. Although the price difference is not shown directly, the total price on the top right side changes for each option.

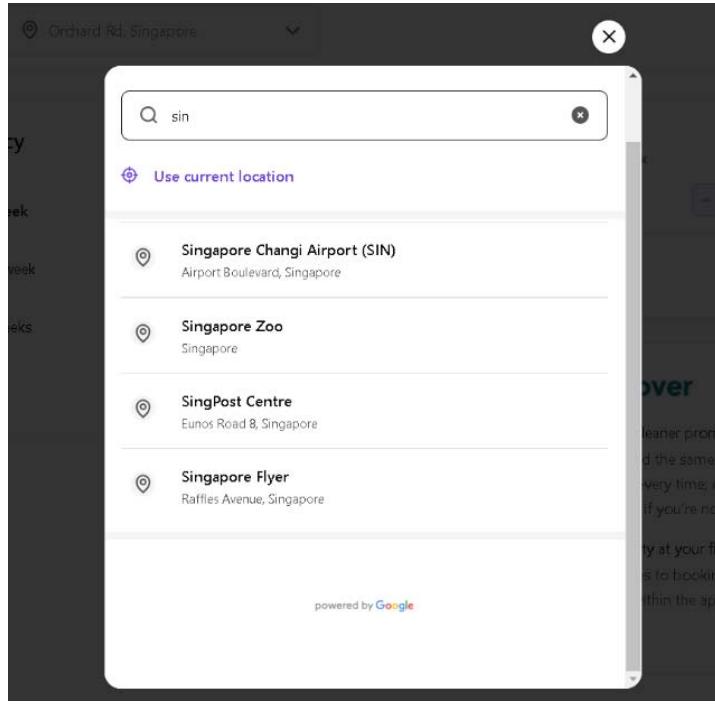


*Figure 2.7.2 – Frequency Selection Page of MyClean*

## **8. Address Input**

### **Urban Company**

**Urban Company's** address input interface is shown in *Figure 2.8.1*. It features a search box that users can search their locations. The interface is also powered by **Google Maps** to both show the locations from the google maps and also allow customers to turn their locations on to automatically fill in the address.



*Figure 2.8.1 – Address Input of Urban Company*

## MyClean

MyClean's address input interface is shown in *Figure 2.8.2 & 2.8.3*. The address textbox is integrated with a drop box to make it easier accompanied by apartment name and Zip code which is automatically filled. It also includes details like choosing how the cleaners would come, and if there are any pets. The address form is finished with options for adding additional services and a text area to write special notes for additional instructions.

The figure consists of two vertically stacked screenshots of a web-based cleaning service booking application.

**Top Screenshot:** This screenshot shows the initial address input screen. At the top, there are service details: "MyClean Studio 1", "Standard", "Every 2 weeks", "July 29, 2024", and a total cost of "\$113". Below these are fields for "ADDRESS" (with placeholder "Enter a location"), "APT" (dropdown), and "ZIP" (dropdown). A note says "Add on extras for a cleaning upgrade." Below the address fields are buttons for "Someone is Home", "Doorman", "Hidden Key", and "Other". Under "ADD ONS", there are three options: "Inside Fridge" (\$44.13), "Inside Oven" (\$44.13), and "Inside Cabinets" (\$44.13). A "Next" button is at the bottom.

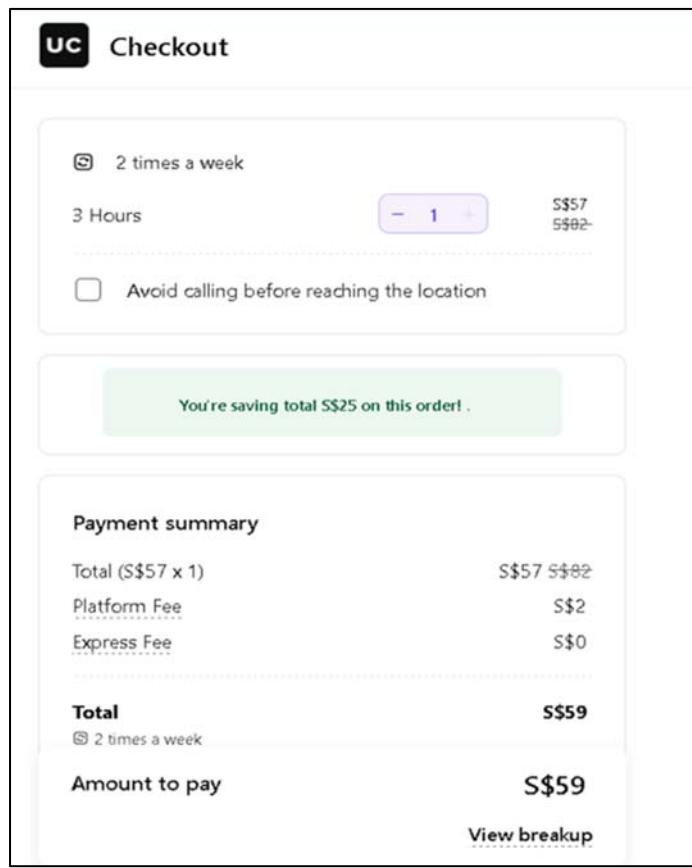
**Bottom Screenshot:** This screenshot shows additional service options and user preferences. It features three service icons: "Inside Fridge" (\$44.13), "Inside Oven" (\$44.13), and "Inside Cabinets" (\$44.13). Below these are buttons for "DO YOU HAVE PETS?" with options: "No Pets", "Cat", "Dog", and "Other". At the bottom is a large text area labeled "SPECIAL NOTES OR INSTRUCTIONS? (OPTIONAL)".

Figure 2.8.2 & 2.8.3 – Address Input of MyClean

## **9. Checkout**

### **Urban Company**

**Urban Company's** checkout interface is shown in *Figure 2.9.1*. It shows details of the booking and service. The payment summary is also included and the option to view the breakup of the summary is included.



*Figure 2.9.1 – Checkout Page of Urban Company*

## MyClean

MyClean's checkout interface is shown in *Figure 2.9.2 & 2.9.3*. The interface is split to two sides, with the left side asking for the payment information and the right side showing the Receipt of the booking. The Payment side only allows credit card to be used and the typical information required is asked. The Receipt part shows the details of the booking including the address, date, frequency and the payment summary. The option of choosing how much to tip the cleaner is also included.

**Almost there!**

Enter your payment & contact info to finalize your appointment.

CREDIT CARD NUMBER					
EXP. DATE	CVV	BILLING ZIP CODE			
FIRST NAME		LAST NAME			
EMAIL ADDRESS		PHONE NUMBER			
PASSWORD		CONFIRM PASSWORD			

I agree to MyClean's [Terms](#) and [Privacy Policy](#).

**Receipt**

Studio, 1 Bathroom  
Standard Clean  
Every 2 Weeks - Cleaning on Monday, July 29th 2024 at 10:00 am  
123 Main Street, Apt. 223  
Queens, NY 10001  
Add-on: Inside Oven

Discount	<input type="button" value="Apply"/>
Appointment Value	\$190.38
Discounts	-\$33.56
<b>Subtotal</b>	<b>\$156.82</b>
Tax	+ \$15.92
<b>Total</b>	<b>\$170.75</b>

**ADD TIP:**

*Figure 2.9.2 & 2.9.3 – Checkout pages of MyClean*

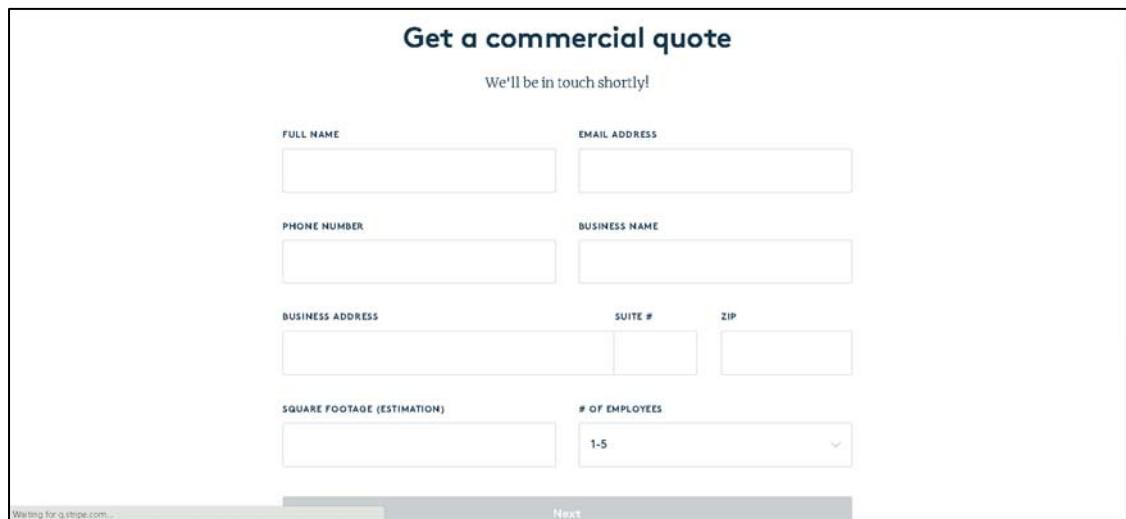
## **10. Quotation Request**

### **Urban Company**

**Urban Company's** website unfortunately doesn't have the function to request a quotation for a customizing the cleaning service commercially.

### **MyClean**

**MyClean's** quotation request interface is shown in *Figure 2.10.1*. The webpage includes a really clean and simple form for the user to fill in the details to request a commercial quotation. This will expand their customer-base, hence allowing business to book their services on a commercial scale.



The screenshot shows a clean, white-formatted quotation request page. At the top center, it says "Get a commercial quote". Below that, a small note reads "We'll be in touch shortly!". The form is divided into several sections with labels and input fields:

- FULL NAME**: An input field.
- EMAIL ADDRESS**: An input field.
- PHONE NUMBER**: An input field.
- BUSINESS NAME**: An input field.
- BUSINESS ADDRESS**: An input field.
- SUITE #**: A small input field.
- ZIP**: A small input field.
- SQUARE FOOTAGE (ESTIMATION)**: An input field.
- # OF EMPLOYEES**: A dropdown menu with "1-5" selected.

At the bottom left, there's a progress bar with the text "Waiting for a stripe.com...". On the right side, there's a "Next" button.

*Figure 2.10.1 – Quotation Request Page of MyClean*

### 2.1.1 Heuristic Evaluation

No.	Functionalities	Urban Company	MyClean
1.	<b>Sign Up</b>	1 2 3 <b>4</b> 5	1 2 <b>3</b> 4 5
2.	<b>Log In</b>	1 2 3 <b>4</b> 5	1 2 3 4 <b>5</b>
3.	<b>Service Selection</b>	1 2 3 <b>4</b> 5	1 2 3 4 <b>5</b>
4.	<b>Category Viewing</b>	<b>1</b> 2 3 4 5	1 2 3 <b>4</b> 5
5.	<b>Scheduling</b>	1 2 <b>3</b> 4 5	1 2 3 4 <b>5</b>
6.	<b>Cleaner Selection</b>	1 2 3 <b>4</b> 5	<b>1</b> 2 3 4 5
7.	<b>Frequency Selection</b>	1 2 3 4 <b>5</b>	1 2 <b>3</b> 4 5
8.	<b>Address Input</b>	1 2 3 4 <b>5</b>	1 2 3 <b>4</b> 5
9.	<b>Checkout</b>	1 2 3 <b>4</b> 5	1 2 3 4 <b>5</b>
10.	<b>Quotation Request</b>	<b>1</b> 2 3 4 5	1 2 3 4 <b>5</b>
	<b>Total Marks</b>	<b>35</b>	<b>40</b>

Table 2.1 – Heuristic Evaluation of Functionality Comparison

#### 2.1.1 Functionality Heuristic Evaluation Summary

The heuristic evaluation compares the functionalities of two service websites, **Urban Company** and **MyClean**, across various key features. **Urban Company scored 35**, while **MyClean scored 40**, indicating a higher overall performance for MyClean.

**Key strengths for MyClean** include superior login, service selection, scheduling, and checkout experiences, all rated 5. However, **Urban Company** performed better in cleaner selection and frequency selection, offering more flexibility in those areas. Areas for improvement for Urban Company include category viewing and quotation requests, both of which received low scores compared to **MyClean**. Overall, **MyClean** appears to offer a **more** streamlined user experience across most functionalities.

## 2.2 Non-Functional Comparison

### 2.2.1 (10) Usability Heuristics

#### 1. Visibility of System Status

This aspect emphasizes on how much information and status of the steps the webpage can inform the user solely based on the design. This would allow users to easily understand and follow on the interface.

##### Urban Company

Urban Company's website **does not show** the past or upcoming status clearly. For example, the booking progress shown in Figure 3.1.1, the current step is clearly labeled at the top of the page but as the process moves along, the past steps nor the upcoming steps are shown. This can make users feel lost when trying to make a booking.

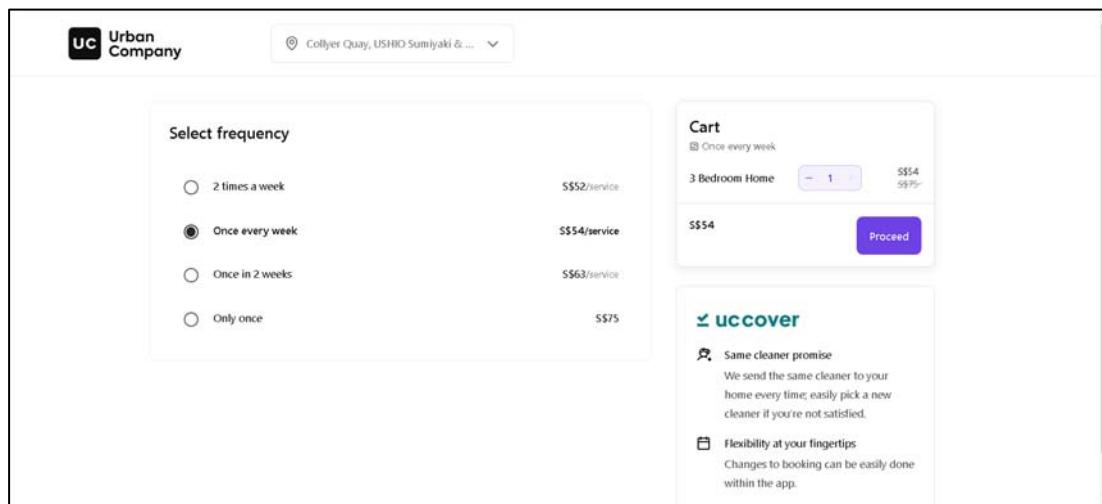


Figure 3.1.1 – Visibility of Urban Company's System Status

## MyClean

MyClean's website shows the status such as the booking progress shown in Figure 3.1.2. Each step completed is shown on top of the interface with the details chosen by the user. The steps can also be clicked to move from one step to another. This allows user to easily toggle between the steps seamlessly.

The screenshot shows a booking form for 'MyClean'. At the top, there is a summary bar with the following information:

- MyClean Studio 1
- 1 BEDROOM, 1 BATHROOM
- 2.00 hours
- Standard CLEAN TYPE
- Every week RECURRING
- Flexible - Cleaner will arrive between 9am-4pm - \$25.00
- August 16, 2024 SCHEDULE DATE
- Address: 123 Main Street, Anytown, USA ZIP: 12345
- Total cost: \$96

A red arrow points from the text 'Status of the booking progress' to a box labeled 'Status of the booking progress' which is highlighted with a black border. Below this, the main form area is titled 'Where are we coming to clean?'. It includes fields for location, APT, and ZIP. Under 'HOW DO WE GET IN?', there are four options: Someone is Home, Doorman, Hidden Key, and Other. In the 'ADD ONS' section, three items are listed: Inside Fridge (\$44.13), Inside Oven (\$44.13), and Inside Cabinets (\$44.13). A 'Next' button is at the bottom right. At the very bottom, there is a question 'DO YOU HAVE PETS?' with a checkbox.

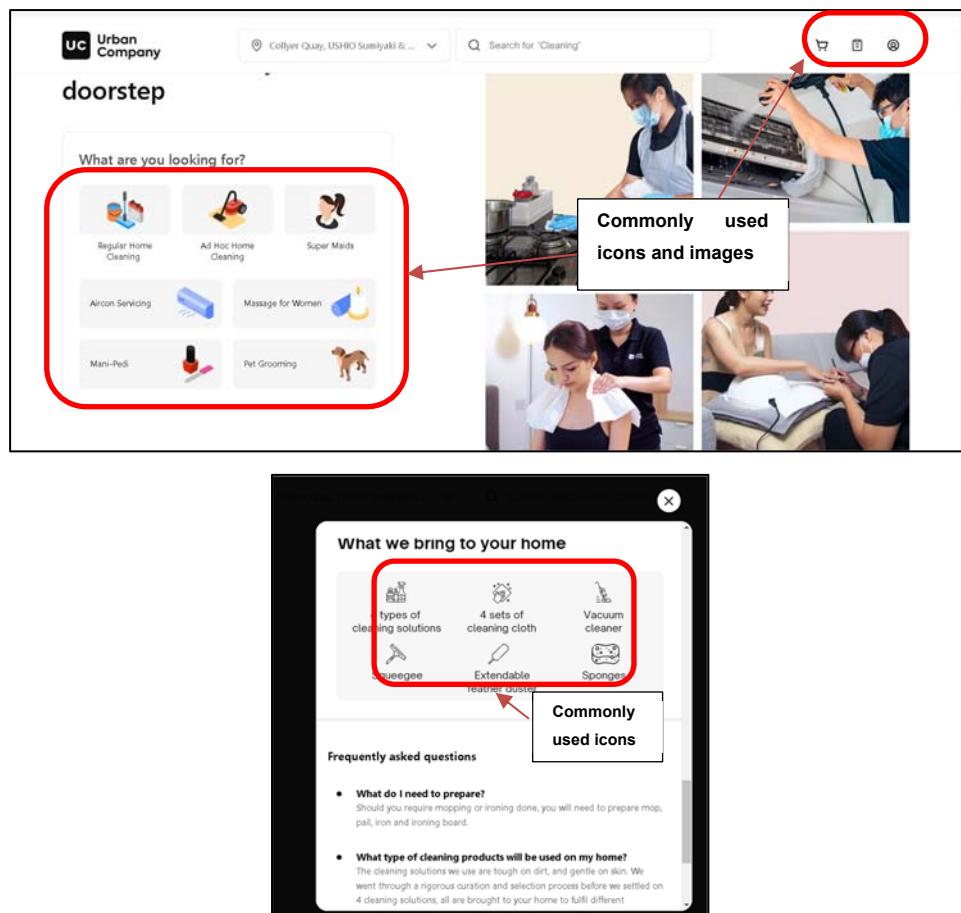
Figure 3.1.2 – Visibility of MyClean's System Status

## **2. Match Between System and Real World**

This aspect means that the design and the terms used in the website should be easily understandable for users. This would mean using layman terms and important keywords rather than internal jargons. This is important as although the design seems perfectly clear to the developers, it might seem unfamiliar for intended end users.

### **Urban Company**

**Urban Company's** websites uses commonly used words and icons that is easily understandable with the users as shown in *Figure 3.2.1 & 3.2.2*. The description and details of each service is clearly explained and visual elements such as standardized icons and images are used to further enhance the realism of the website.



*Figure 3.2.1 & 3.2.2 – Match Between Urban Company System and Real World*

## MyClean

MyClean's website also uses familiar terms and visual representations for the customers. Although the services are not as detailedly explained (such as the cleaning tasks involved) as Urban Company, it has a webpage dedicated to explaining each service . For example, in *Figure 3.2.3*, they use a Calander interface to realistically present the customer to pick the date.

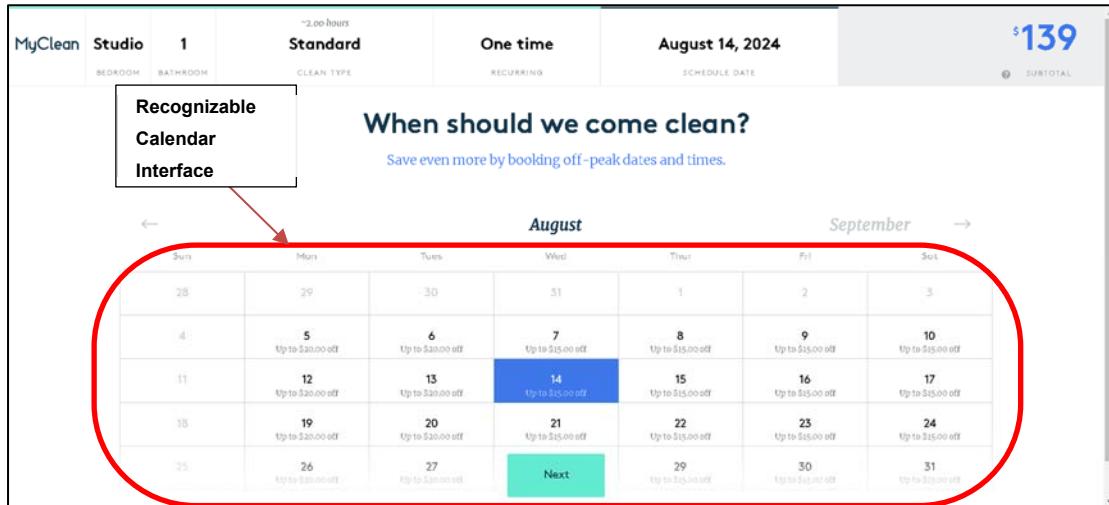


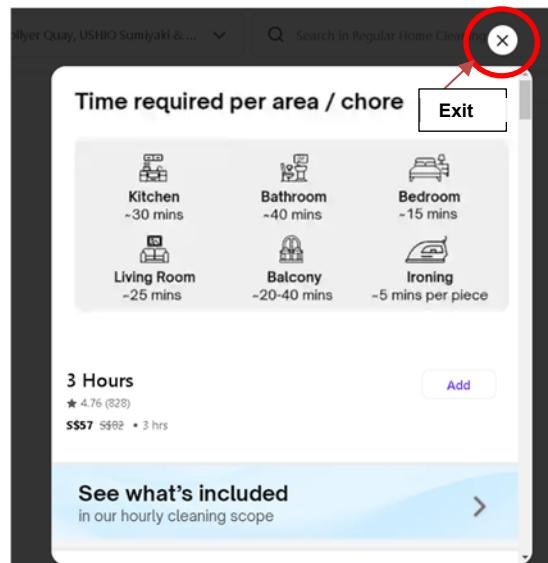
Figure 3.2.3 - Match Between MyClean System and Real World

### **3. User Control and Freedom**

This aspect essentially means making the design in a way that clearly allows users to undo or exit their actions. This would allow user to try interacting the webpage with more confidence, resulting in a more user-friendly interface. This would include things such as the cancel, exit, undo buttons and making them easily discoverable by users.

#### **Urban Company**

As shown in figure 2.1.5, **Urban Company**'s design allows user to freely toggle and navigate within the booking progress. The "X" button is always clearly displayed in each step. Not only that but, the previous information is also saved when the user reaches the interface again. But their services are premade and lacks personalization and customization when compared to **MyClean**



*Figure 3.3.1 – User Control and Freedom of Urban Company Interface*

## MyClean

**MyClean** also allows users to seamlessly toggle between steps back and forth as shown *Figure 3.3.2 & 3.3.3*. Although the transition is smooth and user-friendly, there are no “back” buttons and the only way to cancel filling out the booking process or to simply back to another page is by directly clicking home or the desired webpage.

The figure consists of two screenshots of the MyClean booking interface. Both screenshots show a header with 'MyClean Studio' (1), 'Standard' clean type, 'One time' frequency, 'August 14, 2024' as the schedule date, and a total of '\$139'. A red box highlights the top header area in both images.

**Screenshot 1 (Top):** This screenshot shows the 'When should we come clean?' step. It features a calendar for August and September. A red box highlights the 'One time' button in the top right corner of the header. Below the calendar, a green 'Next' button is visible. A callout box labeled 'Toggle between pages' with an arrow points to the top header area.

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
28	29	30	31	1	2	3
4	5 Up to \$100 off	6 Up to \$100 off	7 Up to \$100 off	8 Up to \$100 off	9 Up to \$100 off	10 Up to \$100 off
11	12 Up to \$100 off	13 Up to \$100 off	14 Up to \$100 off	15 Up to \$100 off	16 Up to \$100 off	17 Up to \$100 off
18	19 Up to \$100 off	20 Up to \$100 off	21 Up to \$100 off	22 Up to \$100 off	23 Up to \$100 off	24 Up to \$100 off
25	26 Up to \$100 off	27 Up to \$100 off		28 Up to \$100 off	29 Up to \$100 off	30 Up to \$100 off

**Screenshot 2 (Bottom):** This screenshot shows the 'How frequent?' step. It features a header with 'One time' highlighted in a red box. Below the header, a message says 'With our recurring cleaning, you can save money and live cleaner.' A callout box labeled 'RECURRING' with an arrow points to the top header area. Below the message, a row of buttons for 'One Time', 'Weekly', 'Every 2 Weeks', and 'Every 4 Weeks' is shown, with 'One Time' being the active choice. A green 'Next' button is at the bottom.

RECURRING			
One Time	Weekly	Every 2 Weeks	Every 4 Weeks

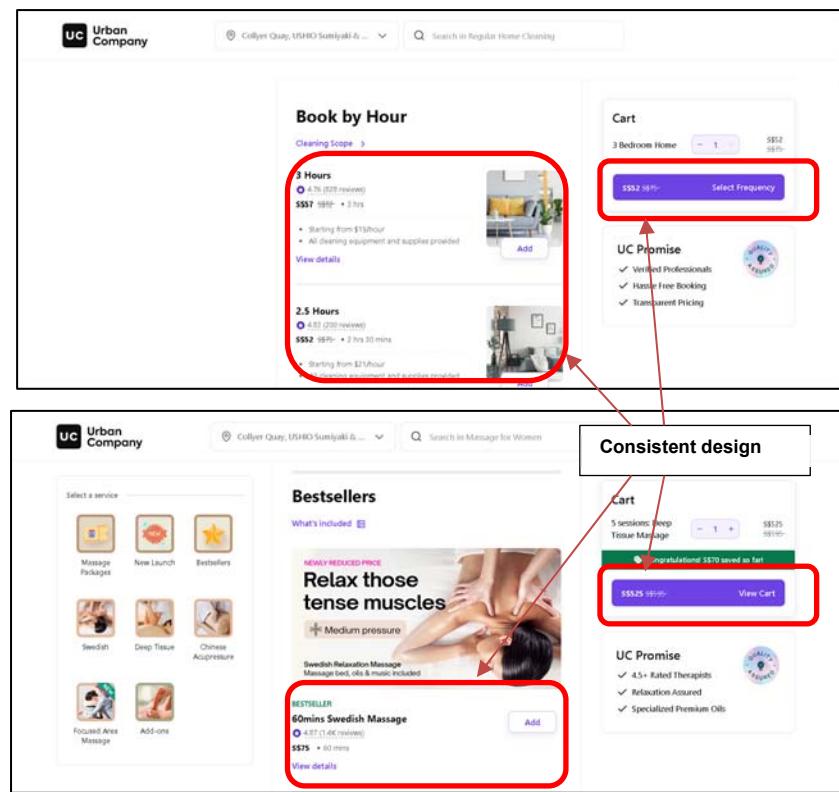
*Figure 3.3.2 & 3.3.3 - User Control and Freedom of MyClean Interface*

## **4. Consistency and Standards**

This aspect focuses in making sure that the user does not get confused and wonder if the different words or actions means the same thing. This means making sure that all aspects of the webpage including the layout, wording, design and actions should be consistent throughout the whole website.

### **Urban Company**

As seen in *Figure 3.4.1 & 3.4.2*, **Urban Company** maintains high consistency in both the design and processes throughout the whole website. The buttons, fonts, colors and the wordings used are all uniformed in all of the webpages, helping users have a seamless experience.



*Figure 3.4.1 & 3.4.2 – Consistency and Standards of Urban Company*

## MyClean

**MyClean** also maintains its standards and consistency throughout the entirety of the website as shown in *Figure 3.4.3 & 3.4.4*. The components has a more modern and artistic presentation and strictly follows its eye pleasing color palate. Although the wording used is common and familiar, some buttons such as confirm and cancel uses green and blue palate rather than the traditional green and red, which can cause some unnecessary confusion for customers.

The figure consists of two screenshots of the MyClean website. The top screenshot shows a booking calendar for August and September. A specific date, August 14, is highlighted in blue, indicating a promotional offer ('Up to \$100 off'). The bottom screenshot shows a service details page for a 'Moving In/Out' service on August 5, 2024. It features a large black box containing the text 'standards and consistency'. Below this box is a statement about transparency and honesty, followed by a red-bordered button area with 'Agree' and 'Don't agree' options. Both screenshots use a clean, modern design with a white background and light blue accents.

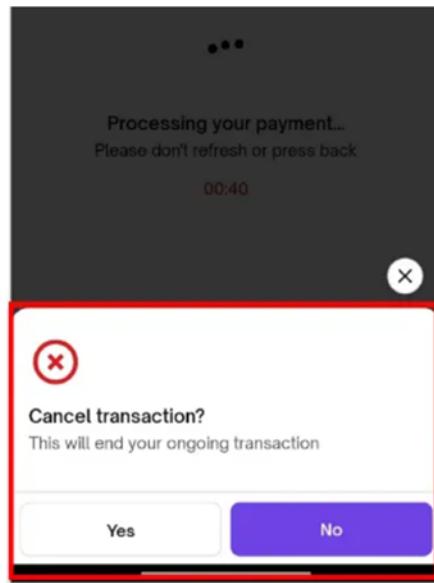
*Figure 3.4.3 & 3.4.4 – Consistency and Standards of MyClean*

## **5. Error Prevention**

This aspect mains the importance of handling the potential and existing errors from occurring before they are presented to the user. This includes preventing the errors from happening such as asking the customer for confirmation, putting constraint and error messages.

### **Urban Company**

**Urban Company** has many real time validations and prevention measures in place in their website. For example, as shown in *Figure 3.5.1*, in payment interface, an error message confirming that the transition is to be canceled intentionally rather by accident of the user with labeled error messages and timeout messages. Other validations such as email validations are also placed to prevent errors.



*Figure 3.5.1 – Error Prevention of Urban Company*

## MyClean

**MyClean** uses a more traditional and user-friendly form of error prevention. As an instance, as shown in *Figure 3.5.3*, when entering the user's address, an instant feedback of error message is displayed when the user enters the invalid or unavailable address. This instant prevention contributes to making the website more user-friendly. Other validations such as emails and phone numbers are also placed in the registration interfaces.

The screenshot shows a registration form for 'MyClean'. At the top, there is a 'ADDRESS' field with a placeholder 'Enter a location'. A red box highlights this field, and a red arrow points from it to a callout box labeled 'Error alert and prevention'. Below the address field is a message: 'Address is not valid.' In the middle section, there are dropdown menus for 'HOW DO WE GET IN?' with options like 'Someone is Home', 'Doorman', and 'Other'. To the right of these is a 'ZIP' field. At the bottom, there is a 'ADD ONS' section with three items: 'Inside Fridge Included', 'Inside Oven Included', and 'Inside Dishwasher Included'. A 'Next' button is located below these add-ons. A red box highlights the entire 'ADD ONS' section, and a red arrow points from it to a red 'Error' dialog box. The dialog box contains the text 'Please select an address from the dropdown.' and has a close button 'X' in the top right corner.

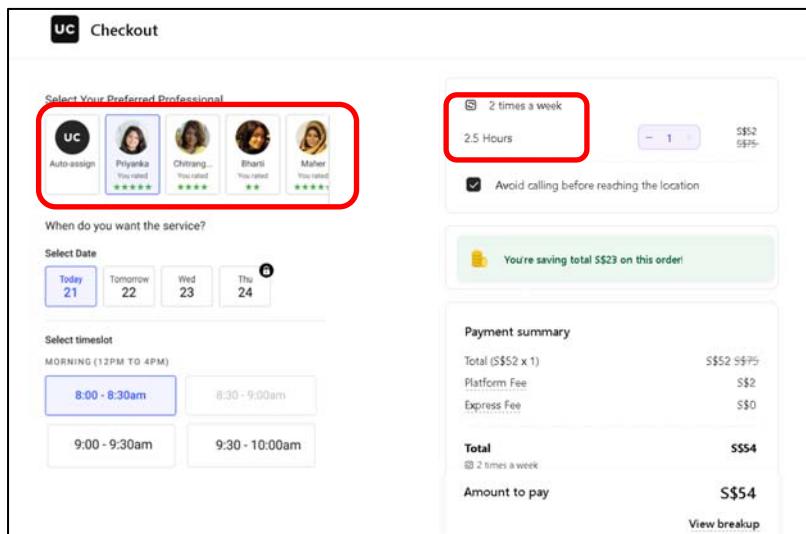
*Figure 3.5.3 – Error Prevention of MyClean*

## **6. Recognition rather than recall**

This aspect highlights the importance of making the webpage memorable and provide essential information for needed for each interface. This mean making the aspects such as labels and details to be easily retrievable and accessible without the user having to memorize and recall the information. This would make the design seamless and more user-friendly.

### **Urban Company**

**Urban Company** reduces the cognitive load on its users by using standardized icons to allow users navigate easily. The information from the past interactions is also presented to further help the customers. For example, in *Figure 3.6.1*, when checking out, the customer can choose their preferred professional. In that interface, the professionals who has done the previous services are shown based on the customer's rating, allowing the customer to recognize their past experiences.



*Figure 3.6.1 – Recognition of Urban Company*

## MyClean

**MyClean** also uses familiar elements and icons to help users recognize past interactions. The website is designed cleverly in a way that allows users to retrieve more details with dropdown menus and visual aids. For example, in *Figure 3.6.2*, the website explains different cleaning services by a comparison checklist. This is one of the many visual aids that **MyClean** uses to improve user recognition.

The screenshot shows a web page titled "The MyClean Checklist". Below the title is a table comparing two cleaning service levels: "40pt Checklist" and "50pt Checklist". The table has two columns and several rows of items. A red oval highlights the first column, which lists various dust-related items. The second column contains checkmarks indicating which items are included in the 40pt service. The third column contains checkmarks indicating which items are included in the 50pt service. The table ends with a row for "Wipe Down".

	40pt Checklist	50pt Checklist
Dust		
Lighting fixtures	✓	✓
Vents	✓	✓
TV&other monitors (not screens)	✓	✓
Fans	✓	✓
Door frames	✓	✓
Picture Frames	✓	✓
Tables & chairs	✓	✓
Shelves	✓	✓
Blinds	✓	✓
Behind wall units		✓
Wipe Down		

*Figure 3.6.2 – Recognition of MyClean*

## 7. Flexibility and Efficiency of Use

This aspect underlines the flexibility of the interface through methods such as shortcuts. This means putting another way or shortcut of doing an action such as purchasing an item in more than one place such as the home page aside from the products category page.

### **Urban Company**

**Urban Company's** cleaning services are premade and the customizations are not as flexible as **MyClean**. As shown in *Figure 3.7.1*, the website allows users to add the pre-configured services with the only customization provided is the frequency of the service.

The screenshot shows a web interface for booking cleaning services. On the left, a box labeled "Fixed Customization" has a red arrow pointing to a section of the page. This section is highlighted with a red rounded rectangle and contains two service options:

- 3 Hours**  
4.76 (828 reviews)  
\$557.99/- • 3 hrs  
Starting from \$19/hour  
All cleaning equipment and supplies provided  
[View details](#)
- 2.5 Hours**  
4.93 (200 reviews)  
\$552.99/- • 2 hrs 30 mins  
Starting from \$21/hour  
All cleaning equipment and supplies provided  
[View details](#)

To the right of these options is a "Cart" section showing a "3 Bedroom Home" item with a quantity of 1 and a total price of \$552.99/-. There is a "Select Frequency" button next to the cart. Below the cart is a "UC Promise" section with three items:

- ✓ Verified Professionals
- ✓ Hassle Free Booking
- ✓ Transparent Pricing

A circular badge with the text "QUALITY ASSURED" and a checkmark icon is also present.

*Figure 3.7.1 – Flexibility and Efficiency of Urban Company*

## MyClean

**MyClean** has a more straightforward design of the booking process and also allows customers to easily customize their bookings via a single click. But not only that, but the website also has a streamline and flexible interface, as shown in *Figure 3.7.1*. This flexibility in the design allow users to easily modify their bookings such as the cleaning types and addresses.

The screenshot shows a booking form for 'MyClean'. At the top, it displays 'Studio' for room type, '1' for the number of bedrooms, and 'Deep Clean' for clean type. To the right, a box labeled 'Flexible Customization' contains an arrow pointing to a section where 'NYC' and 'CHI' are listed. Below this, there are dropdown menus for 'NUMBER OF BEDROOMS' (with 'Studio' selected) and 'NUMBER OF BATHROOMS' (with '1' selected). Further down, there are dropdown menus for 'CLEAN TYPE' with 'Deep Clean' selected, and time ranges: '>2.00 hours', '2.25-2.75 hours', '4-4.50 hours', and '4-4.50 hours'. A red box highlights the 'Flexible Customization' section and the dropdown menus for room and bathroom counts. A green 'Next' button is visible at the bottom.

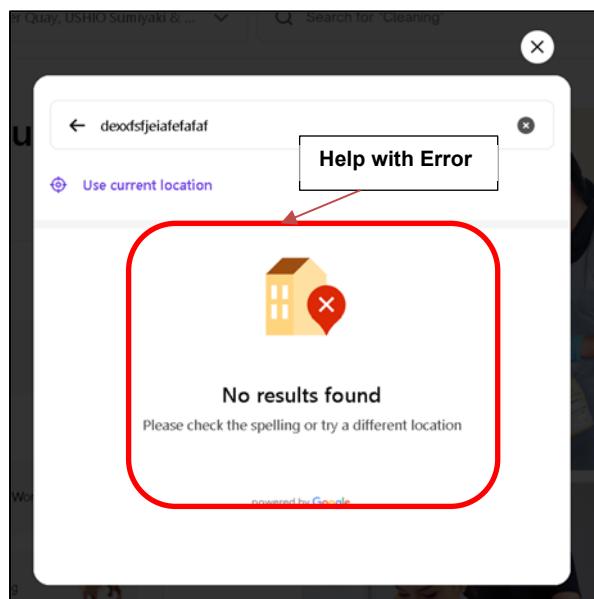
*Figure 3.7.1 – Flexibility and Efficiency of Urban Company*

## **8. Help Users with Errors**

This aspect pinpoints how the interface is designed in a way that there are multiple ways to help users recognize, diagnose and recover from the errors. This means making sure the error messages are recognizable and explained in layman terms, and the solution is suggested and instructed clearly.

### **Urban Company**

**Urban Company's** website provides clear error messages with suggestions to solve the issue. For example, in *Figure 3.8.1*, when entering the address, if the address entered is invalid, it shows a clear error message and a suggestion message.



*Figure 3.8.1 – Error Help in Urban Company*

## MyClean

**MyClean** also excels in helping users recognize and recover from errors. They give out clear and detailed error messages with alternative suggestions. For example, in *Figure 3.8.2*, when an invalid address is typed in, an error message with clear instructions is shown.

The screenshot shows a user interface for a cleaning service. At the top, it says "Where are we coming to clean?" and "Add on extras for a cleaning upgrade." Below this, there are fields for "ADDRESS", "APT", and "ZIP". The "ADDRESS" field has a red border and contains the placeholder "Enter a location" and the error message "Address is not valid.". A "Help with Error" button is positioned next to the ADDRESS field. At the bottom, there are sections for "HOW DO WE GET IN?", "ADD ONS", and a "Next" button. A red box highlights an "Error" message box that appears over the "Next" button area, containing the text "Please select an address from the dropdown.".

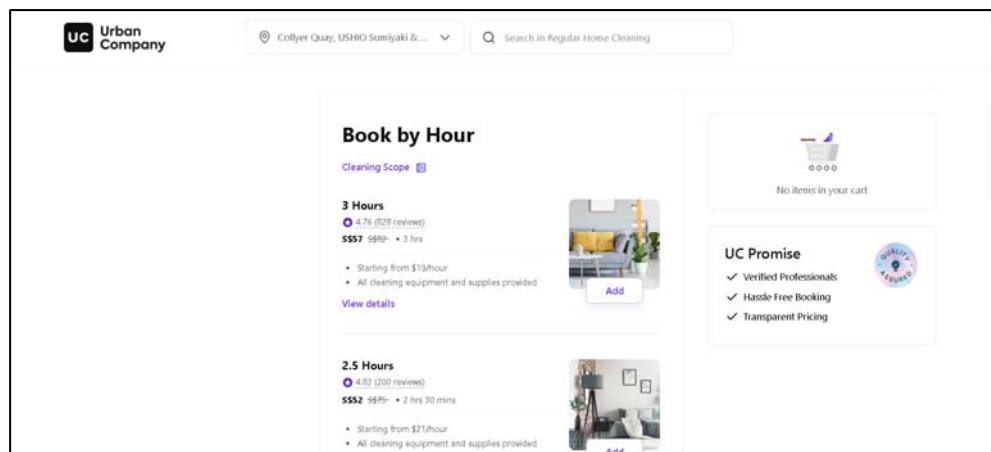
Figure 3.8.2 – Error Help in MyClean

## **9. Aesthetic and Minimalist Design**

This aspect makes sure that the web interface design is not messy with an abundance of irrelevant and unnecessary details. This would allow the website to be seamless and clean while being fully functional and tidy.

### **Urban Company**

**Urban Company** has a modern and clean design with simple color scheme, mainly focused around black and white. As shown in *Figure 3.9.1*, the booking page only displays the necessary fields and elements only related to the booking process. This layout and design ensures that the customers are focused on the booking progress and is not overwhelmed by unnecessary elements.



*Figure 3.9.1 - Aesthetic and Minimalist Design of Urban Company*

## MyClean

When compared, **MyClean**'s website has even more of a modern and clean look. The use of whitespaces and the consistent use of the color scheme throughout the website makes it aesthetically pleasing to use and navigate. As shown in *Figure 3.9.2*, the booking interface is kept simple yet filled with necessary details such as each service's hours.

The booking interface for MyClean Studio is displayed. At the top, it shows 'MyClean Studio' and '1'. Below this, there are sections for 'BEDROOM' (with '1' selected) and 'BATHROOM' (with '1' selected). To the right, it says '4.5-5.00 hours' and 'Standard Plus'. On the far right, the total 'SUBTOTAL' is '\$288'. Below these, there are two tabs: 'NYC' (white background) and 'CHI' (blue background). The next section is 'NUMBER OF BEDROOMS' with a row of buttons for 'Studio' (selected), '1', '2', '3', '4', and '5'. The next section is 'NUMBER OF BATHROOMS' with a row of buttons for '1' (selected), '2', '3', '4', and '5'. The final section is 'CLEAN TYPE' with four options: 'Standard' (3.75-4.25 hours), 'Standard Plus' (selected, 4.5-5.00 hours), 'Deep Clean' (4.45 hours), and 'Moving in/out' (4-4.50 hours). A green 'Next' button is at the bottom.

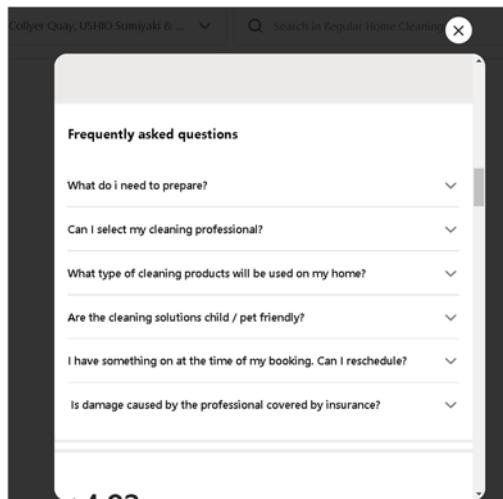
*Figure 3.9.2 - Aesthetic and Minimalist Design of MyClean*

## **10. Help and Documentation**

This final aspect ensures that the user is given extended help easily. This means providing information pages, help pages, documentations and FAQ pages to further assist the user on solving their problems.

### **Urban Company**

**Urban Company** provides a variety of help and support documentation, including FAQs, tutorials, and customer support options. Each variety is explained in a way that customers can easily comprehend and understand to get the assistance they need. As shown in *Figure 3.10.1*, users can easily find assistance through a dedicated help section and contact support on the website navigation.



*Figure 3.10.1 – Help and Documentation of Urban Company*

## MyClean

**MyClean** also offers a selection of detailed help and support options such as FAQ, detailed guides, customer support and a dedicated help page. As shown in *Figure 3.10.2*, the options are made to be easily accessible by the customers. The documentations are also written clearly and concisely for customer convenience and fast assistance.

The screenshot shows a clean, white-themed website for MyClean. At the top, there's a navigation bar with links for 'Clean Types', 'Services', 'Become a Cleaner', 'FAQ', and 'Login'. The main content area features a large heading 'Questions? Look here.' followed by a sub-headline: 'Can't find an answer? Call us at (855) 692-5326 or email contact@myclean.com!'. To the left, there's a 'Table of Contents' sidebar with categories like 'General', 'Home Cleaning', 'Office Cleaning', 'Great Clean Guarantee', and 'Billing'. On the right, two questions are listed under the 'FAQ' section: '+ How does MyClean work?' and '+ Does someone need to be present?'. The overall layout is user-friendly and organized.

*Figure 3.10.2 – Help and Documentation of MyClean*

## 2.2.1 Heuristic Evaluation

No.	Non- Functionalities	Urban Company	MyClean
1	Visibility of System Status	1 <b>2</b> 3 4 5	1 2 3 <b>4</b> 5
2	Match Between System and Real World	1 2 3 <b>4</b> 5	1 2 3 <b>4</b> 5
3	User Control and Freedom	1 2 <b>3</b> 4 5	1 2 <b>3</b> 4 5
4	Consistency and Standards	1 2 3 <b>4</b> 5	1 2 <b>3</b> 4 5
5	Error Prevention	1 2 3 <b>4</b> 5	1 2 <b>3</b> 4 5
6	Help and Documentation	1 2 3 4 <b>5</b>	1 2 3 4 <b>5</b>
7	Recognition rather than recall	1 2 3 <b>4</b> 5	1 2 3 <b>4</b> 5
8	Flexibility and Efficiency of Use	1 <b>2</b> 3 4 5	1 2 3 4 <b>5</b>
9	Help Users with Errors	1 2 3 <b>4</b> 5	1 2 3 <b>4</b> 5
10	Aesthetic and Minimalist Design	1 2 3 4 <b>5</b>	1 2 3 4 <b>5</b>
	Total		

### 3.1.1 Non-Functionality Heuristic Evaluation Summary

On the non-functional heuristic evaluation between Urban Company and MyClean, both websites demonstrate strengths and weaknesses across different usability aspects.

**MyClean** scores **higher** overall (40) compared to **Urban Company** (37), excelling in areas like Visibility of System Status (4 vs. 2) and Flexibility and Efficiency of Use (5 vs. 2). These differences suggest that MyClean provides clearer feedback to users and offers better shortcuts or flexibility for advanced users.

However, **Urban Company** shows strength in areas like Consistency and Standards (4 vs. 3) and Error Prevention (4 vs. 3), suggesting it is slightly better at preventing errors and maintaining a consistent experience across the platform.

Both websites perform equally well in Help and Documentation (5), Aesthetic and Minimalist Design (5), and Recognition Rather Than Recall (4). This shows that both platforms offer clean, user-friendly designs and sufficient guidance for users.

Overall, **MyClean** slightly outperforms Urban Company in non-functional usability factors, particularly in visibility and flexibility.

# **Topic - 3**

## **Feasibility**

## **Study**

## 3.0 Topic 3 – Feasibility Study

### 3.1 Technical Feasibility

#### 3.1.1 Methodologies

**Methodology Comparison: DSDM (Agile) vs. SSADM**

#### Definition

**DSDM (Dynamic Systems Development Method)**, is a development method included in the Agile Development Framework. It mainly focuses on iterative system development with user involvement throughout the whole process. This allows the development process to be flexible. It is mainly used for work environments where the requirements of the project constantly evolve throughout the whole project. (Empiric, 2024) (Hoory, 2024) (Lockhart, 2023)

**SSADM (Structured Systems Analysis and Design Method)**: is a development method included and based on the Waterfall development framework. This means it mainly focuses on the thoroughly analyzed documentation and requirements each step before moving to the next. This means the next step can be moved only by completing the previous step. It is mainly used in work environments where requirements are well understood from the start, and minimal changes are expected during the development process. (Empiric, 2024)

#### Strengths/Weaknesses

##### **DSDM (Agile)**

###### **Strengths:**

- **Flexibility:** Accommodates changes in requirements during the development process.
- **User Involvement:** Continuous user feedback ensures that the final developed product meets user needs.
- **Rapid Delivery:** Frequent iterations lead to quicker delivery for functionalities.

###### **Weaknesses:**

- **Resource Intensive:** Intense use of resources as constant user involvement is included throughout the whole process.
- **Scope Creep:** Iterative changes mean more chances for scope creep.
- **Requires Skilled Team:** DSDM requires the team to have a degree of expertise in iterative development. (ProductPlan, 2024) (Good, 2023)

## **SSADM(Waterfall):**

### **Strengths:**

- **Structured Approach:** Provides a clear, step-by-step process with well-defined stages.
- **Thorough Documentation:** Extensive documentation at each step makes sure it is well understood and recorded.
- **Predictability:** The predefined development nature means it is easier to predict timelines and outcomes.

### **Weaknesses:**

- **Inflexibility:** Difficult to accommodate changes especially if it involves the previous steps.
- **Time-Consuming:** Its rigid and sequential nature can make the development time to be longer.
- **User Feedback Delays:** Limited user involvement which can lead to a developed product that doesn't fully meet user expectations. (Hoory, 2024) (Digital Ocean, 2024)

## **Comparison Criteria Table**

Criteria	DSDM (Agile)	SSADM (Waterfall)
<b>Flexibility</b>	High	Low
<b>User Involvement</b>	Continuous	Initial and Final Stages
<b>Time to Market</b>	Faster due to iterative releases	Slower due to sequential stages
<b>Documentation</b>	Minimal, just enough to support development	Extensive
<b>Risk of Scope Creep</b>	Higher due to flexibility	Lower due to fixed stages
<b>Resource Requirements</b>	High, requires continuous collaboration	Moderate, but resource-intensive documentation
<b>Change Management</b>	Integrated with development	Difficult after design phase

*Table 1.1 – Comparison Criteria table between DSDM and SSADM*

## **Concluded Recommendation**

For this project, given the small to medium scope and the need for flexibility, **DSDM (Agile)** is highly recommended rather than the rigid **SSADM**. The **iterative** nature of DSDM will allow adjustments to be made throughout the development processes. And also, would deliver functionalities to HomeShine for user feedback.

This would allow HomeShine to develop a system that meets the users, admin, cleaners and customers, expectations. This is especially important as this would be their first web-based system from their manual system.

### **3.1.2 Programming Languages**

#### **Programming Language Comparison: PHP vs. Python**

##### **Definition**

**PHP (Hypertext Preprocessor)** is a widely-used scripting language especially used for web development. It is easy to use and have an extensive support from the vast community. It also works well with databases like MySQL. (Parker, 2024) (Vidjikant, 2024)

**Python** is higher and more versatile programming language that can be used in different developments including web development. It is known for its readability, simplicity, and vast amount of extensive library support. It works well with projects that require data analysis and machine learning. (Tagline , 2023)

##### **Strengths/Weaknesses**

###### **PHP**

###### **Strengths:**

- **Web Focused:** Built specifically for web development and has a strong ecosystem of web frameworks (e.g., Laravel).
- **Cost-Effective:** Open-source and has numerous free tools and resources.
- **Community Support:** Extensive help from the large community with which can assist with extensive documentation and ready-made solutions. (Parker, 2024)

###### **Weaknesses:**

- **Inconsistent Syntax:** Tend to have some inconsistencies in syntax and function naming.
- **Security Concerns:** Had a history of vulnerabilities although security has been improving.
- **Slow Performance:** Can be slower compared to some newer languages.

## Python

### Strengths:

- **Readability:** Simple and readable syntax, making it easy to use and maintain.
- **Library Support:** Has diverse libraries for everything from web development (e.g., Django) to data analysis and AI.
- **Security:** Its mature ecosystem of tools can generally enhance security.

### Weaknesses:

- **Slow Execution:** Slower execution time compared to compiled language like PHP.
- **Less Web-Focused:** While powerful, Python is not as inherently web-focused as PHP.
- **Deployment Complexity:** Setting up and deploying Python web applications can be unnecessarily complex. (GoldFish, 2023)

### Comparison Criteria Table

Criteria	PHP	Python
<b>Ease of Use</b>	High	High, with a focus on readability
<b>Web Development</b>	Strong	Versatile, but not exclusively web-focused
<b>Performance</b>	Moderate, improving in recent versions	Moderate, generally slower than PHP
<b>Security</b>	Requires careful practices	Strong, with mature tools available
<b>Community Support</b>	Extensive, with many ready-made solutions	Extensive, with broad application support
<b>Database Integration</b>	Seamless, especially with MySQL	Strong, but may require additional setup
<b>Learning Curve</b>	Moderate	Low, but deployment can be complex

<b>Deployment</b>	Straightforward, especially with XAMPP	Can be complex without the right tools
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*Table 1.2 – Comparison Criteria table between PHP and Python*

### **Concluded Recommendation**

For this project, **PHP** is highly recommended. Although Python can be used for a number of things, as HomeShine's project is entirely web-based, PHP would be more suitable as it is especially strong in Web-development. Moreover, it can easily be integrated with MySQL database and can reach out the vast community for any kind of support.

PHP will allow HomeShine to have a smoother and cost-effective development and will accommodate any web-specific tasks. It will also allow HomeShine to have an easier deployment especially with the use of XAMPP.

### **3.1.3 Databases**

#### **Database Comparison: MySQL vs. PostgreSQL**

##### **Definitions**

**MySQL** is a simple and open-source relational database management system (RDBMS). It is easy to use and highly used in web applications. It is commonly used together with PHP and is a part of popular LAMP stack. (Ropstam, 2023)

**PostgreSQL** is a more advanced and open-source RDBMS. It is highly robust and can handle complex queries. Which is why it's commonly used in large scale applications. (IONOS, 2022)

##### **Strengths/Weaknesses**

###### **MySQL**

###### **Strengths:**

- **Performance:** High performance, particularly in read-heavy environments, making it ideal for web applications.
- **Integration:** Compatible and easy integration with PHP and other web technologies.
- **Cost-Effective:** Free and open-source with a range of free and paid support tools.

###### **Weaknesses:**

- **Limited Advanced Features:** Lacks some of the advanced features to handle complex queries.
- **Low Scalability:** While suitable for small to medium projects, it starts to get complex when scaled to large-scale applications.
- **Data Integrity:** MySQL can have lower Data Integrity although InnoDB has improved this. (RemotePlatz, 2023)

## **PostgreSQL**

### **Strengths**

- **Advanced Features:** can support complex queries, extensive data types and even has full ACID compliance.
- **Scalability:** Highly scalable and better suited for large-scale applications.
- **Data Integrity:** Has strong compliance and standards on data integrity.

### **Weaknesses:**

- **Performance:** While robust, it may not perform as well as MySQL in simpler, read-heavy applications.
- **Complexity:** More complex to set up and manage, especially for users without prior experience.
- **Community Support:** Active but Smaller community compared to MySQL. (Medium, 2024)

### **Comparison Criteria Table:**

Criteria	MySQL	PostgreSQL
<b>Performance</b>	High, especially in read-heavy environments	Moderate, better for complex operations
<b>Ease of Use</b>	Very user-friendly	More complex, requires experience
<b>Advanced Features</b>	Basic support for complex queries	Extensive support for complex queries
<b>Data Integrity</b>	Improved with InnoDB, but not as strong as PostgreSQL	Strong, with full ACID compliance
<b>Scalability</b>	Suitable for small to medium projects	Better for large-scale, complex applications
<b>Integration with PHP</b>	Seamless	Good, but requires more setup

<b>Community Support</b>	Extensive	small compared to MySQL
<b>Cost</b>	Free and open-source	Free and open-source

*Table 1.3 – Comparison Criteria Table Between MySQL and PostgreSQL*

### Concluded Recommendation

For HomeShine's web-based application, **MySQL** is recommended. It's high performance and compatibility with web-based applications will be more suitable compared to PostgreSQL.

Not only that but, MySQL is well-suited to the needs of a small to medium-sized project like HomeShine. PostgreSQL is a powerful alternative but may be more than what's needed for this specific project.

## **3.2 DSDM Feasibility (DSDM eight principles)**

To ensure the successful development and deployment of the HomeShine on-demand service application, DSDM Feasibility study will be applied. Below is the feasibility study based on the **eight DSDM principles**. (Buehring, 2023)

### **3.2.1. Focus on Business Needs**

The primary business need for HomeShine is to automate and better manage booking process, keep real time track of operations and reduce inefficiencies.

The current manual system is prone to human errors such as miscommunication and double bookings. The new web system will fix them by automating these processes and enhance both reliability and accessibility for both customers and the company themselves.

Additionally, integrating online payments and real-time tracking will further improve customer experience as a whole.

### **3.2.2. Deliver on Time**

With HomeShine having tight business operations, delivering the application within the agreed-upon timeline is to be prioritized. As this can directly impact the operational continuity of the entire company relying on the system.

The DSDM framework highly prioritizes delivering a functioning system on time. Which is done by the use of multiple timeboxes to manage different features and functionalities. This ensures the most important components are implemented and delivered first.

### **3.2.3. Collaborate**

The existing HomeShine's operation team, including managers, cleaners, and active customers, will actively collaborate with the development team throughout the process.

Regular user feedbacks will ensure that the functionalities and features in the application aligns with both business and user needs. This will make it easier to make extensive decisions and reduce misunderstandings. This ensures that the final developed product is shaped to fit HomeShine's operational workflows.

### **3.2.4. Never Compromise Quality**

Regardless of how the development process goes, it must ensure that the developed application meets high standards. Constant quality checks will be conducted throughout the project to ensure the quality is upheld and not compromised.

The main quality will include user experience and security. Since the application will accommodate payment processes, customer's payment details and personal information needs to be protected. Usability will also be a key to ensure that both tech-savvy and less-experienced users can access and navigate the application easily.

### **3.2.5. Build Incrementally from Firm Foundations**

The development will need solid foundation, core functionalities to be laid first. In HomeShine, it will include booking process, payment integration and booking management. This will be released as a part of an MVP (Minimum Viable Product).

After the release of the MVP, the system development will be gradually expanded. It will include adding new or advanced features. It might include things like real-time cleaner tracking and feedback management.

### **3.2.6. Develop Iteratively**

HomeShine's system development will be done in iterations followed by user feedbacks to allow continuous improvement.

This will incrementally refine the application, to ensure the final product meets user expectation. Different features will be added, adjusted and removed based on practical usage. This flexibility ensures the different features are experimented without having the need to start from scratch.

### **3.2.7. Communicate Continuously and Clearly**

As the collaborative nature of DSDM, clear communication will directly impact the development process for HomeShine's system. This will include establishing effective communication channels between HomeShine's existing management team, the development team and users.

Regular meetings will be held and progress reports and updates will ensure everyone is informed and on the same page. These communication channels will act as an open line for feedbacks and changes. This ensures all teams and peers are aligned on the same expectations and progress.

### **3.2.8. Demonstrate Control**

It's important that HomeShine's project development process stays under control. DSDM would help as it ensure that the project remains under control through various methods. This includes timeboxing, regular reviews and setting clear project goals.

In the development of HomeShine's system, the project will be divided into manageable phases. This will improve better progress tracking against key milestone and ensure adjustments are made accordingly. Even more by focusing on both deadlines and deliverables, the project will be completed within the defined scope, time, and budget.

### **3.2.9 Conclusion**

Applying DSDM to HomeShine's project ensures that the system will be delivered on time and meet business requirements. And will ensure that the final product is adaptable as the company's needs evolve. It also offers collective collaboration, continuous improvement, and timely delivery, making it ideal for HomeShine's Project development.

### **3.3 Possible LESPI (Legal, Ethical, Social and Professional) Issues**

In the development of HomeShine's web-based application, it is crucial to consider the potential **Legal, Ethical, Social, and Professional Issues (LESPI)** that may arise. As HomeShine transitions into the digital space for the first time, the implementation of this system introduces a variety of challenges.

These challenges need to be carefully addressed to ensure the company's compliance with local laws, ethical business practices, social responsibility, and professional standards. The following will explore these issues in detail, highlighting the key considerations that HomeShine must keep in mind as it moves forward with this project.

#### **3.3.1 Legal Issues**

##### **3.3.1.1 Data Protection**

- Data Storage Compliance:**

Given that HomeShine will be collecting and storing sensitive customer data such as personal details and payment information, it is important to make sure it is in full compliance with data protection laws in Myanmar.

Although at this time being, Myanmar does not have a comprehensive and set data protection law like the GDPR in the EU. It is still essential that data protection should be adhered such as storing data in encrypted formats. This will make sure the HomeShine future legal complications. (Phyo, 2024)

- Data Breach Protocols**

In the unfortunate event of data breach, HomeShine need to have a well prepared and predefined plan in response. This would include steps for isolating and controlling the damage and identifying the hole. Affected peers will be promptly notified and precautions will be taken.

Furthermore, corrective actions will be taken to prevent future incidents and consider legal implications associated. These legal implications will include liability for damages as well as necessary compensations set by relevant authorities. (Castro, 2024)

- **Privacy Policies**

HomeShine need to set a clear and defined privacy policy regarding the user collected. It will detailly explain and outline how the data will be collected, used, stored and shared.

These policies must also be shown and notified to customers using the web-application. Ways for Customers into agreeing these policies will need to be developed. The policy should also inform customers about the use of third-party services, like payment gateways, and how their data will be handled by these services. (Castro, 2024)

### **3.3.1.2 Contractual Obligations**

- **Service Agreements**

HomeShine should also develop detailed terms of service agreements that clearly define the scope of the cleaning services offered. These agreements should specify customer responsibilities, the company's obligations, and any limitations or exclusions of liability.

For example, the terms should clearly address "what happens if a scheduled cleaning is missed", how refunds are handled, and the process for resolving potential disputes. These terms will play a great part in setting clear expectations for customers and putting an extra layer of protection from legal disputes. (SPZ, 2024)

- **Third-Party Contracts**

As HomeShine will be integrating Third-Party payment gateways such as KBZPay and Credit Card payments legal contracts needs to be made. This will include the provisions for data security, service availability, and compliance with legal regulations.

Furthermore, these contracts should also clearly outline the responsibilities of each party in the event of a service disruption or data breach. This is extensively critical to maintain customer trust and avoiding legal liability. (IPLeaders, 2015)

- **Employee Contracts**

Staffs working in HomeShine including managers, receptionists and cleaners should have legally robust employee contracts. These contracts should clarify the terms of employment, including wages, working hour and job expectations. Process of addressing of grievances should also be outlined.

Additionally, non-disclosure agreements (NDAs) should be in place. This will protect HomeShine's business information and customer data from unauthorized disclosure by employees.

### **3.3.1.3 Compliance with Local Regulations**

- Local Business Licenses**

Operating in Yangon as a service provider, HomeShine must obtain all necessary business licenses and permits to legally offer cleaning services. This will include adhering to specific regulations especially for service-based businesses.

Maintaining and regularly reviewing the licenses to make sure they're valid is also an important aspect. This will improve compliance with local laws and prevent any legal disputes. (IONOS, 2022)

- Tax Compliance**

HomeShine also need to make sure their new system complies to Myanmar's tax laws. This will include accurate reporting of revenue from the services, collection of VAT (if applicable), and timely payment of corporate taxes.

This mean HomeShine needs to must establish a reliable financial tracking system to manage these taxations. As failure to do so can be regarded as tax probation. This can result in severe legal penalties.

- Consumer Protection Laws**

HomeShine also need to comply with Myanmar's consumer protection laws. This includes setting clear communication of service terms, pricing, as well as limitations and conditions.

The newly developed system should provide customers with detailed service descriptions, transparent pricing, and clear policies. This helps to build trust with customers and reduces the risk of legal disputes. (Ropstam, 2023)

## **3.3.2 Ethical Issues**

### **3.3.2.1 Data Privacy**

- Informed Consent**

HomeShine should make sure that customers are fully informed about how their data will be collected, used, and shared. This will include obtaining customer's consent for using the data such as such as marketing or data sharing with third parties.

For ethical reasons, customers should have control over the ability to opt-in or opt-out of such uses. They should also be provided with clear information on how to exercise their rights. (Hstadt, 2024)

- **Data Minimization:**

As a way of respecting a customer's privacy and ethical boundaries, data collection needs to be minimized. This will also directly protect a user's privacy in case of unfortunate data breach.

Only the data necessary for providing services such as contact information, preferences , and payment details should be collected. By minimizing and avoiding unnecessary data collection, customers would feel more comfortable and be aligned with ethical business practices. (Dabah, 2023)

- **Transparency:**

HomeShine needs to be transparent with users when it comes to handling customer data. This will include regularly informing customers how their data is being used and changes on the of the policies.

All updates or changes in the policies needs to be formally informed to the customers. This will include third-party partnerships and even security improvements. Being transparent helps HomeShine to build trust with customers and show their commitment to ethical business practices.

### **3.3.2.2 Fair Treatment of Employees**

- **Equal Opportunity**

HomeShine should ensure that its hiring and employment practices are fair and non-discriminatory. This means giving opportunities to anyone who qualifies of the job. Regardless of their gender, ethnicity, religion, or socioeconomic background.

Giving a sense of inclusivity into the workplace will allow everyone to work comfortably, thus getting better work done. This can directly impact the effectiveness of the trainings given when HomeShine transitions their manual system to the new automated system. (Dabah, 2023)

- **Working Conditions**

Ethical working conditions should be met at HomeShine for all staffs especially cleaners. This includes ensuring cleaners won't get over worked beyond their workload or working hours.

With the efficiency of the new automated system, bookings are to increased. But it's important to make sure the cleaners don't get over worked because of the new system. These ethical procedures should not be looked past even after HomeShine transitions their manual system to the new automated system.

- **Ethical Handling of Complaints**

For an ethical workplace, HomeShine need to make sure, staff can send in complaints without fear of retaliation. This would include creating a medium that would allow employees to report issues such as their feelings on the new automated system.

Additionally regular reviews of workplace practices and employee feedback, can help identify potential issues and improve the overall working environment. This can even be used to further improve the system. (Study, 2024)

### **3.3.2.3 Transparency with Customers**

- **Clear Communication**

HomeShine must ensure that all service offerings listed on the web-application such as, pricing, and terms are communicated clearly to customers. This includes detailed service descriptions and being upfront about pricing, including any additional fees or charges.

To show HomeShine's ethical business practices, conditions or limitations associated with the services should be clearly stated. This clear communication will build trust with customers. (Castro, 2024)

- **Customer Feedback**

Customer feedback is important for maintaining high service standards and customer satisfaction. With the newly automated Feedback Management system included in the project, more customers will be able to freely give their feedback easily.

Additionally, HomeShine needs to respond to these feedbacks and take actions if necessary. This will not only improve their customer ethicality, but will also as a way to stay in touch with customers.

- **Ethical Marketing**

Ethicality should be practiced most in HomeShine's marketing strategies. They need to make sure the marketing is honest and transparent and avoid any misleading claims.

As new services can be added and marketed in the new system, the company need to make sure that all promotional materials accurately delivers and that customer reviews are genuine. Ethical marketing practices will help to build a positive brand reputation and lengthen customer loyalty. (Florida Tech, 2024)

### **3.3.3 Social Issues**

#### **3.3.3.1 Impact on Job Roles**

- Job Displacement**

With the new automated system, many of the previously manual tasks—such as booking management, payment processing, and scheduling—could reduce the demand for administrative roles.

This can potentially create concerns about job security among current employees. As the system handles more complex operations, there is a risk that some roles could become redundant, especially in administrative departments. (Krüger, 2024)

- Skills Gap**

Many employees working at HomeShine may not have the technical proficiency required to use the new system effectively. Even administrative staff, who worked with pen-and-paper systems or simple digital tools like spreadsheets, might struggle with the new automated system.

HomeShine needs to do sufficient and effective training needs to be done for all staff personals. Without proper training, this skills gap could lead to performance issues.

- Role Changes**

With the new automated system, even for employees who retain their jobs, their roles will likely change significantly. This includes the chance of administrative staff doing more work around resolving more complex customer issues rather than manually processing the bookings.

HomeShine will need to make sure every role has a smooth transitioning along with the manual system. Failing to do so may create anxiety or confusion among staff who are unfamiliar with technology-driven processes. (Castro, 2024)

### **3.3.3.2 Customer Adaptation**

- **Technological Barriers**

A portion of HomeShine's customers may not be familiar with or comfortable using digital platforms for booking services. Some might prefer the traditional manual methods of phone or in-person bookings.

HomeShine need to take this mind as this can alienate certain customer groups. Particularly older generations or those not accustomed to using the internet for service bookings. (Solix, 2022)

- **Resistance to Change**

Even tech-savvy customers of HomeShine may resist moving to an online platform if they are satisfied with the current system. Long going and loyal customers might even be hesitant to switch. Especially if they are already familiar direct communication with HomeShine's staff.

HomeShine will need to make sure these customers are willing to change or even just try using the new online platform. As this resistance could slow adoption rates, potentially reducing the effectiveness of the new system.

- **Communication Gaps**

HomeShine's shift to a digital platform will reduce personal interaction between HomeShine staff and customers. Although it improves efficiency, it trades off the human touch. This risks that the service will feel less personal, potentially diminishing customer satisfaction.

HomeShine also needs to take this into consideration and make marketing or promotional strategies for the new web-application. As customers might find it harder to communicate these nuances through a website interface. (Grindle, 2015)

### **3.3.3.3 Digital Divide**

- **Access Inequality**

Not all customers of HomeShine have access to high-speed internet or smartphones. Particularly in Yangon where both electric and internet connectivity is unreliable and unpredictably unstable.

This can create a digital divide that excludes services for customers who can't easily access the online platform. Although this is not something HomeShine can take action to directly tackle it, the company still need to take it into consideration.

- **Generational Differences**

Elderly customers of HomeShine may be less familiar with online systems. And they might even feel intimidated by the transition to a digital booking platform.

Without sufficient guidance or alternative methods of interaction HomeShine can potentially lose customers. HomeShine can provide Assurances such as phone support to tackle this. (Maryville, 2020)

- **Urban-Rural Disparity**

HomeShine's shift to automated system may benefit urban customers who have better access to technology. But alternatively, it could further disadvantage those in rural or less connected areas.

Since HomeShine operates primarily in Myanmar, where internet infrastructure varies greatly by location, rural customers may struggle to access the system, leading to a potential loss of business from these regions. (IEEE, 2024)

### **3.3.4 Professional Issues**

#### **3.3.4.1 Quality of Service**

- Service Accuracy:**

One of the key risks of automation that is inevitable is technical errors or bugs.

For HomeShine's Web-application, it could result in incorrect bookings, cleaner assignments, or payment issues.

These errors could lead to miscommunications and missed appointments. HomeShine need to have an IT team in hand to address these issues and ensure the system is error-free and functions smoothly. (Troncoso, 2024)

- Consistency**

During the initial phases of HomeShine's new system implementation, there may be inconsistencies in service delivery due to technical issues or user error. This includes delays in updating the system and incorrect data input.

HomeShine need to give effective training and implementation for all staff personals to address this. As these inconsistencies can damage HomeShine's reputation for reliability.

- Customer Expectations**

As automation greatly increases efficiency, customers may begin to expect faster, near-instantaneous responses to their requests especially their bookings. Meaning if the system encounters delays or downtimes, customer might feel more frustrated.

HomeShine need to consider expanding the system to handle peak loads especially during high-traffic periods. It makes it even more essential to meeting these heightened expectations. (Lutkevich, 2023)

### **3.3.4.2 Employee Adaptation and Training**

- **Training Requirements**

Transitioning and Implementing to an automated system requires thorough training for HomeShine's employees at all levels. Without sufficient or effective training, employees may misuse the system, potentially leading to mistakes.

As ongoing training costs both time and resources, HomeShine need to make sure all employees are thoroughly trained enough. (Goswami, 2024)

- **Learning Curve**

The introduction of the new automated system will bring a learning curve for employees, especially employees with less technical skills. During this critical adjustment period, service levels could suffer, as staff may be fully familiar or comfortable with the new system.

HomeShine needs to carefully manage this period of learning curve to prevent dips in productivity.

- **Performance Monitoring**

HomeShine's new automated systems include job profiles for admins and cleaners. Which hold and monitors the details of the work they've done, and their current and future works.

While this can be beneficial for tracking an employee's work efficiency, employees may feel micromanaged which can potentially lower work-place morale. Supervisors and managers at HomeShine must take this into consideration. (Harvard Business Review, 2024)

### **3.3.4.3 Professional Integrity**

- Data Handling and Privacy**

With the new Web-Application, HomeShine will be collecting more personal data from customers. This including sensitive information such as contact details, addresses, and payment information.

HomeShine needs to make sure employees handle these data responsibly to avoid privacy breaches and data leakage. This is important as data mishandling can lead to severely tarnish the company's reputation. (Michael Page, 2024)

- Ethical Use of Technology**

HomeShine's Employees must maintain ethical standards when professionally using the new automated system. This includes making sure customer data is not used for personal gain and accessing information from the system unnecessarily. (IEEE, 2024)

HomeShine need to put permission control and access control to the system, especially the components where data is accessed and used. The company also need to ensure all interactions with the system are logged and monitored for accountability.

- Service Consistency**

HomeShine need to ensure professional service standards are upheld even when transitioning to a digital system. This mean HomeShine's cleaners and staff must maintain the same level of attention to detail, timeliness, and quality as they did in the manual system

This risks of HomeShine's employees relying too heavily on the system. Which can potentially neglect the personal touch in service delivery. (Hays, 2024)

## **3.4 Conclusion**

The LESPI analysis for HomeShine's new web-based application outlines the importance of comprehensive planning and diligent execution.

By addressing these LESPI considerations, HomeShine can confidently prepare and overcome the challenges of digital transformation.

# **Topic - 4**

# **Foundations**

## 4.0 Topic 4 – Foundations

### 4.1 Target Users

As HomeShine transitions from its long history of manual system into the digital system, it is important to know its users. Understanding target users will ensure a user-friendly and effective development of the application.

The following table 1.1 provides an overview of the different types of users that the system will serve. It includes age demographics, computer skills/IT literacy, and English language proficiency.

#### 4.1.1 Target User Graph

Type of User	Age Range	Computer Skill/IT Literacy
<b>Admin</b>	20-50 years	<b>High:</b> Familiar with basic to advanced IT tasks, including data management and reporting. May have prior experience with similar systems.
<b>Staff (Cleaners)</b>	20-45 years	<b>Low to Moderate:</b> Basic computer skills, may require training to navigate the system. Unlikely to have prior experience with web-based applications.
<b>Customers</b>	20-60 years	<b>Low to Moderate:</b> Comfortable with using web applications, particularly for online booking and payments.

Table 1.1 – Target User Graph for HomeShine’s new System

As shown in table 1.1, admins will have to be experienced with IT systems and professional English. They are also expected to be able to manage the system effectively with minimal guidance.

Cleaners, on the other hand, may require additional support and training. This will mainly focus on navigating tasks and understanding instructions.

Customers will have different levels of IT literacy and English proficiency. But a simple user-friendly interface will able to guide past these literacy boundaries.

## 4.2 Functional Requirement

### 2.1 Manage Booking Process (Timebox 1)

#### **2.1.1 Manage Admin (HL) (M)**

- Register Admin (ML)
  - Email already exists check (LL)
  - Password Length check (LL)
  - Check text Fields Null (LL)
- Update Admin (ML)
  - Check text Fields Null (LL)
- Delete Admin (ML)
  - Confirmation Check (LL)
- Login Admin (ML)
  - Email is valid check (LL)
  - Password is valid check (LL)
  - Check text Fields Null (LL)

#### **2.1.2 Manage Cleaner (HL) (S)**

- Register Cleaner (ML)
  - Email already exists check (LL)
  - Password Length check (LL)
  - Check text Fields Null (LL)
- Update Cleaner (ML)
  - Check text Fields Null (LL)
- Delete Cleaner (ML)
  - Confirmation Check (LL)
- Search Cleaner (ML)
  - Check text Fields Null (LL)
  - Check based on Column Value (LL)

#### **2.1.3 Manage Booking (HL) (M)**

- Create Booking (ML)
  - Check text Fields Null (LL)
  - Check valid BookingID (LL)
- Update Booking (ML)
  - Check text Fields Null (LL)
- Delete Booking (ML)
  - Confirmation Check (LL)
- Search Booking (ML)
  - Check text Fields Null (LL)
  - Check based on Column Value (LL)
- Report Booking (ML)
  - Check text Fields Null (LL)
  - Auto PDF generate (ML)

#### **2.1.4 Manage Services (HL) (S)**

- Create Services (ML)
  - Check text Fields Null (LL)
- Update Services (ML)
  - Check text Fields Null (LL)
- Delete Services (ML)
  - Confirmation Check (LL)
- Search Services (ML)
  - Check text Fields Null (LL)
  - Check based on Column Value (LL)

#### **2.1.3 Manage Payment (HL) (S)**

- Create Payment (ML)
  - Check text Fields Null (LL)
- Update Payment (ML)
  - Check text Fields Null (LL)
- Delete Payment (ML)
  - Confirmation Check (LL)
- Search Payment (ML)
  - Check text Fields Null (LL)

- Check based on Column Value (LL)
- Report Payment (ML)
  - Check text Fields Null (LL)

## **2.2 Manage Customer Booking (Timebox2)**

### **2.2.1 Manage Customer (HL) (M)**

- Register Customer (ML)
  - Email already exists check (LL)
  - Password Length check (LL)
  - Check text Fields Null (LL)
- Update Customer (ML)
  - Check text Fields Null (LL)
- Delete Customer (ML)
  - Confirmation Check (LL)
- Search Customer (ML)
  - Check text Fields Null (LL)
  - Check based on Column Value (LL)
- Customer Login (ML)
  - Email is valid check (LL)
  - Password is valid check (LL)
  - Check text Fields Null (LL)
- Customer Logout (ML)
  - Confirmation Check (LL)
- Report Customer (ML)
  - Customer Booking History (LL)

### **2.2.1 Record Bookings (HL) (M)**

- Create Booking
  - Calculate Total Price (LL)
  - Calculate total hours (LL)
  - Calculate total cleaners (LL)
  - Add Extra Add on (LL)

- Schedule Booking
  - Valid Date Check (LL)
  - Valid Township Check (LL)
  - Null Input Check (LL)
- Cancel Booking
  - Confirmation Check (LL)
- Confirm Booking
  - Confirmation Check (LL)
- Payment Processing
  - Payment Selection (LL)
  - Null Input Check (LL)
  - Policy Checkbox Check (LL)
  - Calculate total price (LL)
  - Auto Receipt PDF generate (ML)

## **2.3 Assign Cleaners Job (Timebox3)**

### **2.3.1 Manage Cleaner Account (C)**

- Login Cleaner
  - Email already exists check (LL)
  - Password Length check (LL)
  - Check text Fields Null (LL)
- Change Status
  - Check status (LL)
  - Confirmation Check (LL)
- View Assigned work
  - Detailed Assigned Job (LL)

### **2.3.2 Assign Jobs to Cleaner (C)**

- View Jobs
  - Detailed assigned/unassigned jobs (LL)
- Assign Cleaners to Jobs
  - Check Cleaner Status

- Detailed Assigned Job (LL)
- Update Jobs
  - Update Job Status
  - Detailed Assigned Job (LL)

### **2.3.3 Manage Feedback (W)**

- Add Feedback
  - Check text Fields Null (LL)
  - Confirmation Check (LL)
- Search Feedback
  - Check based on Column Value (LL)

## **4.3 MOSCOW Prioritization**

The following MoSCoW report outlines the prioritization of functionalities for the HomeShine system development based on the 3 timeboxes provided above. The report categorizes essential and non-essential features into four groups: Must, Should, Could, and Would. This will ensure that critical features are delivered on time, while less critical ones are addressed later if time permits.

### **Must (M)**

These are the core features that the system cannot operate without and must be implemented in the first stage of development.

<b>Function</b>	<b>Justification</b>
<b>Manage Admin</b>	Admin registration, login, and update are crucial for managing the system.
<b>Manage Booking</b>	The booking process is central to HomeShine's service operations.
<b>Manage Customer</b>	Customer registration and login are essential for customer access and interactions.

<b>Record Bookings</b>	Ensures correct calculation of price, hours, and cleaners for each customer booking.
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### **Should (S)**

These features are important but not critical for immediate operation. They improve the user experience and system efficiency.

<b>Function</b>	<b>Justification</b>
<b>Manage Services</b>	Allows management of services offered, ensuring flexibility in service offerings.
<b>Manage Cleaner</b>	Cleaner management ensures proper assignment and status tracking.
<b>Manage Payment</b>	Streamlines payment processing for customers, enhancing the financial workflow.
<b>Scheduling Booking</b>	Improves customer experience by allowing proper scheduling and valid date checks.

### **Could (C)**

These features are desirable but not essential. They add value to the system and can be implemented if time allows.

<b>Function</b>	<b>Justification</b>
Assign Jobs to Cleaner	Allows easier task management and cleaner assignment for efficiency.
View Jobs	Provides a clear view of all jobs and their statuses, improving transparency.
Manage Cleaner Account	Cleaners can access their accounts and check work statuses independently.

## **Would (W)**

These features are the least critical and may only be developed if time and resources permit. They can enhance the user experience but are not vital to system functionality.

<b>Function</b>	<b>Justification</b>
<b>Manage Feedback</b>	While valuable for service improvement, feedback collection is not essential for launch.
<b>Search Feedback</b>	Searching feedback helps customer service but can be deferred to later iterations.

## **Conclusion**

The MoSCoW prioritization ensures that the core functionalities for HomeShine's system, such as **booking and customer management**, are developed first. It will make sure that these high-priority functions are developed and delivered first.

And allow lower-priority features such as feedback management to be added if time permits. This approach provides a clear development roadmap while allowing flexibility in non-essential areas.

## **4.4 Non-Functional Requirements**

In the development process of HomeShine's web-based application, Non-Functional Requirements (NFRs) play a critical role. This makes sure that the system not only has its functionalities but also has a reliable and user-friendly experience.

NFRs has 11 parts, Usability, Security, Interfaces, Operational, Performance, Resources, Portability, Reliability, Maintainability, Safety and Recovery. Each of the NFRs will be explained in detail as the following.

### **1. Usability**

Usability is important for HomeShine's web-based application. As all users—Admins, Staff (Cleaners), and Customers have varying levels of computer literacy, usability will be able to cater to their needs. The user interface (UI) will have a clear and simple design. Clear labels, help sections and the use of standard colors will allow users with limited IT literacy to efficiently navigate through the entire system. (Altexsoft, 2023)

The application will also include multilingual support via Google Translate API to assist users with limited English proficiency. These usability NFRs will provide high user satisfaction and smoother adoption rates.

### **2. Security**

Security is also another important part of HomeShine's web-application. Especially for handling customers as their personal information and payment details. With HomeShine's plan for processing Payment and integrating payment gateways within the web-application, various security measures will be taken in place. (Krüger, 2024)

This will include SSL encryption for data transmission, secure data handling practices, and regular security audits to find vulnerabilities. Additionally, basic security practices like limiting the access to data and the use of strong passwords will further improve Security NFR of HomeShine's web-application.

### **3. Interfaces**

HomeShine's web-application will have various interaction between different interfaces. This includes internal interfaces and external interfaces such as Third party APIs like Google Translate and Payment Gateways. (AltexSoft, 2023)

These interfaces will be developed to be seamlessly integrated. This will not only improve smoother operation but will also improve reliability. Additionally, with a clean interface for end-users it will improve Interfaces NFR of the web-application.

### **4. Operational**

The operational requirements will directly impact HomeShine's web application operational processes. This will include the system to be stable and reliable within its operational processes. The web-application will have to operate and be available 24/7 to accommodate bookings and payments at any time. (BrowserStack, 2024)

Regular operational tasks, such as system monitoring, backups, and updates, will be done regularly. This will ensure that the application will be able to handle the expected user load without performance degradation.

### **5. Performance**

Performance is highly important as HomeShine's web-application will be handling multiple users simultaneously. Performance should be high with minimum downtime for medium-sized nature of the business and the expected user load which is expected to be around 50-60 users per month.

The main performance should be optimized for quick processing of transactions, such as booking services and processing payments, without unnecessary delays. Regular performance testing will also be held to identify and address any performance degradation such as slow database queries. (Khomenko, 2023)

## **6. Resources**

The resource requirements for HomeShine's web application will directly impact the overall performance of the whole system. Sufficient and qualitative amount of CPU and memory will be essential, especially at peak times.

To accommodate these resources NFRs, the application will be running on a DELL desktop using a Windows 10 Pro operating system. Network bandwidth is also important. All resources will also be regularly monitored to maintain the quality of these resources. (IronHack, 2024)

## **7. Portability**

Although the web application is primarily not focused for Portability, it is still important for any future expansions. As the web application is designed for browser, it will remain functional across various browsers such as Google Chrome, Microsoft Edge, and potentially future MacOS environments.

And in the future, HomeShine can further improve this by developing a mobile app. By ensuring the web-application is portable, it will allow the application to sufficiently run across multiple technological platforms.

## **8. Reliability**

Reliability is another essential aspect to take into consideration for HomeShine's web application. It will ensure that system consistently performs as expected without failures. The system will be developed to be reliable, with minimal errors or crashes.

Since bookings and payments are essential functions of the web-application, it is crucial that the system operates smoothly without frequent failures. Especially during peak hours where multiple operations are expected to be running and processing simultaneously. Regular maintenances will also be performed to ensure that the system remains reliable. (Indeed Editorial Team, 2024)

## **9. Maintainability**

Maintainability is a critical aspect of any technology including, HomeShine's web application. The application will be developed to be easy to maintain. This includes making clear code documentation and clean coding.

This will make it easier for developers to understand, modify, and maintain the application as needed. Doing this will ensure that future updates, including bug fixes or feature additions, can be performed with minimal disruption to the system itself as a whole. (Florida Tech, 2024)

## **10. Safety**

Safety aspect of the NFR isn't known to be a critical as in industrial applications, but it should still be taken into consideration. This will include setting precautions and regulations to minimize the risk of accidental data loss or corruption. As the data will include sensitive data especially for payment transactions.

The system will also be developed to include safeguards against accidental user errors. This includes setting up confirmation prompts for critical actions like deleting data and processing payments. This will allow HomeShine to protect its customers, staff, and business from potential harm and legal liabilities. (Yackey, 024)

## **11. Recovery**

Recovery is another critical non-functional requirement for HomeShine's web application. In unfortunate event of system failure or data corruption, various recovery system should be developed as a precaution. This includes automatically backing up data and data restoration processes for critical data such as booking and payment records.

Additionally, a disaster recovery plan will be developed. It will detail the steps to be taken in the event of a system failure. It will include procedures such as data restoration and system reboot

## **Summary**

The outlined non-functional requirements ensure that HomeShine's web application will meet both functional and non-functional need. It will ensure that the web-application perform reliably, securely, and efficiently under real-world conditions.

## 4.5 Time box Plan

### 1. Time box 1: Manage Booking Process Time box

<b>Time box Name</b>		Manage Booking Process Time-box	
<b>Start Date</b>		22 July 2024	
<b>End Date</b>		10 August 2024	
<b>Total Duration</b>		20 Days	
Task	Duration	Start Date	End Date
Functional Requirement	1 day	22 July 2024	22 July 2024
Use Case Diagram	1 day	23 July 2024	23 July 2024
Class Design	1 day	24 July 2024	24 July 2024
Sequence Diagram	1 day	24 July 2024	24 July 2024
Low-Level Prototype	1 day	25 July 2024	25 July 2024
High Level Prototype	2 days	26 July 2024	27 July 2024
Coding	11 days	28 July 2024	7 August 2024
Functional Testing	1 day	8 August 2024	8 August 2024
Usability Testing	1 day	9 August 2024	9 August 2024
Time Box Summary	1 day	10 August 2024	10 August 2024
<b>Key Deliverables (Output)</b>			
<b>Design</b>			
<ul style="list-style-type: none"><li>• Use Case Diagram for Manage Booking Process</li><li>• Class Diagram for Manage Booking Process</li></ul>			
<b>Coding</b>			
<ul style="list-style-type: none"><li>• Manage Admin (CRUD)</li><li>• Manage Cleaner (CRUD)</li><li>• Mange Booking (CRUD)</li><li>• Mange Service (CRUD)</li><li>• Mange Payment (CRUD)</li></ul>			
<b>Testing</b>			
<ul style="list-style-type: none"><li>• Unit Test Document</li><li>• Usability Test Document</li><li>• Test Cases &amp; Test Scripts for Time-box 1</li></ul>			

## **2. Time box 2: Manage Customer Booking Process Time box**

<b>Time box Name</b>		Manage Customer Booking Process Time-box	
<b>Start Date</b>		12 August 2024	
<b>End Date</b>		31 August 2024	
<b>Total Duration</b>		20 days	
Task	Duration	Start Date	End Date
Functional Requirement	1 day	12 August 2024	12 August 2024
Use Case Diagram	1 day	13 August 2024	13 August 2024
Class Design	1 day	13 August 2024	13 August 2024
Sequence Diagram	1 day	13 August 2024	13 August 2024
Low-Level Prototype	1 day	14 August 2024	14 August 2024
High Level Prototype	2 days	15 August 2024	16 August 2024
Coding	10 days	17 August 2024	26 August 2024
Functional Testing	2 days	27 August 2024	28 August 2024
Usability Testing	2 days	29 August 2024	30 August 2024
Time Box Summary	1 day	31 August 2024	31 August 2024
<b>Key Deliverables (Output)</b>			
<b><u>Design</u></b>			
<ul style="list-style-type: none"><li>• Use Case Diagram for Manage Customer Booking Process</li><li>• Class Diagram for Manage Customer Booking Process</li></ul>			
<b><u>Coding</u></b>			
<ul style="list-style-type: none"><li>• Manage Customer (CRUD)</li><li>• Record Booking (CRUD)</li><li>• Payment Process (CRUD)</li></ul>			
<b><u>Testing</u></b>			
<ul style="list-style-type: none"><li>• Unit Test Document</li><li>• Usability Test Document</li><li>• Test Cases &amp; Test Scripts for Time-box 2</li></ul>			

### **3. Time box 3: Assign Cleaners Job Process Time box**

<b>Time box Name</b>		Assign Cleaners Job Process Time-box	
<b>Start Date</b>		2 September 2024	
<b>End Date</b>		18 September 2024	
<b>Total Duration</b>		17 days	
Task	Duration	Start Date	End Date
Functional Requirement	1 day	2 September 2024	2 September 2024
Use Case Diagram	1 day	3 September 2024	3 September 2024
Class Design	1 day	3 September 2024	3 September 2024
Sequence Diagram	1 day	4 September 2024	4 September 2024
Low-Level Prototype	1 day	5 September 2024	5 September 2024
High Level Prototype	2 days	6 September 2024	7 September 2024
Coding	8 days	8 September 2024	15 September 2024
Functional Testing	1 day	16 September 2024	16 September 2024
Usability Testing	1 day	17 September 2024	17 September 2024
Time Box Summary	1 day	18 September 2024	18 September 2024
<b>Key Deliverables (Output)</b>			
<b><u>Design</u></b>			
<ul style="list-style-type: none"><li>• Use Case Diagram for Assign Cleaners Job Process</li><li>• Class Diagram for Assign Cleaners Job Process</li></ul>			
<b><u>Coding</u></b>			
<ul style="list-style-type: none"><li>• Manage Cleaner Account (CRUD)</li><li>• Assign Jobs to Cleaners</li><li>• Manage Feedback (CRUD)</li></ul>			
<b><u>Testing</u></b>			
<ul style="list-style-type: none"><li>• Unit Test Document</li><li>• Usability Test Document</li><li>• Test Cases &amp; Test Scripts for Time-box 3</li></ul>			

## **4.6 Risk Management**

Risk management is a crucial aspect of any project development, including this development project for HomeShine's Web-Application. This will identify and assess potential risks that can impact both the project's development process and success.

It will include various kinds of risks, including Technical, security-related and related to requirement changes. This will ensure that the project's development progress stays in the timeline and meet end-user's expectation.

### **4.6.1 Technical Risks**

#### **1. Virus Detection**

Encountering viruses or malware is a common technical risk that can lead to devastating consequences. This could lead to data corruption, loss of progress, or even destruction of the work station. This can severely disrupt the workflow and cause delays.

The use of Antivirus software and regular scanning will keep this at bay. Additionally, backups need to be regularly made in case of the unfortunate event. (LeanIX, 2024)

#### **2. Device Loss/Destruction**

The risk of losing the device primarily used for developing, such as laptop. It can also be damaged by theft, accidental damage, or natural disasters. Which will lead to the loss all locally stored data, code and documentations of the project.

Although the likelihood is low, the impact would be devastating. Although there are no effective precaution due its nature of being unpredictable. But frequent backing up to external storage or cloud services can soften the impact. (WebRoot, 2024)

### **3. Power Outages**

Developing in an environment where power stability is an issue, especially in Yangon where power outages are frequent and unpredictable. This can highly impact the workflow and cause frustration from unsaved work being lost.

The likelihood of this occurring is exceptionally high in Yangon. So, taking precautions such as using uninterruptible power supplies (UPS) and autosave features is a must.

### **4. Error Detection and Project Delays**

Errors in coding or unexpected bugs is a typical risk to encounter in the development process. This can slow down the development process significantly, particularly if they are difficult to debug or even require extensive rewriting of code.

The likelihood of encountering errors is quite high in any development project. The impact is maintainable as it can be managed with proper testing, proper version control, and time management. (Alekseeva, 2024)

### **5. Self-Injury (Health Risks)**

Health risk is another high impact risk that is impossible to predict. This includes the developer having to take a break due to health issues such as illness, broken bones or even severe medical conditions. At the very least, long hours spent coding can lead to strain and overall fatigue.

Although the likelihood is low, the impact would be devastating. There are no effective precaution due its nature of being unpredictable. But the developer can mitigate its impact by taking regular breaks and being mindful of their health. (Alekseeva, 2024)

## **4.6.2 Security Risks**

### **6. Data Breaches**

As HomeShine's web-application will be integrated with third party services such as payment gateways, there can be risk of data breaches. This could have serious consequences, including legal repercussions and loss of customer trust. (Rikkei, 2024)

Data breaches have a high impact and they can severely damage the company's reputation. While the likelihood depends on the security measures in place. This means secure practices such as strong encryption and regular security audits can overcome this.

### **7. Unauthorized Access**

The most important role with the highest access to sensitive data in HomeShine's Web-Application is admin. Unauthorized access using the admin's account can compromise the whole system's integrity. (Indeed Editorial Team, 2024)

This risk can have a critical impact, especially if the unauthorized user manipulates sensitive data or disrupts the operational processes. The countermeasure for this is having strict access controls and strong authentication methods.

### **8. Payment Gateway Vulnerabilities**

Since the web-application will handle online payments the risk of vulnerabilities in payment gateways is probable. It will include insecure transactions and unverified payments. This could lead to financial fraud or disputes for both the company and the customer.

The impact for this risk is high and directly affect the company's business finance. As the likelihood is based on each payment gateway, it's important to only use secured and well known ones to further reduce the likelihood. (NTT Data, 2024)

#### **4.6.3 Outsourcing Risks**

##### **9. Third-Party API Failures**

The web-application will be relying on third-party APIs such as Google Translate. This introduces the risk of those services failing or simply having timeout issues due to unstable connectivity. This can lead to downtime system and loss of functionalities included.

The impact can range from low to high depending how important the API is for the operations and functions of the whole system. The likelihood is low but it can significantly be higher due to Yangon not have stable internet connectivity. (Michelle, 2024)

##### **10. Vendor Lock-In**

The web-application currently only rely on specific vendor tools like payment gateways (KBZPay, Credit Card), but can still be exposed to vendor lock-in risk. Especially if more vendors are used such as cloud services for storage and processing. If these services are deeply integrated, it may become even more difficult and costly to switch to alternative providers.

To reduce this risk, it's important to use open and standardized vendors. And choose base on their flexibility to ensure transitioning to another vendor is fine. (Svitlana, 2024)

##### **11. Service Discontinuation**

The web-application currently have different services integrated, including APIs and payment gateways. Which poses a threat of operational disruption if the services went into discontinuation.

The likelihood of this risk depends on the service's stability but the impact can be quite high. As there are no realistic way to prevent this, mitigating the risk by monitoring and finding alternative services are the only precautions that HomeShine can take. (kiwi0134, 2023)

#### **4.6.4 FR/NFR Requirement Risks**

##### **12. Sudden Requirement Changes**

During the development process of the Web-Application, there is a risk of sudden changes of functional or non-functional requirements. This can cause delays, increased cost and time. It can also disrupt the workflow and put additional stress to the developers. (Josie, 2022)

The likelihood of this risk is moderate as it is not uncommon in the development environment. But the impact can vary on how big the change is.

##### **13. Incomplete or Misunderstood Requirements**

During the developments, the requirements collected may be misunderstood between HomeShine and the development team. This could lead to features not meeting the business needs.

The likelihood of this risk is moderate to high, relatively based on the limitation of communication between the company and the development team. The impact can be high if the features needs to be redone from the start. (Jama Software, 2024)

##### **14. Unmet Non-Functional Requirements**

With many requirements included in the development of the web-application, it introduces the risk of not meeting NFRs. This could result in a system that is technically functional but cannot deliver expected user experience. . (Jama Software, 2024)

The likelihood of the risk depends on the expertise and focus of the developer but generally low. The impact is also moderate as the it's easier to fix NFRs than Functional requirements.

#### **4.6.5 Summary**

By systematically analyzing and preparing for risks, we can minimize their impact on the project, ensuring smoother development processes and a more reliable end product.

#### **4.6.5 Risk Assessment Matrix (High-Medium-Low)**

##### **1. Technical Risks**

Risk	Probability	Impact	Proactive Action	Reactive Action	Risk Owner
<b>Virus Detection</b>	Moderate	<b>High</b>	Install and regularly update antivirus software; maintain regular backups.	Scan for and remove the virus; restore data from backups.	Developer
<b>Device Loss/Destruction</b>	Low	<b>High</b>	Use cloud storage for regular backups; secure devices with encryption.	Replace the device and restore data from backups.	Developer
<b>Power Outages</b>	Moderate	Moderate	Use uninterruptible power supplies (UPS); save work frequently.	Resume work after power restoration; recover unsaved work from autosave.	Developer
<b>Self-Injury (Health)</b>	Moderate	<b>High</b>	Maintain ergonomic work environment; take regular breaks.	Seek medical attention; adjust work schedule to accommodate recovery.	Developer

## **2. Security Risks**

Risk	Probability	Impact	Proactive Action	Reactive Action	Risk Owner
<b>Data Breaches</b>	Low	<b>High</b>	Implement strong encryption; conduct regular security audits.	Notify affected parties; patch vulnerabilities; enhance security measures.	Company
<b>Unauthorized Access</b>	Moderate	<b>High</b>	Implement multi-factor authentication; set up role-based access controls.	Investigate breach; revoke unauthorized access; enhance security measures.	Company
<b>Payment Gateway Vulnerabilities</b>	Low	<b>High</b>	Use well-known, secure payment gateways; regularly review security protocols.	Address vulnerabilities with the payment gateway provider; update security protocols.	Customer, Company

### **3. Out Sourcing Risks**

Risk	Probability	Impact	Proactive Action	Reactive Action	Risk Owner
<b>Third-Party API Failures</b>	Low	<b>High</b>	Choose reliable and well-supported APIs; monitor API performance regularly.	Switch to alternative APIs; update the system as needed.	Company
<b>Vendor Lock-In</b>	Moderate	Moderate	Use open standards; ensure the ability to switch vendors if necessary.	Evaluate alternative vendors; negotiate with current vendor if possible.	Developer, Company
<b>Service Discontinuation</b>	Low	<b>High</b>	Stay informed about the third-party service status; have backup options ready.	Find and integrate alternative services; update the project plan as needed.	Developer, Company

#### **4. NFR/FR Requirement Risks**

Risk	Probability	Impact	Proactive Action	Reactive Action	Risk Owner
<b>Sudden Requirement Changes</b>	Moderate	<b>High</b>	Maintain regular communication with stakeholders; use iterative development.	Assess the impact of changes; adjust project scope and timeline.	Developer
<b>Incomplete or Misunderstood Requirements</b>	Moderate	<b>High</b>	Gather detailed requirements; engage stakeholders frequently.	Clarify and redefine requirements; adjust development and testing as needed.	Developer
<b>Unmet Non-Functional Requirements</b>	Low	<b>High</b>	Define clear NFRs early; conduct regular testing and reviews.	Identify and address gaps in NFRs; update the system accordingly.	Developer, Customers

## **4.7 Critical Success Factors for current project**

To ensure the successful development and implementation of the HomeShine project, **six** critical success factors need to be taken in account. This includes **User-Friendly Interfaces, Security and Data Protection, System Reliability and Performance, Scalability and Flexibility, Effective Communication and Timely Delivery.**

### **1. User-Friendly Interfaces**

The interface must be intuitive and simple for all users including customers, cleaners, and administrators. Customers should be able to effortlessly navigate through the web-application. Cleaners and Admins should also be able to navigate and complete tasks with minimal training. (Project Central, 2024)

This will directly lead to customer satisfaction, improved staff productivity and increased efficiency in administrative work.

### **2. Security and Data Protection**

Protecting sensitive customer's personal information and payment details is crucial. Adding a layer of robust security measure such as encryption and access control will secure and protect the data stored in the system. Additionally regular security updates can be done to further safeguard the system. (Eby, 2023)

This will directly decrease chances of unauthorized access, data breaches and fraud within HomeShine's system.

### **3. System Reliability and Performance**

The newly system is expected to handle multiple users simultaneously without significant performance degradation. The system is expected to handle around 30-40 users and run smoothly especially during peak hours. The system needs to be monitored and optimized accordingly to minimize downtime and increase availability. (Teamwork, 2024)

As HomeShine is moving from a manual to a digital operation, system reliability and performance is essential to building confidence over the new system.

#### **4. Scalability and Flexibility**

The system should be able to accommodate to the company's expanding business needs. This will include a higher customer and user base and additions of new features. It is expected to accommodate to this growth without causing major disruptions to the operation processes. (Martins, 2024)

This way, HomeShine can ensure that the current web-application can be a solid foundation for the company's future growth.

#### **5. Effective Communication**

Effective and clear communication between the peers including the stakeholders, end-users and the development team. Regular engagement and feedback will make sure the project goals and stakeholder's visions align. (Yarbrough, 024)

This kind of communication will make sure the project's execution goes smoothly, further ensuring the eventual success of HomeShine's Project.

#### **6. Timely Delivery**

The development process will need a structured project plan to be able to deliver within the timeline. Various methods such as milestones, timeboxes and checkpoints will ensure the project to stay on its track. As the project has a tight duration of 3 months.

It is expected by all users especially the stakeholders that the project will have a timely delivery and developed system launched within the estimated time. (Buehring, 2023)

## 4.8 Use Case and Class Diagram

### 1 Class Diagram of the Entire System

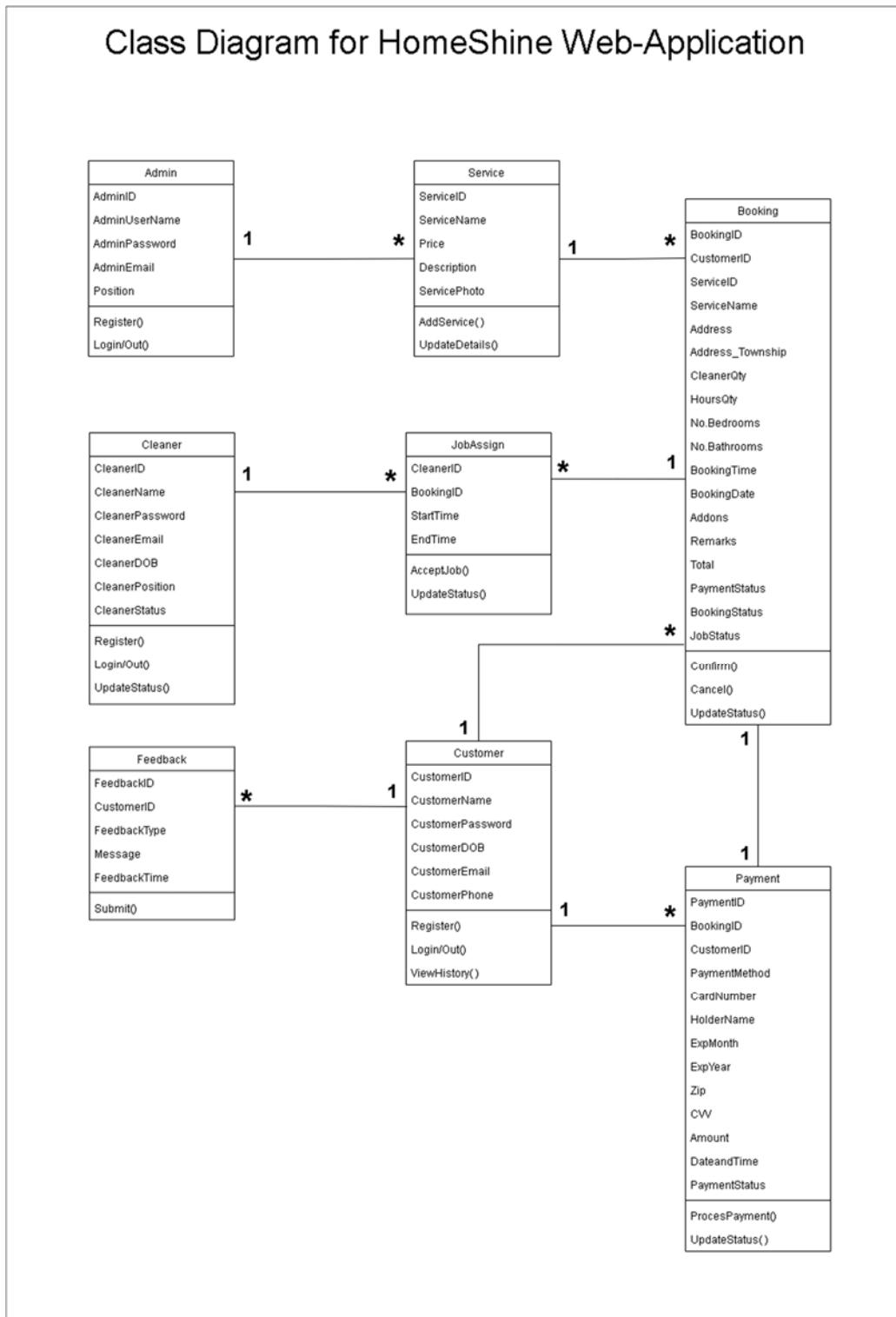
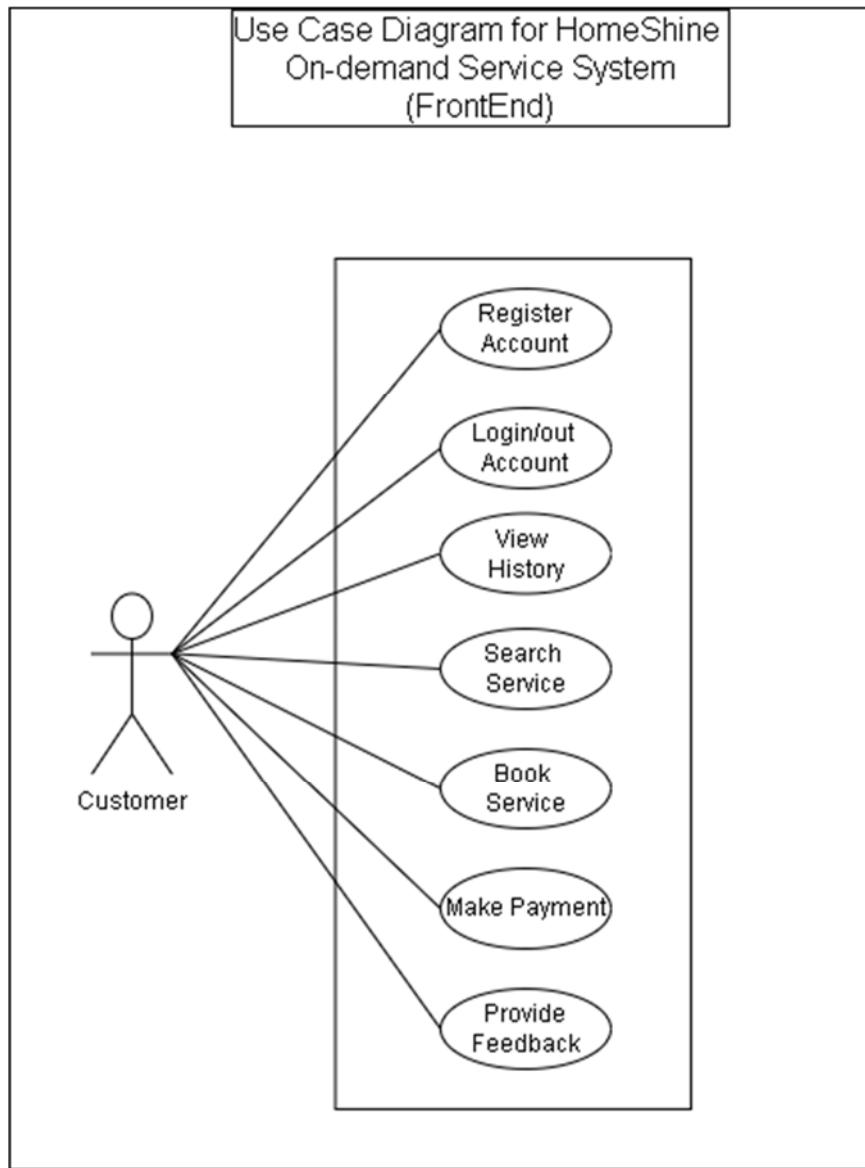


Figure 8.1 – Class Diagram of the Entire HomeShine Web-Application

## **2 Use Case Diagram**

### **1 Front End Use Case Diagram**



*Figure 8.2.1 – Front End Use Case Diagram*

## 2. Back End Use Case Diagram

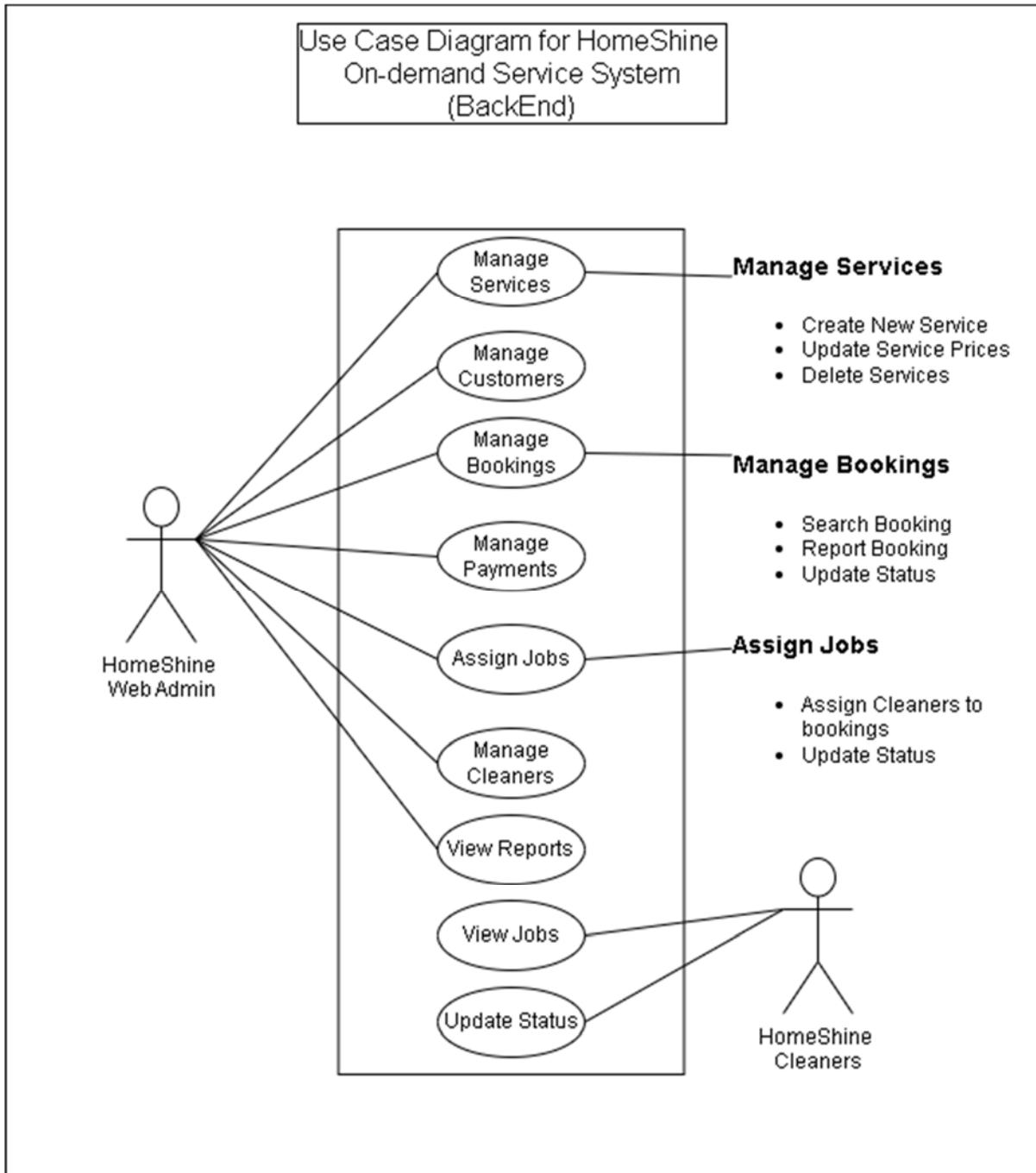


Figure 8.2.2 – Back End Use Case Diagram

# **Topic – 5**

## **Exploration**

**&**

## **Engineering**

## 5.0 Topic 5 – Exploration and Engineering

### 5.1 Manage Booking Process Time Box 1 Development

#### 1 Project Plan for Time Box 1



#### 1.1 Functional Requirements List

##### 1. Manage Booking Process (Timebox 1)

###### 1.1 Manage Admin (HL) (M)

- Register Admin (ML)
  - Email already exists check (LL)
  - Password Length check (LL)
  - Check text Fields Null (LL)
- Update Admin (ML)
  - Check text Fields Null (LL)
- Delete Admin (ML)
  - Confirmation Check (LL)
- Login Admin (ML)
  - Email is valid check (LL)
  - Password is valid check (LL)
  - Check text Fields Null (LL)

###### 1.2 Manage Cleaner (HL) (S)

- Register Cleaner (ML)
  - Email already exists check (LL)
  - Password Length check (LL)

- Check text Fields Null (LL)
- Update Cleaner (ML)
  - Check text Fields Null (LL)
- Delete Cleaner (ML)
  - Confirmation Check (LL)
- Search Cleaner (ML)
  - Check text Fields Null (LL)
  - Check based on Column Value (LL)

### **1.3 Manage Booking (HL) (M)**

- Create Booking (ML)
  - Check text Fields Null (LL)
  - Check valid BookingID (LL)
- Update Booking (ML)
  - Check text Fields Null (LL)
- Delete Booking (ML)
  - Confirmation Check (LL)
- Search Booking (ML)
  - Check text Fields Null (LL)
  - Check based on Column Value (LL)
- Report Booking (ML)
  - Check text Fields Null (LL)
  - Auto PDF generate (ML)

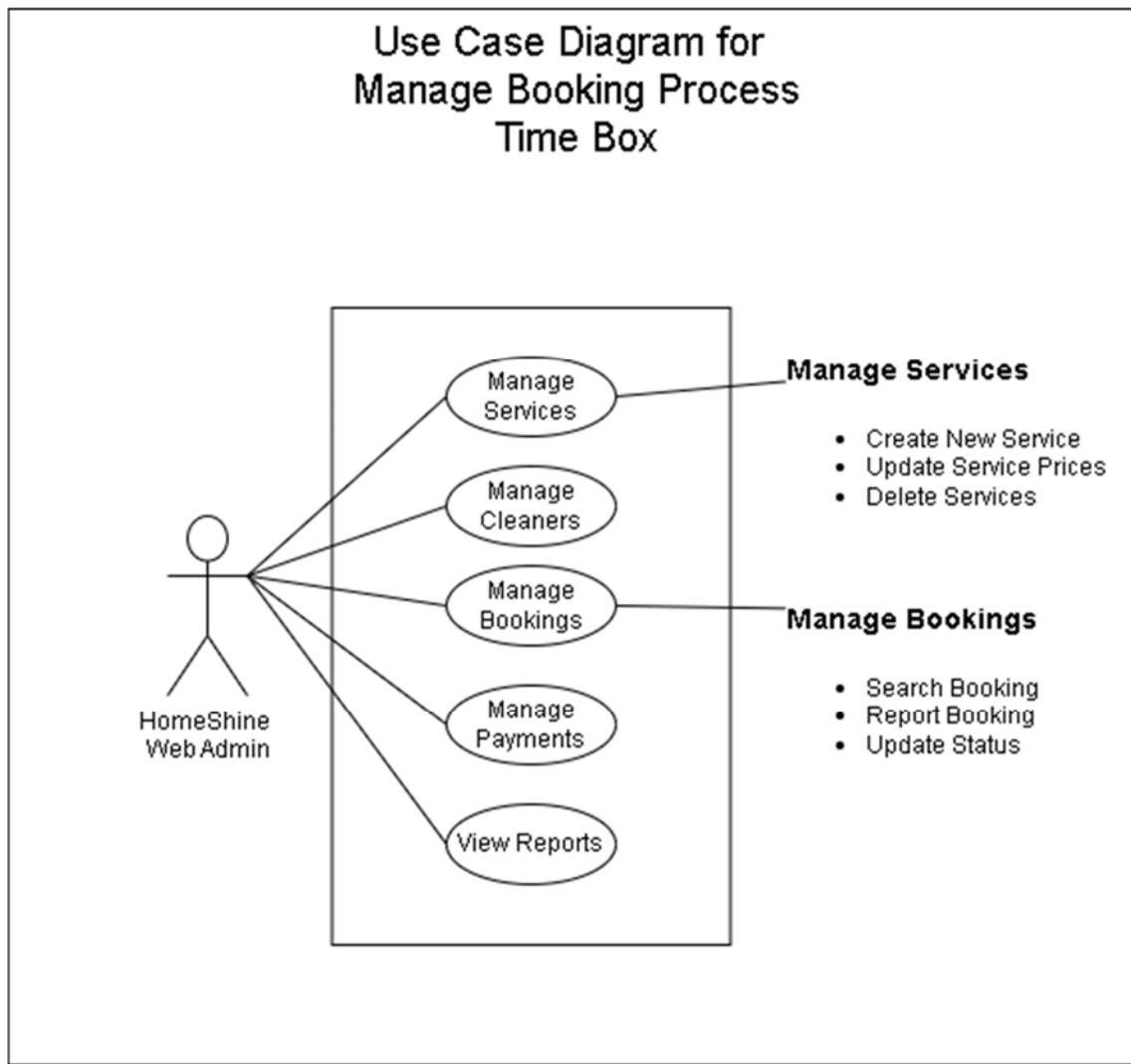
### **1.4 Manage Services (HL) (S)**

- Create Services (ML)
  - Check text Fields Null (LL)
- Update Services (ML)
  - Check text Fields Null (LL)
- Delete Services (ML)
  - Confirmation Check (LL)
- Search Services (ML)
  - Check text Fields Null (LL)
  - Check based on Column Value (LL)

### **1.3 Manage Payment (HL) (S)**

- Create Payment (ML)
  - Check text Fields Null (LL)
- Update Payment (ML)
  - Check text Fields Null (LL)
- Delete Payment (ML)
  - Confirmation Check (LL)
- Search Payment (ML)
  - Check text Fields Null (LL)
  - Check based on Column Value (LL)
- Report Payment (ML)
  - Check text Fields Null (LL)

## 1.2 Use Case Diagram



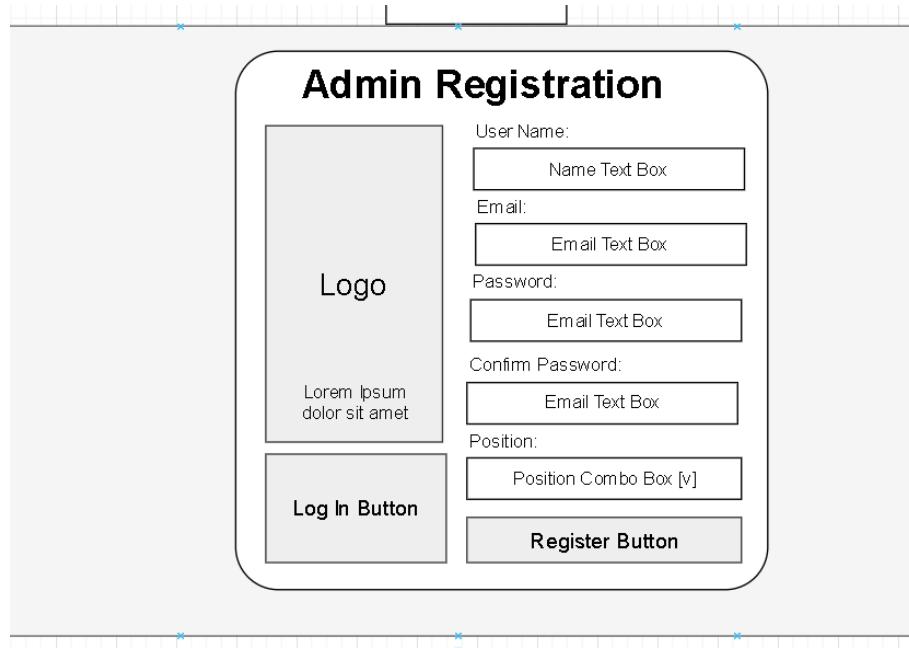
### Use Case Description

<b>Use Case Name</b>	Manage Booking Process
<b>Actor</b>	Administrator
<b>Flow of Event</b>	Fill the services details in the service form. New Service is Added. Fill the booking details in the booking form. New booking is recorded.

\*For remaining, see Appendix.

## 1.3 Screen Design

### 1) Admin Registration



A low-level wireframe prototype for an 'Admin Registration' screen. The interface includes a logo placeholder with sample text 'Lorem ipsum dolor sit amet' and a 'Log In Button'. To the right, there are input fields for User Name (text box), Email (text box), Password (text box), Confirm Password (text box), Position (combo box with 'v' placeholder), and a 'Register Button'.

Figure 1.3.1a Low Level Prototype for Admin Registration

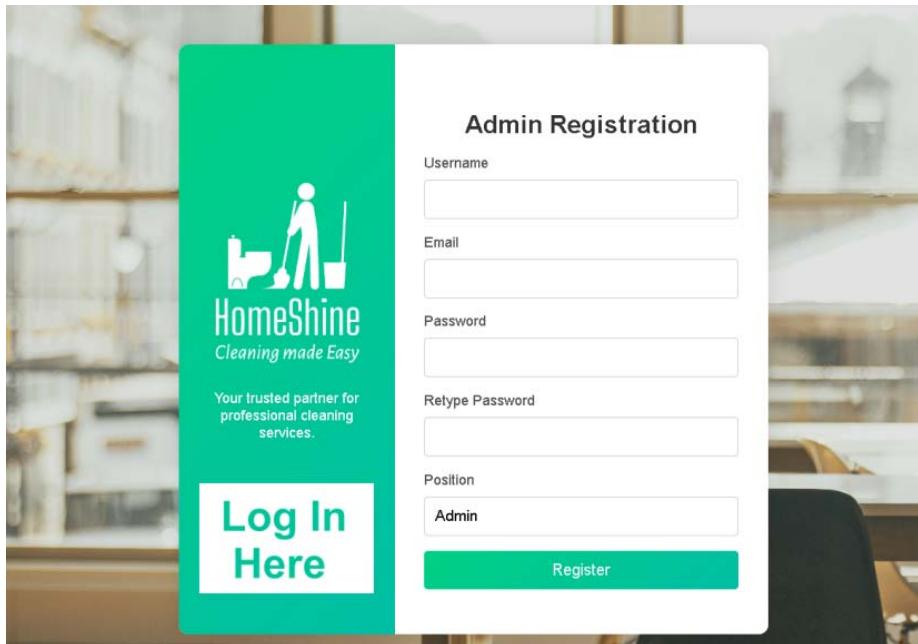
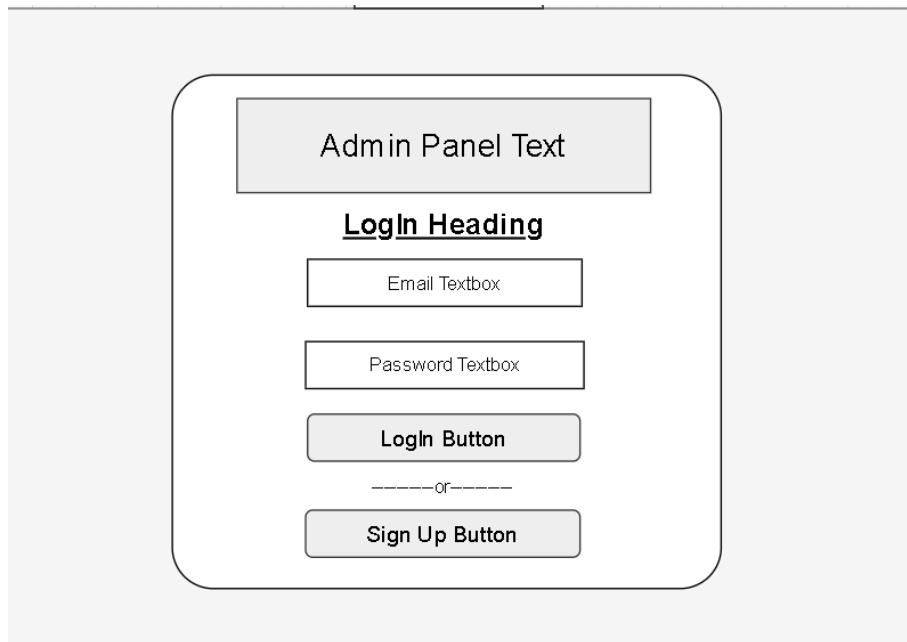
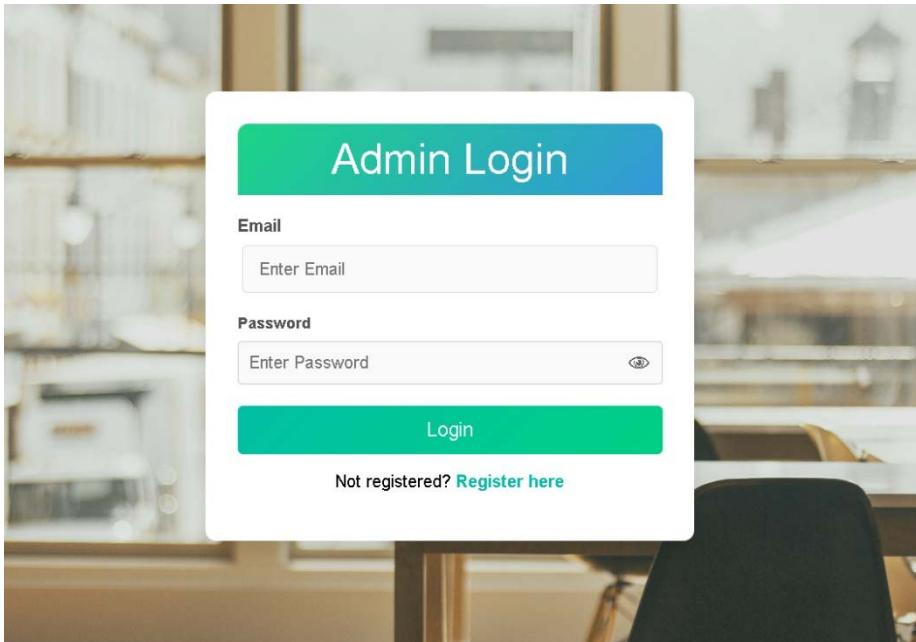


Figure 1.3.1b High Level Prototype for Admin Registration

2) **Admin Log In**



*Figure 1.3.2a Low Level Prototype for Admin Login*



*Figure 1.3.2b High Level Prototype for Admin LogIn*

### 3) Admin Home

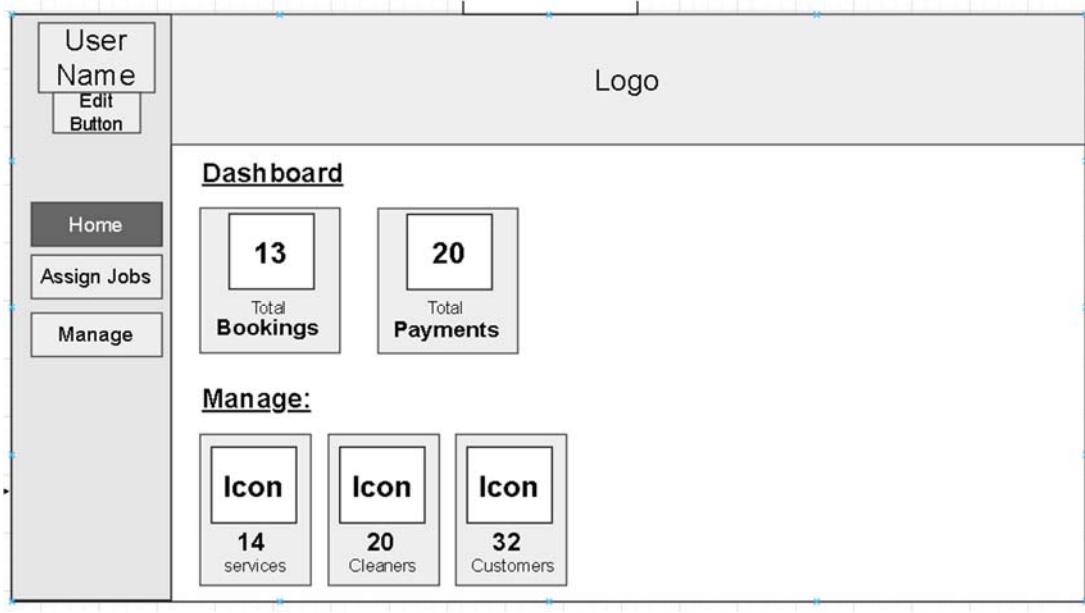


Figure 1.3.3a Low Level Prototype for Admin Home

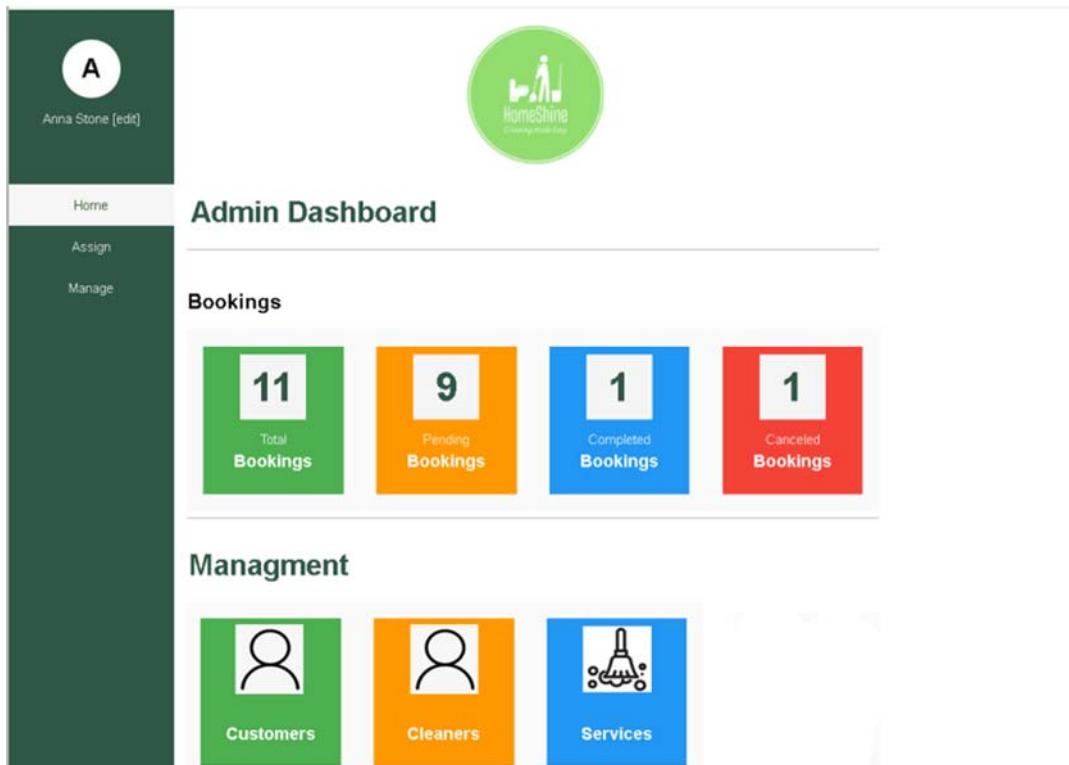


Figure 1.3.3b High Level Prototype for Admin Home

#### 4) Total Booking

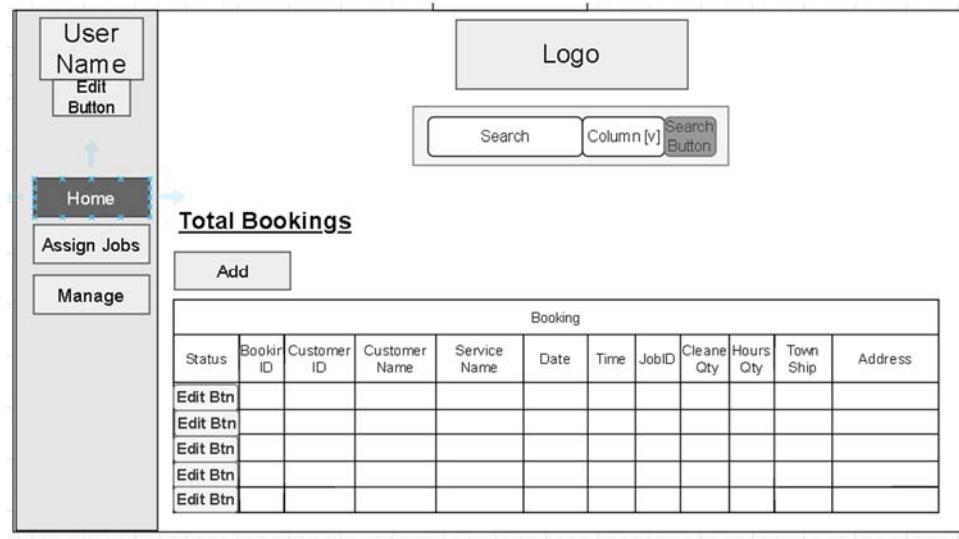


Figure 1.3.4a Low Level Prototype for Total Booking

This diagram shows a high-level prototype of the 'Total Bookings' system. The interface includes a sidebar with 'Logout', 'Home', 'Assign', and 'Manage' buttons. The main content area has a header with a logo and search functionality ('Enter value to search', 'Select Column', 'Search'). Below this is a table titled 'Bookings' with an 'Add' button. The table columns are: Status, BookingID, ServiceName, Full Address, NoOfRooms, Occupancy, HourlyRate, Bedrooms, Bathrooms, BookingTime, BookingsDate, Remarks, Address, Note, OutcomesID, PaymentStatus, JobStatus. The table displays 18 rows of booking data, such as 'Move In/Out Cleaning' and 'Yard Work', with details like address, number of rooms, and payment status. At the bottom of the table, it says 'End of results'.

Figure 1.3.4b High Level Prototype for Total Booking

## 5) Booking Detail

This diagram illustrates a low-level prototype for a booking detail interface. It features a sidebar on the left with a 'User Name' field and an 'Edit' button. Below this are three buttons: 'Home', 'Assign Jobs', and 'Manage'. A blue arrow points from the 'Assign Jobs' button towards a main panel. The main panel is titled 'BookingID' and contains a grid of form fields. The fields are as follows:

Status:	Combo box [v]
Customer Name:	Textbox
Service Name:	Textbox
Date:	Date Picker
Time:	Textbox
JobID:	Textbox
Cleaner Qty:	Textbox
Hour Qty:	Textbox
Township:	Combo box [v]
Address:	Text Area

At the bottom of the main panel are two buttons: 'Save' and 'Cancel'.

Figure 1.3.5a Low Level Prototype for Booking Detail

This diagram illustrates a high-level prototype for a booking detail interface. On the left is a dark green sidebar with a user profile icon labeled 'A' and the name 'Anna Stone [edit]'. Below the profile are three buttons: 'Home', 'Assign', and 'Manage'. The main content area is titled 'Booking ID: 20'. It contains a form with the following fields:

Customer ID:	Select Customer
Service Name:	Select Service
TownShip:	Bahan
Address:	[Empty Textbox]
CleanerQty:	[Empty Textbox]
HourQty:	[Empty Textbox]
Bedrooms:	[Empty Textbox]
Bathrooms:	[Empty Textbox]
Date:	mm/dd/yyyy
Time:	9:00 AM
Remarks:	[Empty Textbox]
Add ons:	[Empty Textbox]
Total:	[Empty Textbox]

At the bottom of the form are two green buttons: 'Add' and 'Go Back'.

Figure 1.3.5b High Level Prototype for Booking Detail

## 6) Total Payment

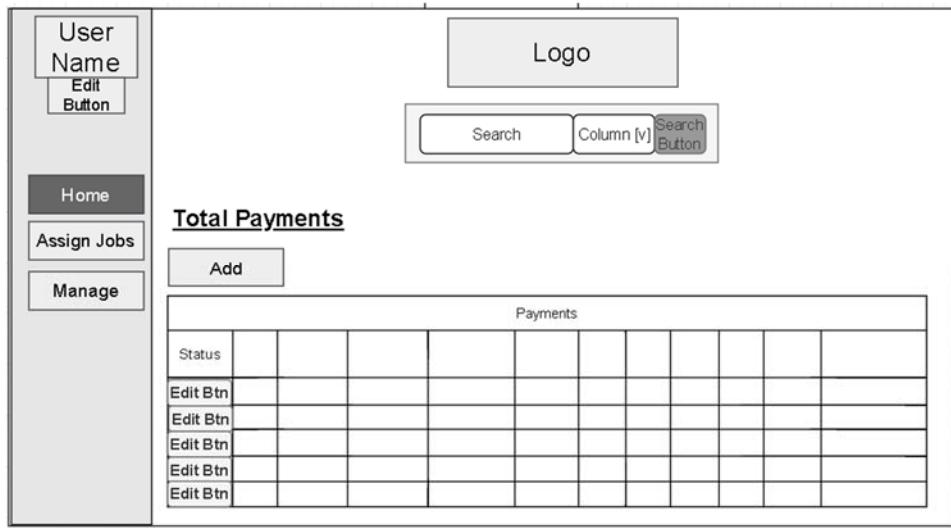


Figure 1.3.6a Low Level Prototype for Total Payment

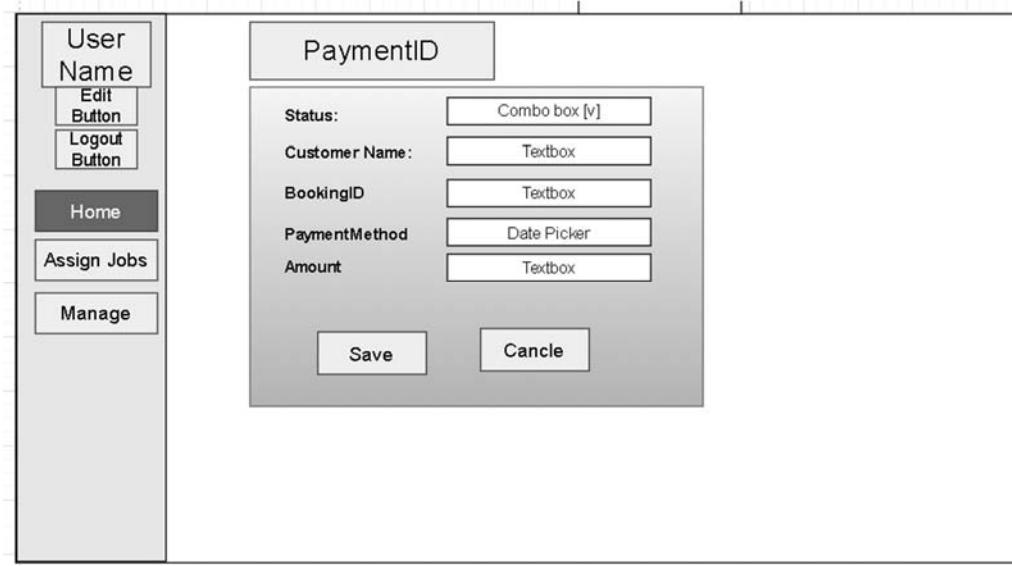
This diagram shows a high-level prototype for the 'Total Payments' section. It includes a sidebar with 'SignUp', 'Home', 'Assign', and 'Manage' buttons. The main content area features a circular logo for 'HomeShine Cleaning Week Day'. Below the logo is a search bar with fields for 'Enter value to search', 'Selected Column', and a 'Search' button. The 'Total Payments' section is titled 'Payment' and displays a table with the following data:

PaymentStatus	PaymentID	CustomerID	BookingID	PaymentMethod	CardNumber	HolderName	ExpMonth	ExpYear	Zip	CVV	Amount	DateandTime
Unprocessed	40	1	12	Credit	1111222333444	Pyae Sone Aung	December	2026	8822	332	37550.00	2024-09-17 00:16:31
Pending	51	42	13	KBZPay	09233212233	U Jack Ronan					10020.00	2024-09-23 01:03:18
Pending	52	43	14	Cash							20000.00	2024-09-26 20:28:28
Pending	53	1	15	Cash							1007500.00	2024-09-30 02:12:01

At the bottom, a message indicates 'End of results'.

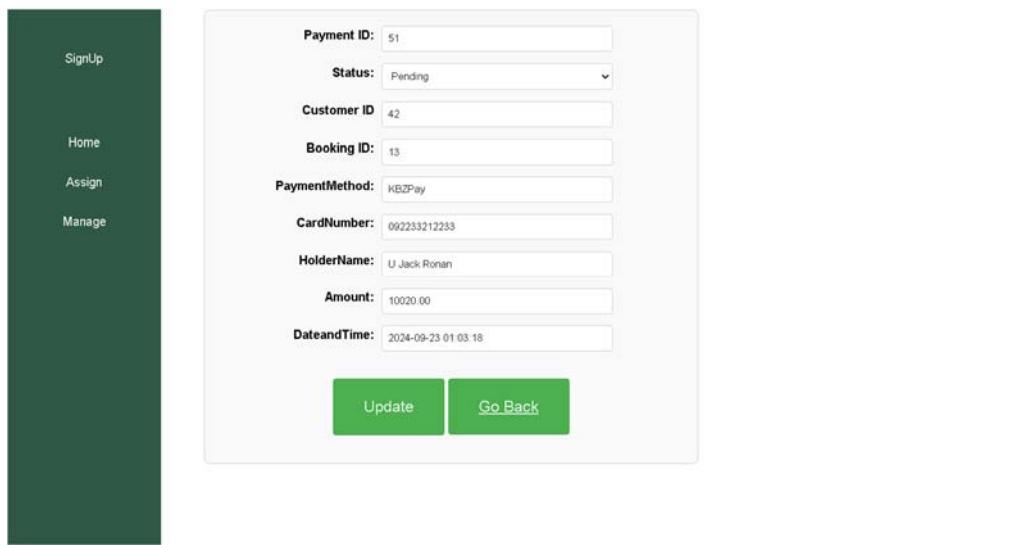
Figure 1.3.6b High Level Prototype for Total Payment

## 7) Payment Details



This diagram illustrates a low-level prototype for a 'Payment Details' screen. On the left, a vertical sidebar contains buttons for 'User Name' (with 'Edit' and 'Logout' options), 'Home', 'Assign Jobs', and 'Manage'. The main area is titled 'PaymentID' and includes fields for 'Status' (a dropdown menu), 'Customer Name' (a text input), 'BookingID' (a text input), 'PaymentMethod' (a date picker), and 'Amount' (a text input). At the bottom are 'Save' and 'Cancel' buttons.

Figure 1.3.7a Low Level Prototype for Payment Details



This diagram illustrates a high-level prototype for a 'Payment Details' screen. A dark sidebar on the left lists 'SignUp', 'Home', 'Assign', and 'Manage'. The main area displays a form with fields for 'Payment ID' (containing '51'), 'Status' (set to 'Pending'), 'Customer ID' ('42'), 'Booking ID' ('13'), 'PaymentMethod' ('KBZPay'), 'CardNumber' ('092233212233'), 'HolderName' ('U Jack Ronan'), 'Amount' ('10020.00'), and 'DateandTime' ('2024-09-23 01:03:18'). Below the form are 'Update' and 'Go Back' buttons.

Figure 1.3.7b High Level Prototype for Payment Deatils

## 8) Manage

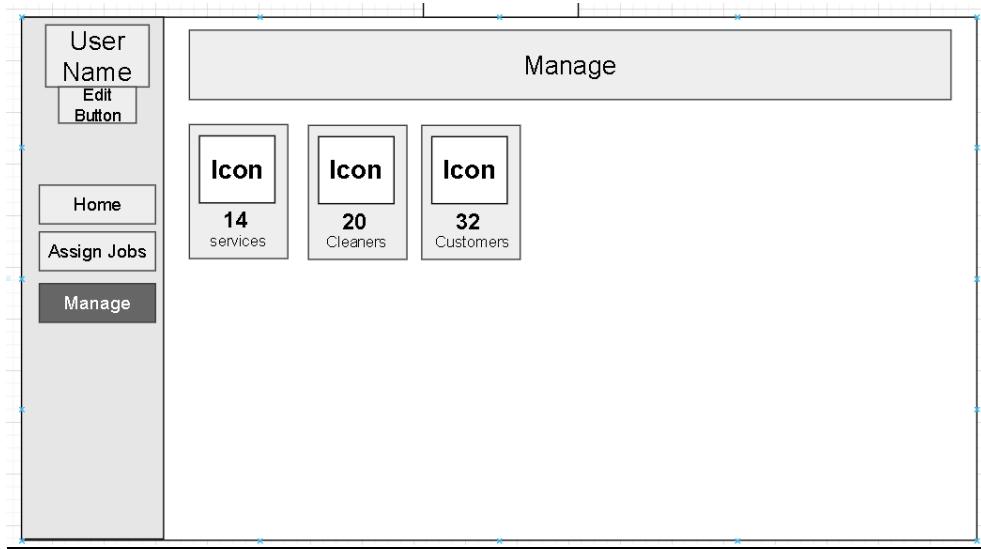


Figure 1.3.8 a Low Level Prototype for Manage Page

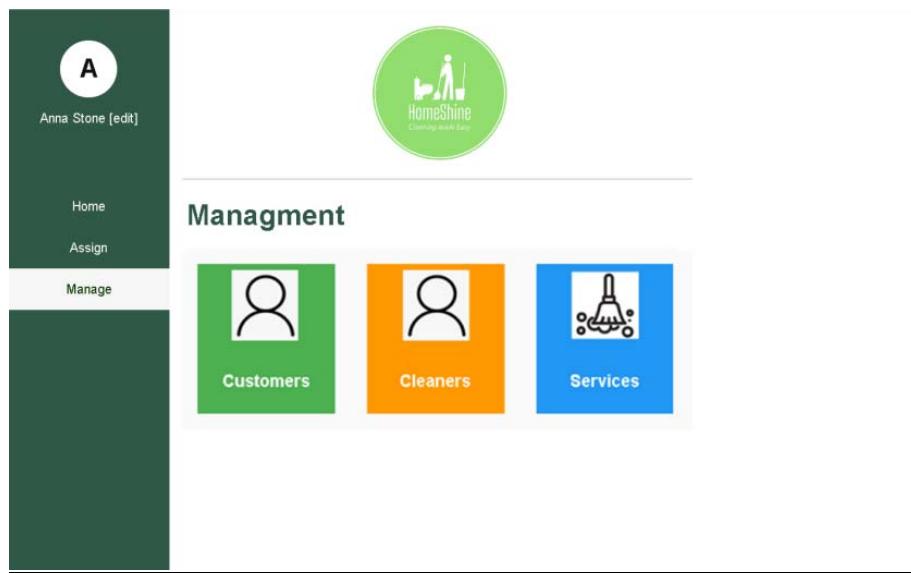


Figure 1.3.8b High Level Prototype for Manage Page

## 9) Total Customer

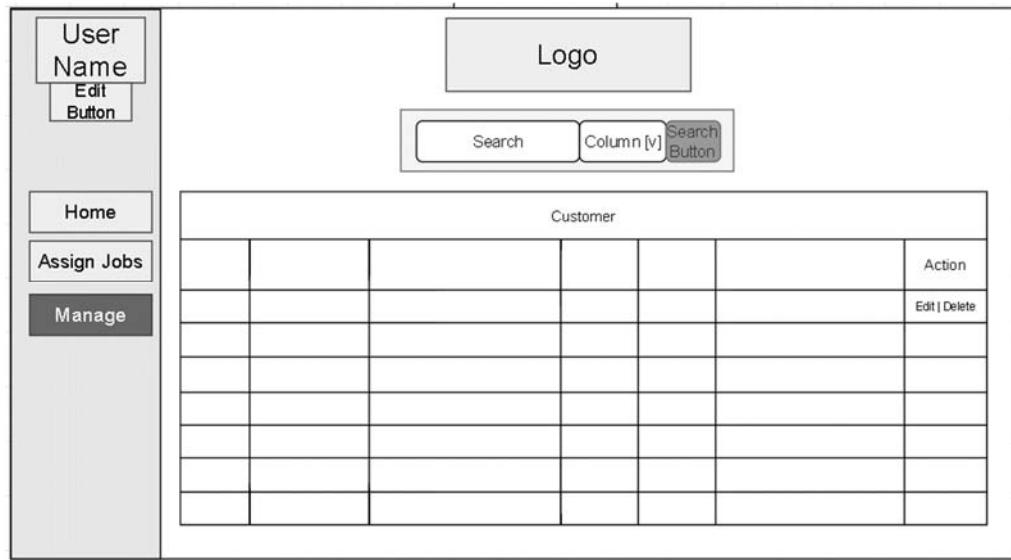


Figure 1.3.9a Low Level Prototype for Total Customer

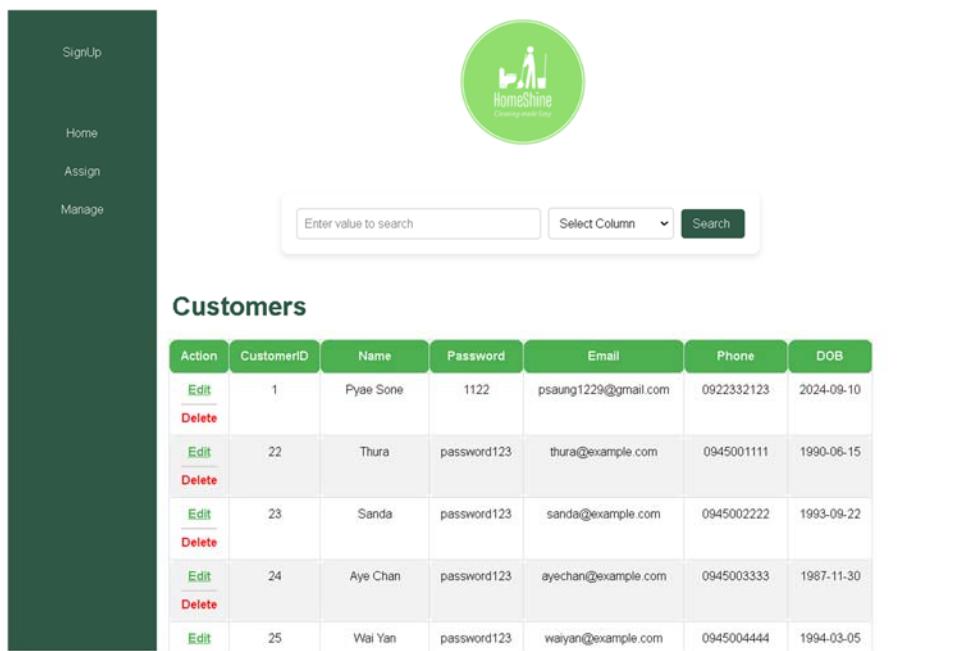


Figure 1.3.9b High Level Prototype for Total Customer

## 10) Customer details

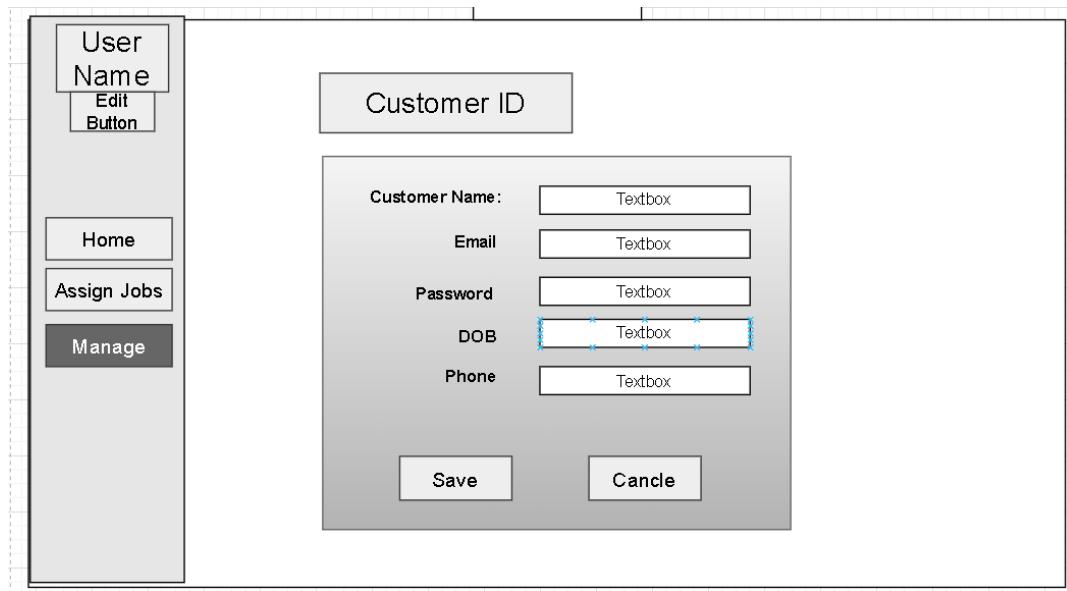


Figure 1.3.10a Low Level Prototype for Customer Detail

This diagram illustrates a high-level prototype for customer details. On the left is a dark green sidebar with buttons for 'SignUp', 'Home', 'Assign', and 'Manage'. The main area has a white background. At the top center is a box labeled 'Customer ID: 1'. Below it is a form with a light gray header. The form contains five input fields: 'Name' (Pyae Sone), 'Password' (1122), 'DOB' (2024-09-10), 'Email' (psaung1229@gmail.com), and 'Phone' (0922332123). At the bottom of the form are two buttons: a green 'Update' button and a white 'Go Back' button.

Figure 1.3.10b High Level Prototype for Customer Details

## 11) Total Cleaner

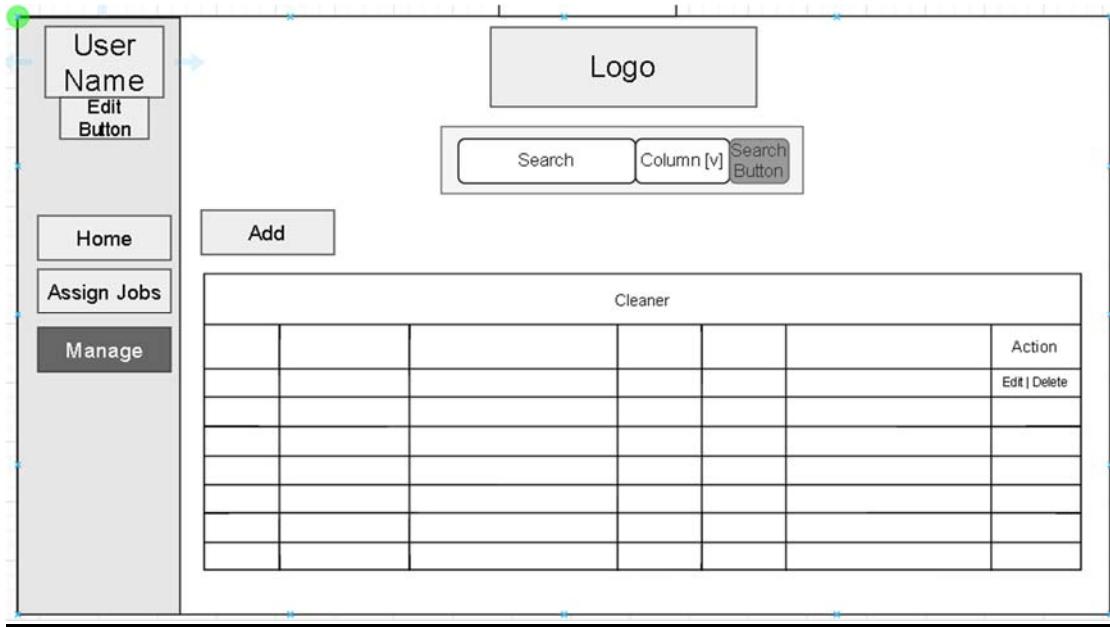


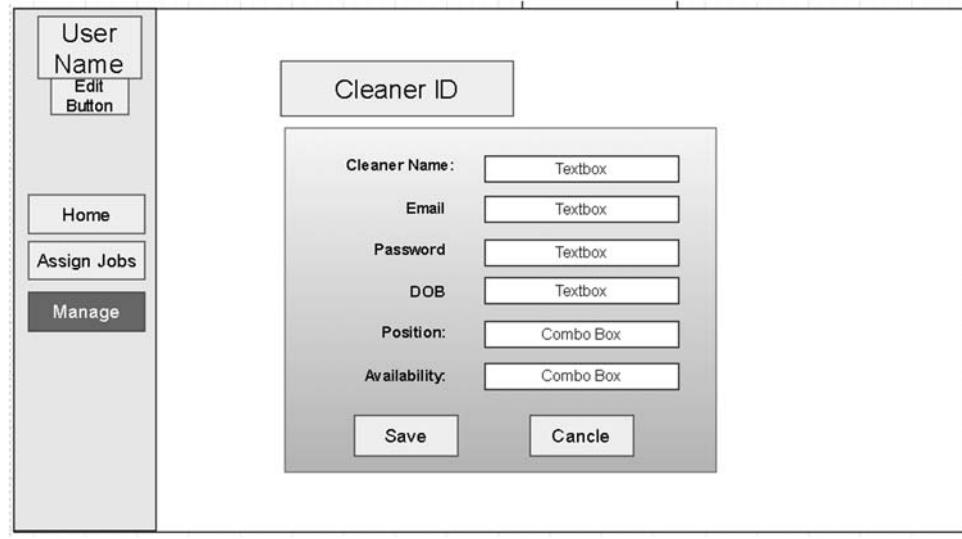
Figure 1.3.11 a Low Level Prototype for Total Cleaner

This diagram illustrates a high-level prototype for the 'Total Cleaner' application. On the left is a dark sidebar with links: 'SignUp', 'Home', 'Assign', and 'Manage'. The main area features a circular logo for 'HomeShine Cleaning made Easy'. Below the logo is a search bar with 'Enter value to search', 'Select Column', and a 'Search' button. The main content area is titled 'Cleaners' and displays a table with the following data:

Action	CleanerID	CleanerName	Password	DOB	Email	Position	Status
<a href="#">Edit</a>	1	John Doe	JJ1122	2024-07-02	johnny@gmail.com	Junior	Available
<a href="#">Delete</a>							
<a href="#">Edit</a>	2	Aung Aung	password123	1985-05-10	aungaung@example.com	Senior	Available
<a href="#">Delete</a>							
<a href="#">Edit</a>	3	Mya Mya	password123	1990-12-08	myamya@example.com	Junior	Unavailable
<a href="#">Delete</a>							
<a href="#">Edit</a>	4	Kyaw Kyaw	password123	1987-02-15	kyawkyaw@example.com	Senior	Available
<a href="#">Delete</a>							

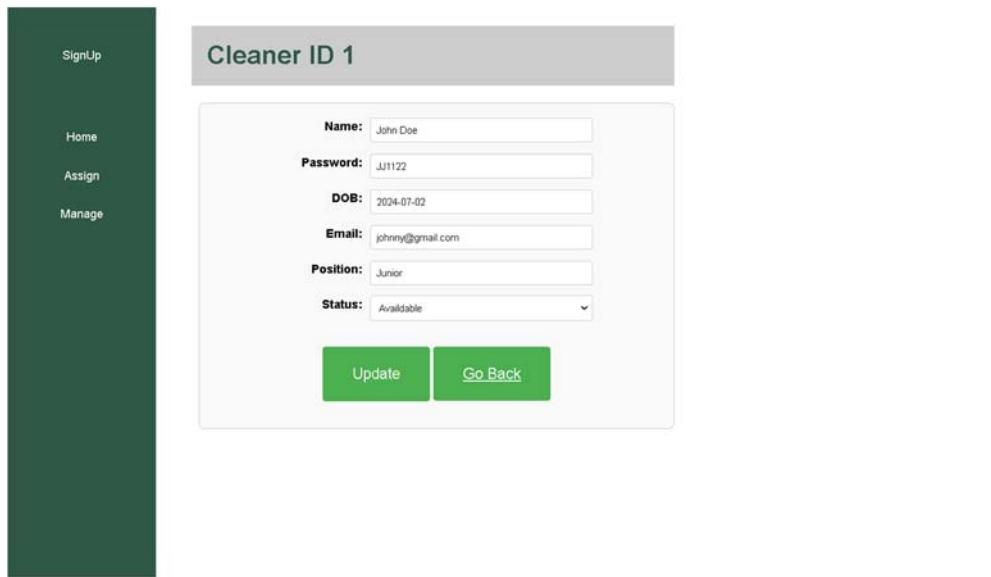
Figure 1.3.11b High Level Prototype for Total Cleaner

## 12) Cleaner Detail



This diagram illustrates a low-level prototype for the 'Cleaner Detail' feature. It features a vertical sidebar on the left with buttons for 'User Name', 'Edit Button', 'Home', 'Assign Jobs', and 'Manage'. The main area contains a 'Cleaner ID' header and a form for entering cleaner details. The form includes fields for 'Cleaner Name' (Textbox), 'Email' (Textbox), 'Password' (Textbox), 'DOB' (Textbox), 'Position' (Combo Box), and 'Availability' (Combo Box). At the bottom of the form are 'Save' and 'Cancel' buttons.

Figure 1.3.12a Low Level Prototype for Cleaner Detail



This diagram illustrates a high-level prototype for the 'Cleaner Detail' feature. It features a vertical sidebar on the left with buttons for 'SignUp', 'Home', 'Assign', and 'Manage'. The main area contains a 'Cleaner ID 1' header and a form for updating cleaner details. The form includes fields for 'Name' (John Doe), 'Password' (JJ1122), 'DOB' (2024-07-02), 'Email' (johnny@gmail.com), 'Position' (Junior), and 'Status' (Available). At the bottom of the form are 'Update' and 'Go Back' buttons.

Figure 1.3.12b High Level Prototype for Cleaner Detail

### 13) Total Services

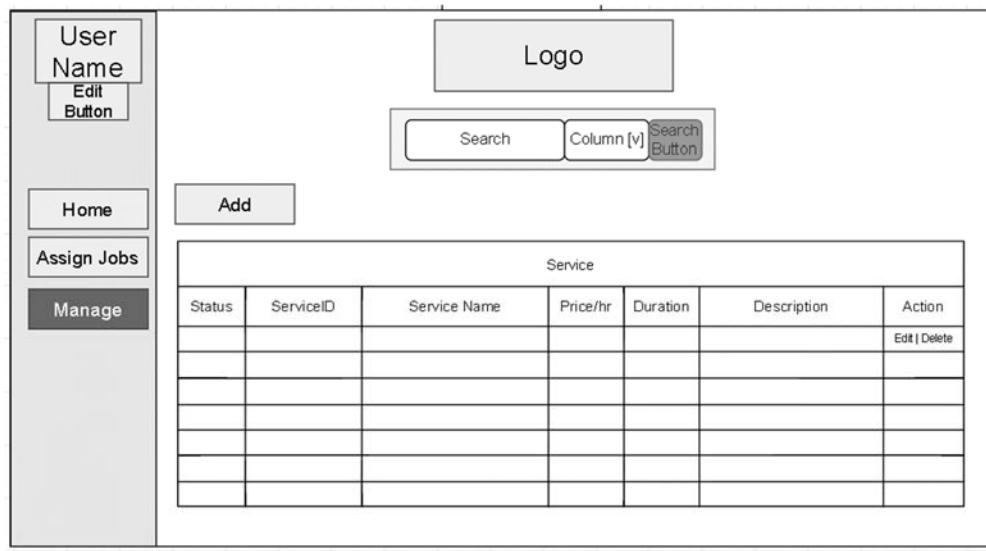


Figure 1.3.13a Low Level Prototype for Total Services

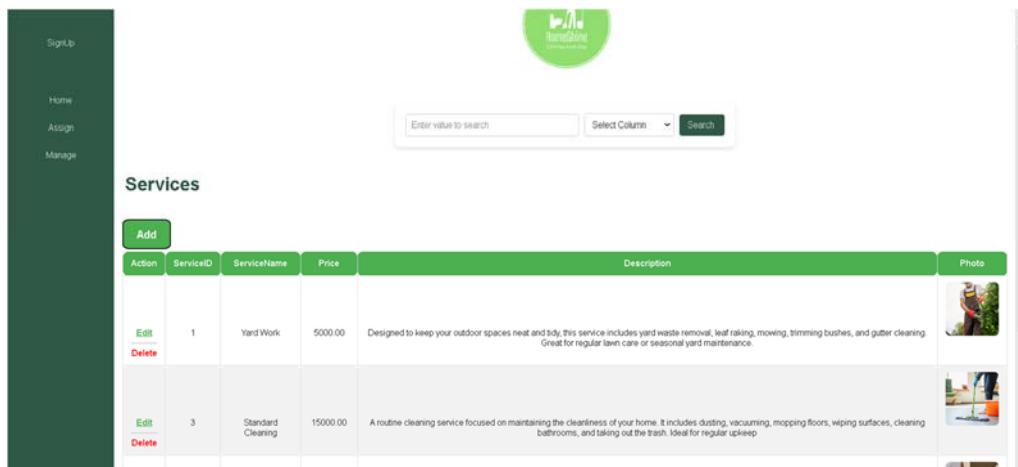


Figure 1.3.13b High Level Prototype for Total Services

#### 14) Service Detail

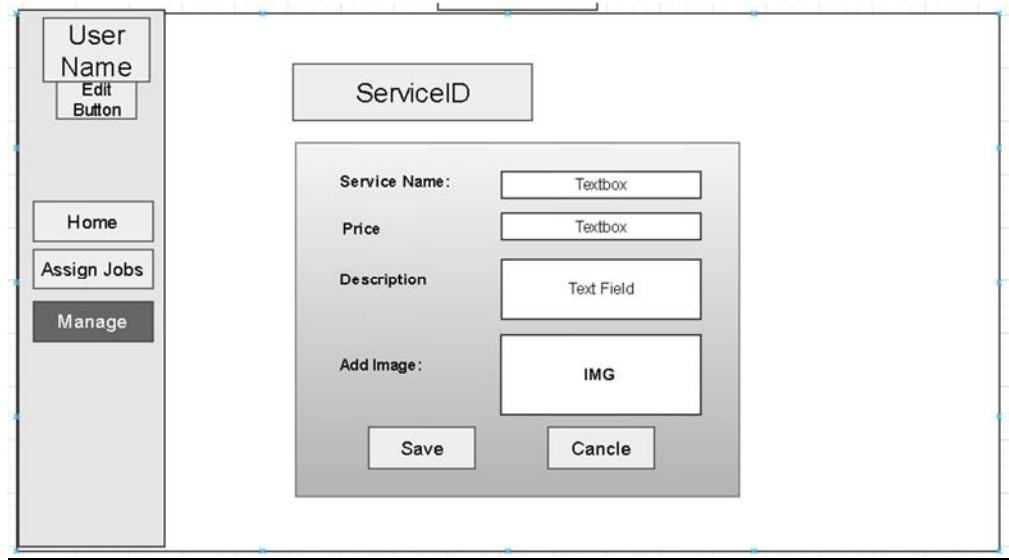


Figure 1.3.14a Low Level Prototype for Service Detail

This diagram illustrates a high-level prototype for service details. It features a dark green sidebar on the left with buttons for 'SignUp', 'Home', 'Assign', and 'Manage'. To the right of the sidebar is a white content area. The content area displays a service entry for 'Yard Work'. The entry includes a 'Service ID' field (value: 1), a 'Service Name' field (value: Yard Work), a 'Price' field (value: 5000.00), and a 'Description' field (value: 'Designed to keep your outdoor spaces neat and tidy, this service includes'). Below the description is a thumbnail image of a person working on bushes. A 'Current Image:' label is positioned above the thumbnail. At the bottom of the content area is a 'New Image (Optional)' input field with a 'Choose File' button and a note 'No file chosen'. At the very bottom are 'Update' and 'Go Back' buttons.

Figure 1.3.14b High Level Prototype for Service Details

## 15) Admin Profile

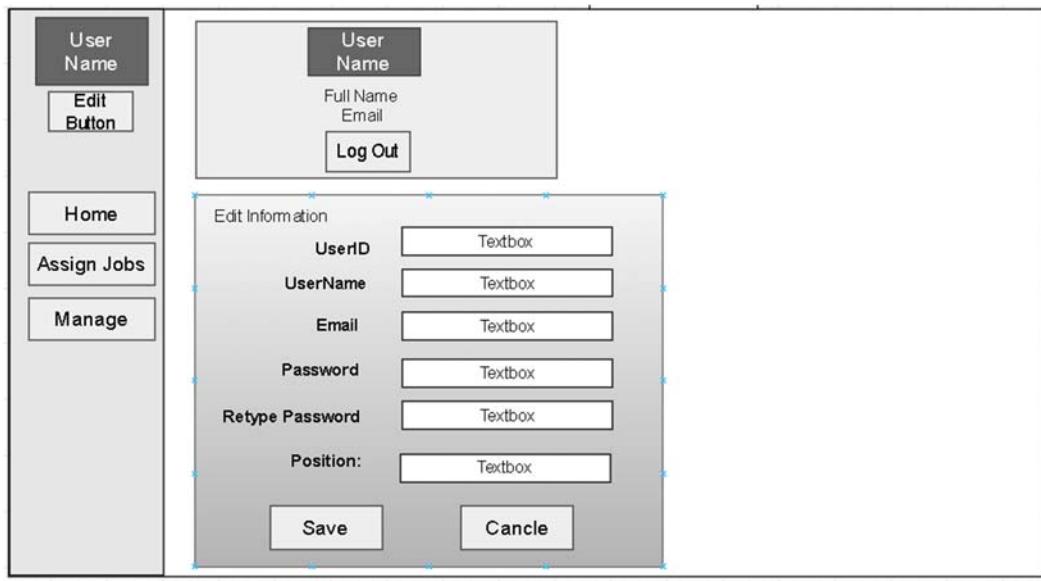


Figure 1.3.15a Low Level Prototype for Admin Profile

This diagram illustrates a high-level prototype for an Admin Profile interface. It consists of two main sections: a sidebar on the left and a main content area. The sidebar has a profile icon labeled 'A' and a link 'Anna Stone [edit]'. Below this are buttons for 'Home', 'Assign', and 'Manage'. The main content area shows a profile for 'Anna Stone' with email 'EmmaStoned@gmail.com' and position 'Position : Receptionist', followed by a 'Logout' button. Below this is an 'Edit Your Information' form with fields for 'AdminID' (containing '2'), 'Username' ('Anna Stone'), 'Email' ('EmmaStoned@gmail.com'), 'Password' (redacted), 'Retype Password' (redacted), 'Position' ('Receptionist'), and a green 'Update Information' button.

Figure 1.3.15b High Level Prototype for Admin Profile

## 1.4 Iteration for Screen Design

### 1.4.1 Iteration 1

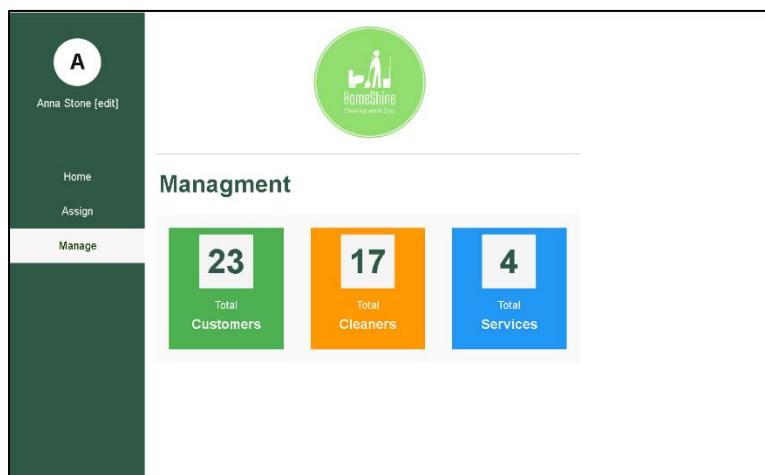
Users gave feedback that although the icons and words in Manage Page looks good, they look inconsistent. Feedbacks of only using the big letter for quick view was both better as a design and also to get information faster.

#### (Iteration 1) Screen Design Manage Page

##### Before



##### After



## **1.4.2 Iteration 2**

Users gave feedback that although the tables design the report of various processes bookings, payment and services were inconsistent. The buttons interface didn't fit in and wanted alternative that is simple. So, a change to make the buttons into a simple link is changed

### **(Iteration 2) Screen Design Report Tables**

#### **Before**

The screenshot shows a 'Cleaners' report table with the following data:

Action	CleanerID	CleanerName	Password	DOB	Email	Position	Status
<a href="#">Edit</a>	1	John Doe	JJ1122	2024-07-02	johnny@gmail.com	Junior	Available
<a href="#">Edit</a>	2	Aung Aung	password123	1985-05-10	aungaung@example.com	Senior	Available
<a href="#">Edit</a>	3	Mya Mya	password123	1990-12-08	myamya@example.com	Junior	Unavailable
<a href="#">Edit</a>	4	Kyaw Kyaw	password123	1987-02-15	kyawkyaw@example.com	Senior	Available
<a href="#">Edit</a>	5	Thandar	password123	1995-06-25	thandar@example.com	Junior	Available

#### **After**

The screenshot shows a 'Cleaners' report table with the following data:

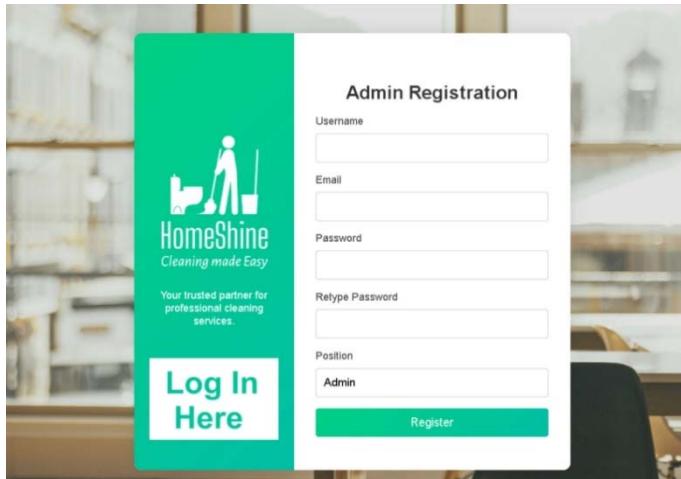
Action	CleanerID	CleanerName	Password	DOB	Email	Position	Status
<a href="#">Edit</a>	1	John Doe	JJ1122	2024-07-02	johnny@gmail.com	Junior	Available
<a href="#">Delete</a>	2	Aung Aung	password123	1985-05-10	aungaung@example.com	Senior	Available
<a href="#">Edit</a>	3	Mya Mya	password123	1990-12-08	myamya@example.com	Junior	Unavailable
<a href="#">Edit</a>	4	Kyaw Kyaw	password123	1987-02-15	kyawkyaw@example.com	Senior	Available
<a href="#">Edit</a>	5	Thandar	password123	1995-06-25	thandar@example.com	Junior	Available

### **1.4.3 Iteration 3**

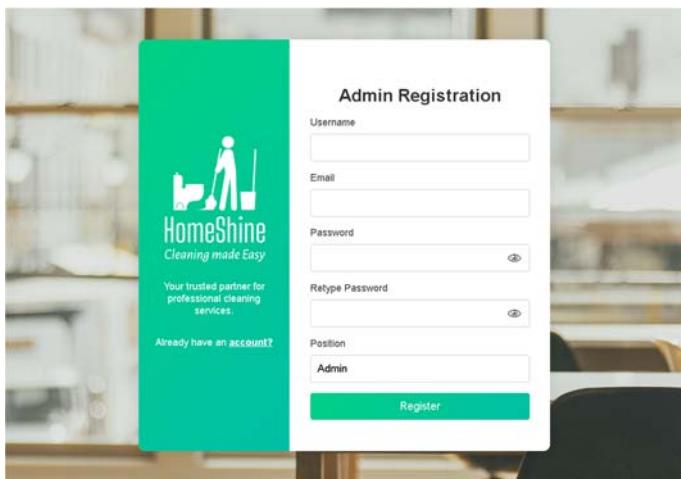
Users gave feedback that the buttons designs in the registration form and a log in form looked out of place. The buttons looked overwhelming compared to other components. Thus, the change to make the buttons smaller and use small texts with links in places where buttons are not needed was made.

#### **(Iteration 3) Admin Registration Form**

##### **Before**

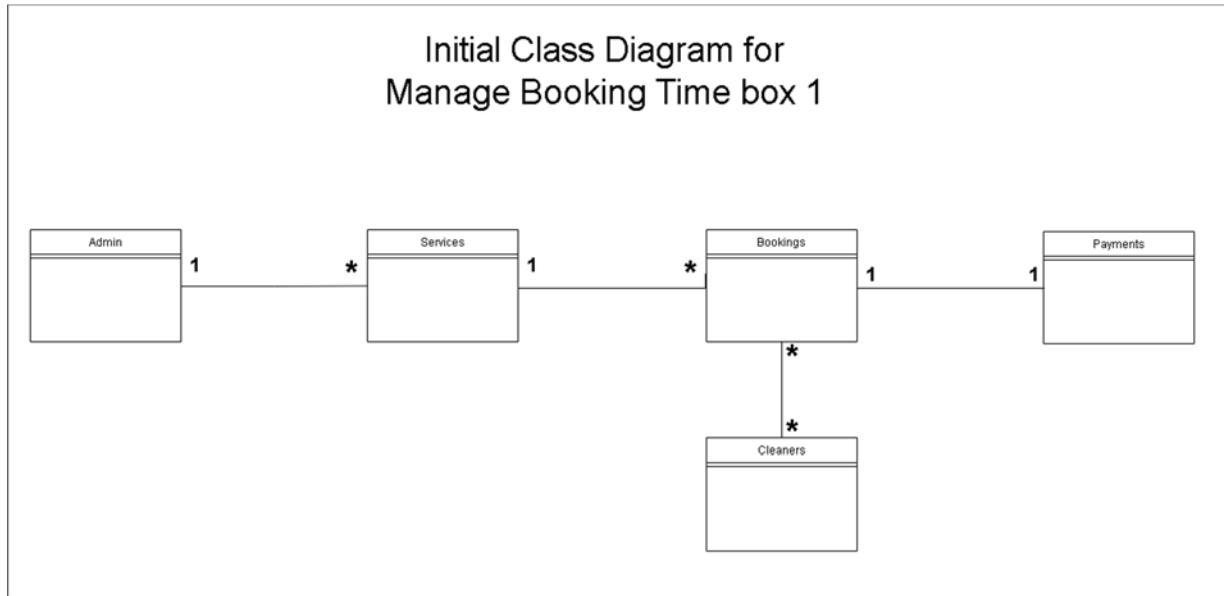


##### **After**

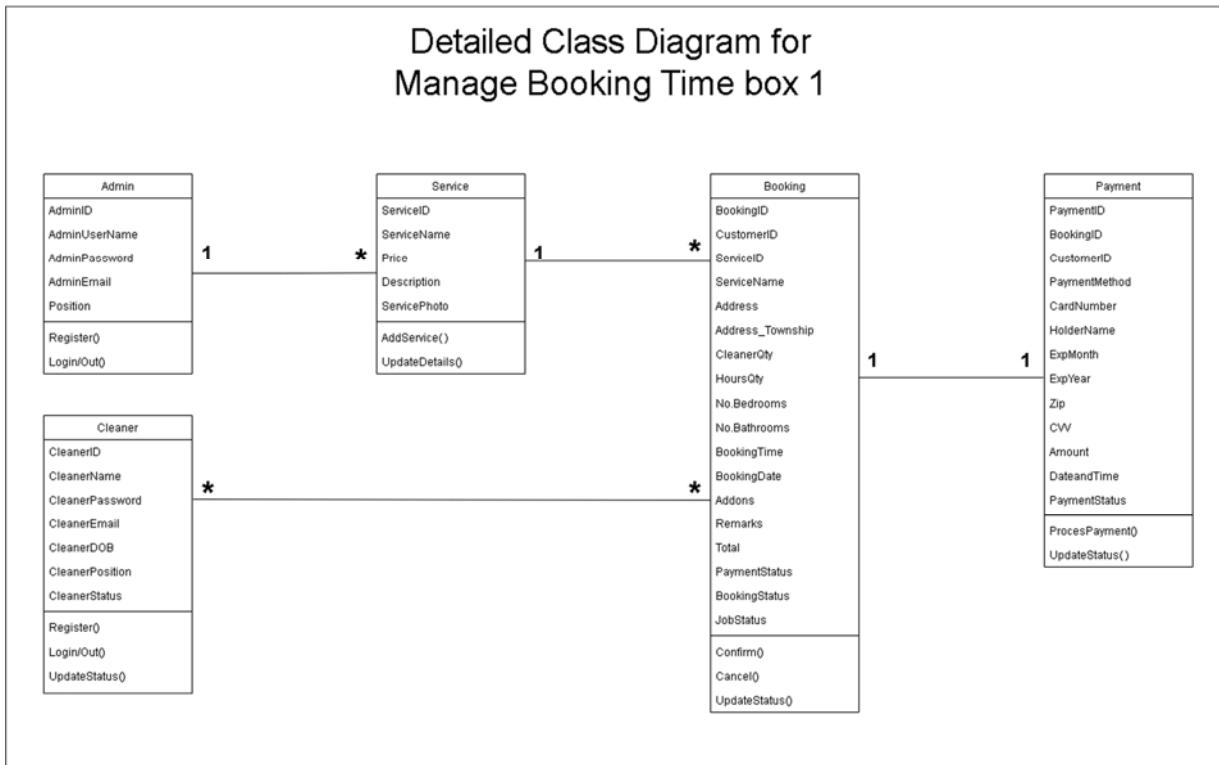


## 1.5 Class Diagram

### 1.5.1 Initial Class Diagram



### 1.5.2 Detailed Class Diagram



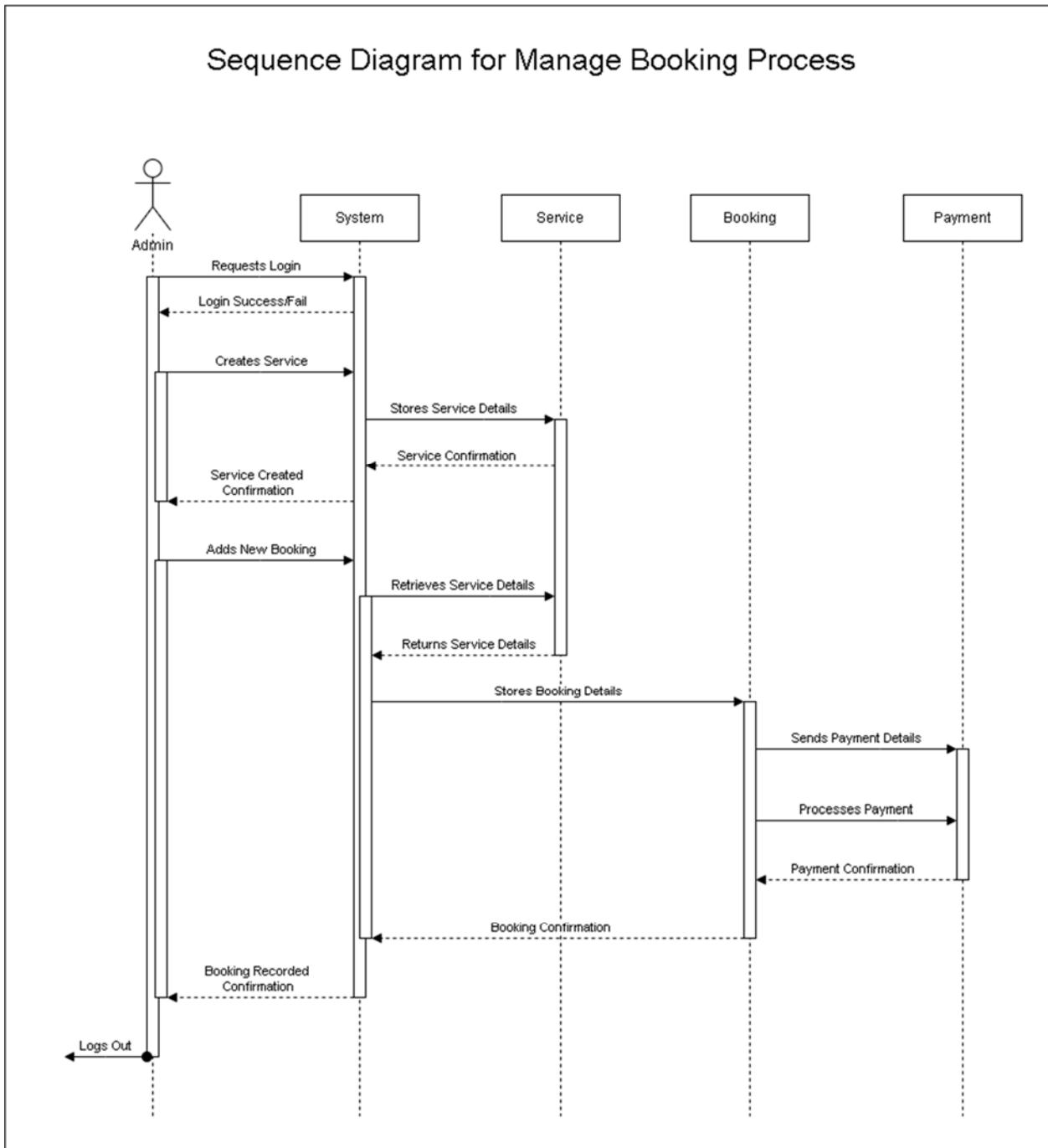
### Detail Class Definitions

<b>Class Name</b>	Admin
<b>Attributes</b>	Customer ID, AdminUserName, AdminPassword, AdminEmail, Position
<b>Operation</b>	Register (), LogIn/Out()
<b>Description</b>	<< The Admin class is used to do registration for administrators to manage operations such as Bookings, Payment and Services in the system.>>

For remaining, see Appendix.

## 1.6 Sequence Diagram for Booking Process

Sequence Diagram for Manage Booking Process



### **Sequence Diagram Description**

In this sequence, the Admin manages the booking process by first adding available services to the system. The admin can create, update, or delete services.

After services are in place, the admin can create a new booking by selecting a service, filling out the booking details, and associating it with a customer. Once the booking is finalized, the admin records the payment information.

The system confirms the payment and updates the booking status to "confirmed." This diagram involves interactions between the Admin, System, Service, Booking, and Payment entities, showing the full workflow from service management to booking confirmation via payment.

## **1.7 Functional Testing**

### **1.7.1 Test Plan**

#### **Module 1: Log In Authentication**

Test Script	Description	Date	Tester
1.1	Test Admin Email text box can be null or not	7- August- 2024	Pyae Sone Aung
1.2	Test Admin Password to be null or not	7- August- 2024	Pyae Sone Aung
1.3	Test if the same admin email exists	7- August- 2024	Pyae Sone Aung
1.4	Test the '@' in the E mail	7- August- 2024	Pyae Sone Aung
1.5	Tests if the Password and emails exists	7- August- 2024	Pyae Sone Aung
1.6	Test Register Button	7- August- 2024	Pyae Sone Aung

#### **Module 2: Admin Registration Entry**

Test Script	Description	Date	Tester
2.1	Test Admin Username text box can be null or not	7- August- 2024	Pyae Sone Aung
2.2	Test Admin Email text box can be null or not	7- August- 2024	Pyae Sone Aung
2.3	Test Admin Password to be null or not	7- August- 2024	Pyae Sone Aung
2.4	Test Admin Retype Password to be null or not	7- August- 2024	Pyae Sone Aung
2.5	Test if the same admin email exists	7- August- 2024	Pyae Sone Aung
2.6	Test the '@' in the E mail	7- August- 2024	Pyae Sone Aung
2.7	Tests if the Password are the same	7- August- 2024	Pyae Sone Aung
2.8	Test Log In Button	7- August- 2024	Pyae Sone Aung

### **Module 3: New Booking Entry**

Test Script	Description	Date	Tester
3.1	Test Booking ID is automatically made or not	7- August- 2024	Pyae Sone Aung
3.2	Test Customer Name to be null or not	7- August- 2024	Pyae Sone Aung
3.3	Test Service Name to be null or not	7- August- 2024	Pyae Sone Aung
3.4	Test Booking Date to be null or not	7- August- 2024	Pyae Sone Aung
3.5	Test Booking Time to be null or not	7- August- 2024	Pyae Sone Aung
3.6	Test Cleaner Qty to be null or not	7- August- 2024	Pyae Sone Aung
3.7	Test Hour Qty to be null or not	7- August- 2024	Pyae Sone Aung
3.8	Test Booking Township to be null or not	7- August- 2024	Pyae Sone Aung
3.9	Test Booking Address to be null or not	7- August- 2024	Pyae Sone Aung
3.10	Test Boking Remarks to be null or not	7- August- 2024	Pyae Sone Aung
3.11	Test Booking Add Ons to be null or not	7- August- 2024	Pyae Sone Aung
3.12	Test Bedrooms to be null or not	7- August- 2024	Pyae Sone Aung
3.13	Test Add Button	7- August- 2024	Pyae Sone Aung
3.14	Test Cancel Button	7- August- 2024	Pyae Sone Aung

#### **Module 4: Update Booking Status**

Test Script	Description	Date	Tester
4.1	Test Booking Status to change or not	7- August- 2024	Pyae Sone Aung
4.2	Test Update Button	7- August- 2024	Pyae Sone Aung
4.3	Test Cancel Button	7- August- 2024	Pyae Sone Aung

#### **Module 5: New Service Entry**

Test Script	Description	Date	Tester
5.1	Test Service ID is automatically made or not	7- August- 2024	Pyae Sone Aung
5.2	Test Service Name to be null or not	7- August- 2024	Pyae Sone Aung
5.3	Test Service Price to be null or not	7- August- 2024	Pyae Sone Aung
5.4	Test if Price is Number or Not	7- August- 2024	Pyae Sone Aung
5.5	Test Description to be null or not	7- August- 2024	Pyae Sone Aung
5.6	Test Add File to be null or not	7- August- 2024	Pyae Sone Aung
5.7	Test Add Button	7- August- 2024	Pyae Sone Aung
5.8	Test Cancel Button	7- August- 2024	Pyae Sone Aung

### **Module 6: Update Service Entry**

Test Script	Description	Date	Tester
6.1	Test Service ID is can be modified or not	7- August- 2024	Pyae Sone Aung
6.2	Test Service Name to be null or not	7- August- 2024	Pyae Sone Aung
6.3	Test Service Price to be null or not	7- August- 2024	Pyae Sone Aung
6.4	Test if Price is Number or Not	7- August- 2024	Pyae Sone Aung
6.5	Test Description to be null or not	7- August- 2024	Pyae Sone Aung
6.6	Test Add File to be null or not	7- August- 2024	Pyae Sone Aung
6.7	Test Update Button	7- August- 2024	Pyae Sone Aung
6.8	Test Cancel Button	7- August- 2024	Pyae Sone Aung

### **Module 7: Update Payment Status**

Test Script	Description	Date	Tester
4.1	Test Payment Status to change or not	7- August- 2024	Pyae Sone Aung
4.2	Test Update Button	7- August- 2024	Pyae Sone Aung
4.3	Test Cancel Button	7- August- 2024	Pyae Sone Aung

For remaining, see Appendix.

### **Test Script (1)**

<b>Unit Test 1</b>		<b>Test Case:</b> Register by data entry Admins	<b>Designed by:</b> Pyae Sone Aung	
<b>Data Source:</b> Admin Table		<b>Objective:</b> To test the Register of data entry admins	<b>Tester:</b> Pyae Sone Aung	
<b>Test Case</b>	<b>Description</b>	<b>Test Procedure</b>	<b>Expected Result</b>	<b>Actual Results</b>
1.1	Test Admin text box	Login button is clicked. Admin Email is blanked.	Show 'Please fill out this field' message.	See Fig.1.1 & 1.2

Before Testing

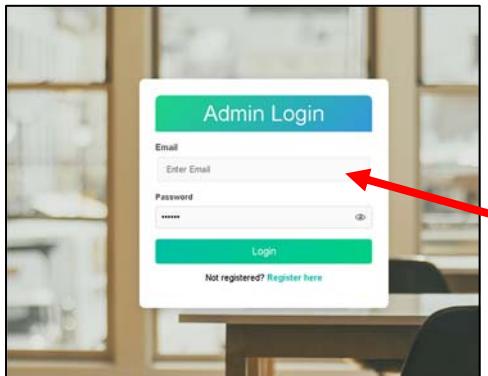


Fig.1.1

After Testing

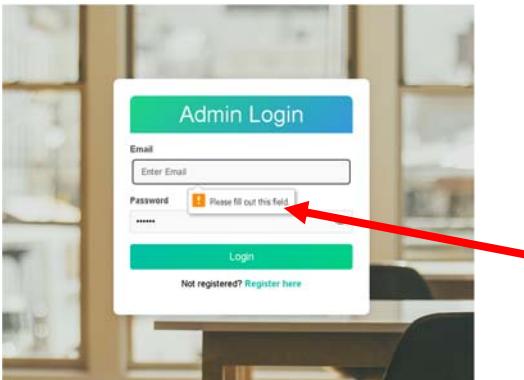


Fig.1.2

<b>Test Case</b>	<b>Description</b>	<b>Test Procedure</b>	<b>Expected Result</b>	<b>Actual Results</b>
1.2	Test Admin Password text box	Login button is clicked. Password is blanked.	Show 'Please fill out this field' message.	See Fig.1.2

Before Testing

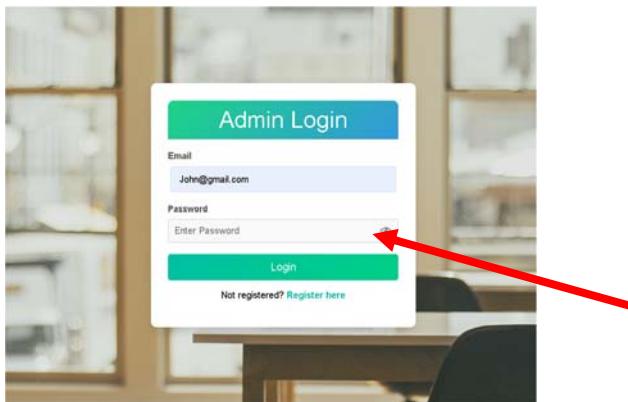


Fig.1.1

After Testing

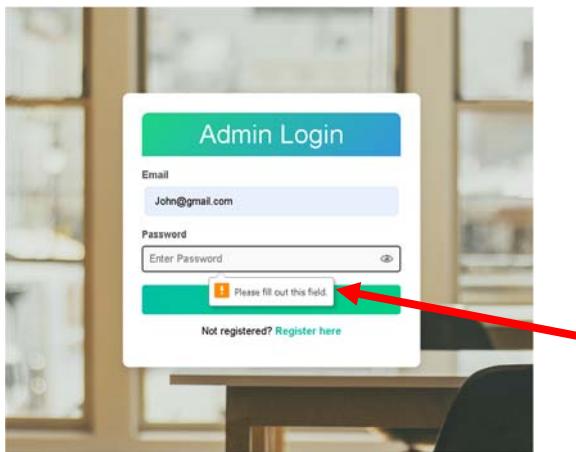


Fig.1.2

\*For remaining test cases, please see Appendix.

## 1.8 Usability Testing

### Visibility of System Status

The screenshot shows a web-based booking application. On the left, there's a sidebar with a user profile picture 'A' and a dropdown menu containing 'Home', 'Assign', and 'Manage'. The main content area has a header 'Boo' and a sub-header 'localhost says'. Below this, a success message 'Booking Added successfully' is displayed. The main form contains fields for 'Customer ID' (set to '31 - Vigen Nang'), 'Service Name' ('Deep Cleaning'), 'TownShip' ('Insein'), 'Address' ('123 Road, 24 building, room 4'), 'CleanerQty' ('4'), 'HourQty' ('4'), 'Bedrooms' ('2'), 'Bathrooms' ('3'), 'Date' ('15/04/2024'), 'Time' ('2:00 PM'), and 'Remarks' ('Knock on door'). A blue button labeled 'OK' is visible at the bottom right of the form.

Can see Status  
Prompt

The web-application keeps users informed about the status of their actions. So, for example, Prompts of “New Booking has been added” is notified to the user after each new booking creation.

### Match between System and Real World

The screenshot shows a user information edit form titled 'Edit Your Information'. It includes fields for AdminID (containing '2'), Username ('Anna Stone'), Email ('EmmaStoned@gmail.com'), Password ('\*\*\*\*\*'), Retype Password ('\*\*\*\*\*'), Position ('Receptionist'), and a green 'Update Information' button at the bottom.

Familiar language and  
concepts (icons)

The web-application strictly uses language and concepts familiar to users. Each word and description is written and shown in a way that will allow users to be familiar. Each label are written clearly and distinctively.

## Aesthetic and Minimalist Design

The screenshot shows a web application interface. At the top left, there is a user profile icon labeled 'A' and the name 'Anna Stone [edit]'. Below the profile are three small green circular icons. A red oval highlights these three icons. To the right of the icons is a search bar with a magnifying glass icon and a 'Search' button. The main content area has a dark header with the text 'Simple and Minimalist Colors and Design'. Below the header is a section titled 'Total Payments' with a table titled 'Payment'. The table has columns for PaymentStatus, PaymentID, CustomerID, BookingID, PaymentMethod, CardNumber, HolderName, ExpMonth, ExpYear, Zip, CVV, Amount, and DateandTime. The data in the table is as follows:

PaymentStatus	PaymentID	CustomerID	BookingID	PaymentMethod	CardNumber	HolderName	ExpMonth	ExpYear	Zip	CVV	Amount	DateandTime
Unprocessed	40	1	12	Credit	1111222333444	Pya Sone Aug	December	2026	8822	332	37550.00	2024-09-17 00:16:31
Pending	51	42	13	KBZPay	092233212233	U Jack Ronan					10000.00	2024-09-23 01:03:18
Pending	52	43	14	Cash							20000.00	2024-09-26 20:29:29
Pending	53	1	15	Cash							1007500.00	2024-09-30 02:12:01

The web-application strictly uses the same color palate, across the whole entirety of the application. The design is also very simple and minimalist. Using clean design to the whole design eases users' eyes.

## Consistency and standard

The screenshot shows an 'Admin Registration' form. On the left, there is a sidebar with the 'HomeShine Cleaning made Easy' logo and the text 'Your trusted partner for professional cleaning services'. Below this is a link 'Already have an account?'. The main form has a title 'Admin Registration' and fields for 'Username', 'Email', 'Password', 'Retype Password', 'Position' (set to 'Admin'), and a 'Register' button. A blue callout box with the text 'Standardized Interface layout' points to the form.

Consistency is maintained across the web-application for ease of use. This allows users to easily and comfortably navigate through the web-application smoothly. The design also follows a standard web-application layout, for each component including forms and profiles.

## Error Prevention

The screenshot shows a user interface for booking a service. On the left is a sidebar with a profile icon (labeled 'A') and the text 'Anna Stone [edit]'. Below this are three buttons: 'Home', 'Assign', and 'Manage'. The main area is titled 'Booking ID: 22'. It contains several input fields: 'Customer ID' (dropdown, value '27 - Zin Mar'), 'Service Name' (dropdown, value 'Select Service', with 'Yard Work' highlighted in blue), 'TownShip' (dropdown, value 'Select Service'), 'Address' (dropdown, value 'Standard Cleaning'), 'CleanerQty' (text input), 'HourQty' (text input), 'Bedrooms' (text input), and 'Bathrooms' (text input). A blue callout box with a pointer to the 'Service Name' dropdown contains the text 'Combo-box instead of textbox'.

The web-application is designed to prevent any potential errors before they occur. In data inputs, combo boxes are used . As they restrict invalid entries by allowing only available option. For example, New Booking creation. This prevents incorrect and incomplete data from being entered.

## User Control and Freedom

The screenshot shows a user profile editing page. On the left is a sidebar with a profile icon (labeled 'A') and the text 'Anna Stone [edit]'. Below this are three buttons: 'Home', 'Assign', and 'Manage'. The main area is titled 'User Profile' and shows the user's information: Anna Stone, EmmaStone@gmail.com, Position: Receptionist, and a red 'Logout' button. Below this is a section titled 'Edit Your Information' with fields for AdminID (2), Username (Anna Stone), Email (EmmaStone@gmail.com), Password, Retype Password, and Position (Receptionist). At the bottom is a green 'Update Information' button.

The site allows users to undo or redo actions easily. For example, the admin can freely change their own profile details and other users such as cleaners and customers. They can change their Account details and also have a way for them to log out of the application.

## **1.9 Iteration for Usability Testing**

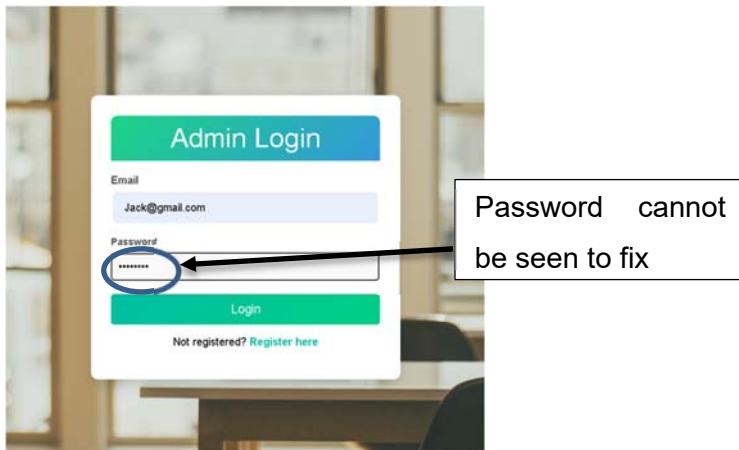
### **19.1 Iteration 1**

Users tell that the Log in form's password field is hidden so that the password would be safe and secured, from public view. But it comes with a price of visibility issues, as the user can't know what they've actually typed text field. Which can be extremely frustrating especially after multiple login failure attempts.

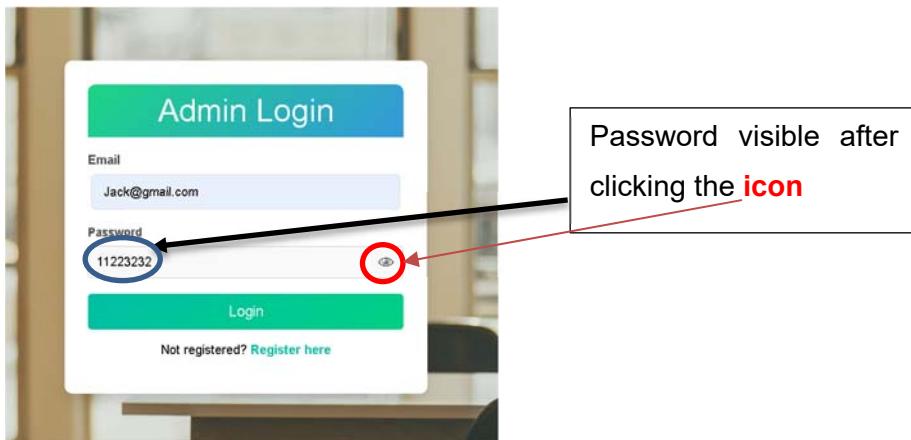
#### **(Iteration 1) Iteration For Visibility of System Status**

To address and improve this visibility issue, an eye icon is added to allow users to see what they've typed.

##### **Before**



##### **After**



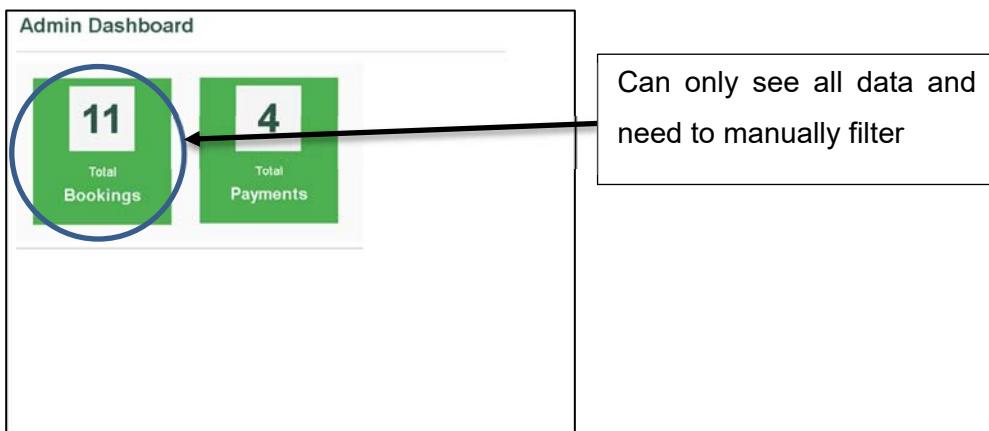
## **19.2 Iteration 2**

Users gave suggestions that the filters and the search bar was not efficient or easy to use to see main types of data. This is especially for booking and Payments, where they need to manually search and filter columns to see each status.

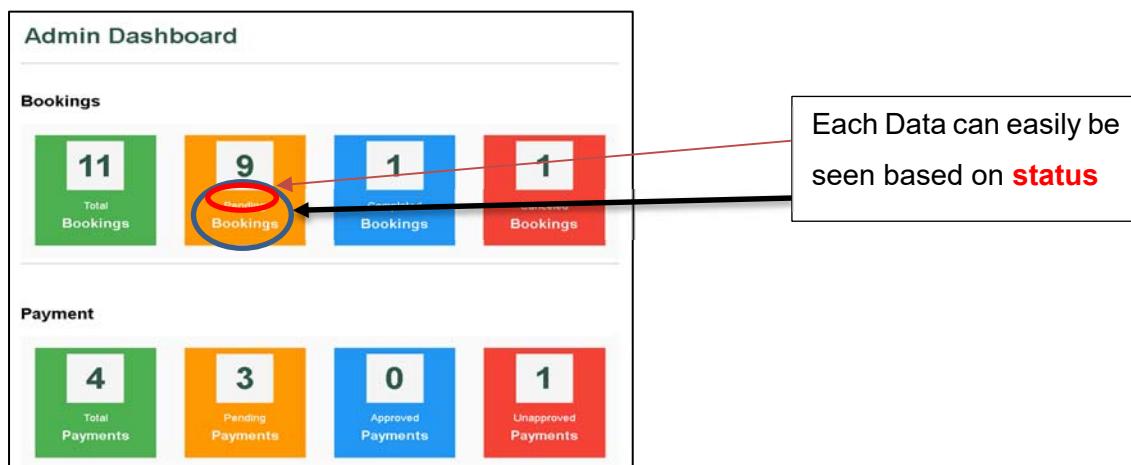
### **(Iteration 2) Iteration For Flexibility and Efficiency of Use**

To address and improve this visibility issue, a clean interface is introduced to make it more efficient for users to see groups of data easily.

#### **Before**



#### **After**



## **1.10 Time box Summary**

### **Work Done**

The time box was successfully done and all functionalities and non-functionalities are implemented into the developed web-application. All functions and interfaces were iterated and improved based on user feedback. Functional testing and Usability testing was also done for each of the processes in mentioned in the timebox table. Various improvements including both functional and non-functionals are also made.

### **Problems (Issues)**

After the functional requirements defining and prototyping, a requirement was suddenly changed. This highly disrupted the work flow and also caused unnecessary stress.

### **Solutions**

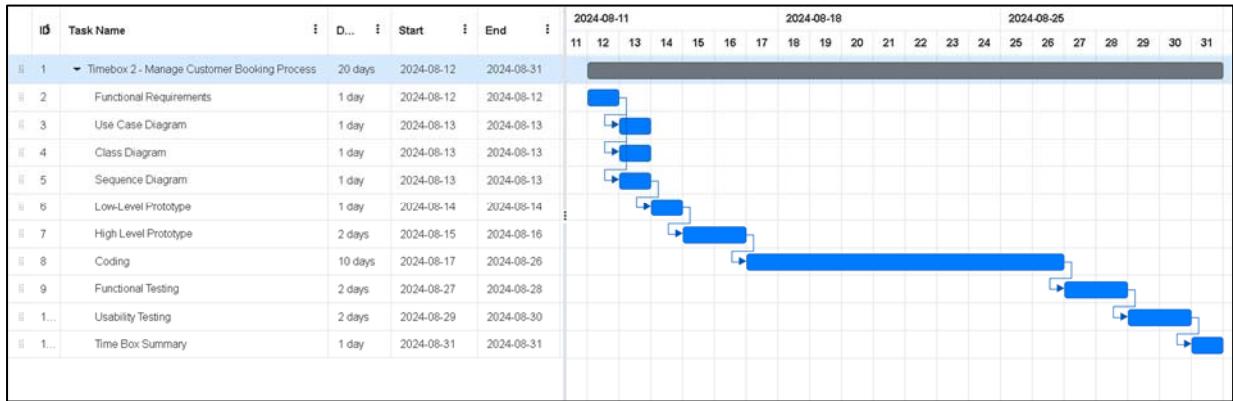
The whole development timeline and management was carefully planned for this whole project. The timeline was flexible and comfortable enough to be able to accommodate this sudden change. This means the development process for this timebox was complete led with enough time for the next timebox to be developed.

### **Remaining Time-boxes**

There are 2 more timeboxes left to be developed in this project. The timebox 2 is about the customer interface interacting and making bookings. The final one, timebox 3 is about admins assigning specific cleaners to confirmed booking.

## 5.2 Manage Customer Booking Time Box 2 Development

### 2.1 Project Plan for Time Box 2



#### 2.1.1 Functional Requirements List

##### 2. Manage Customer Booking Process (Timebox 2)

###### **2.1 Manage Customer (HL) (M)**

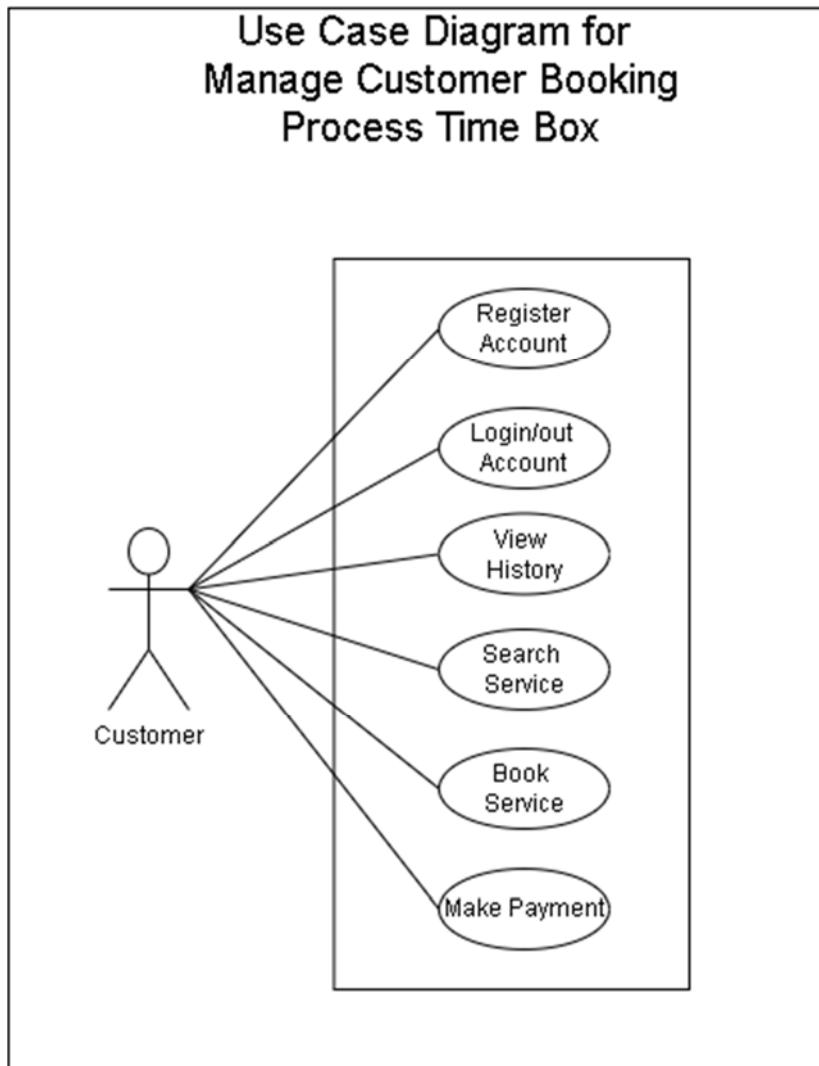
- Register Customer (ML)
  - Email already exists check (LL)
  - Password Length check (LL)
  - Check text Fields Null (LL)
- Update Customer (ML)
  - Check text Fields Null (LL)
- Delete Customer (ML)
  - Confirmation Check (LL)
- Search Customer (ML)
  - Check text Fields Null (LL)
  - Check based on Column Value (LL)
- Customer Login (ML)
  - Email is valid check (LL)
  - Password is valid check (LL)
  - Check text Fields Null (LL)
- Customer Logout (ML)
  - Confirmation Check (LL)
- Report Customer (ML)

- Customer Booking History (LL)

## 2.1 Record Bookings (HL) (M)

- Create Booking
  - Calculate Total Price (LL)
  - Calculate total hours (LL)
  - Calculate total cleaners (LL)
  - Add Extra Add on (LL)
- Schedule Booking
  - Valid Date Check (LL)
  - Valid Township Check (LL)
  - Null Input Check (LL)
- Cancel Booking
  - Confirmation Check (LL)
- Confirm Booking
  - Confirmation Check (LL)
- Payment Processing
  - Payment Selection (LL)
  - Null Input Check (LL)
  - Policy Checkbox Check (LL)
  - Calculate total price (LL)
  - Auto Receipt PDF generate (ML)

## 2.2 Use Case Diagram



### Use Case Description

<b>Use Case Name</b>	Manage Customer Booking Process
<b>Actor</b>	Customer
<b>Flow of Event</b>	Fill details in register form. New account is created. Fill the booking details in the booking form. New booking is recorded.

\*For remaining, see Appendix.

## 2.3 Screen Design

### 1) Customer Register Form

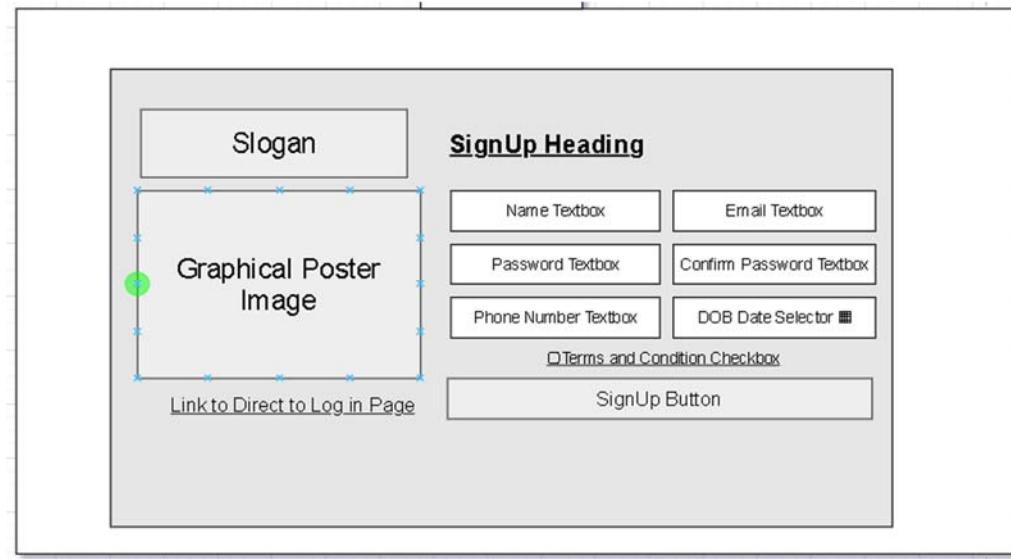


Fig 2.3.1a Low Level Prototype for Customer Registration

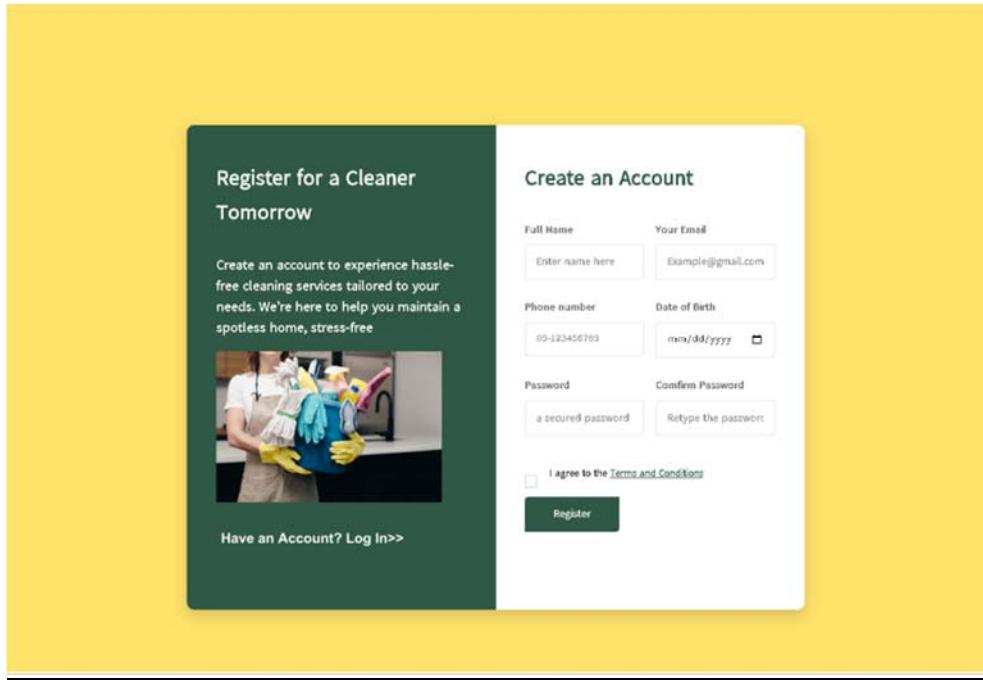
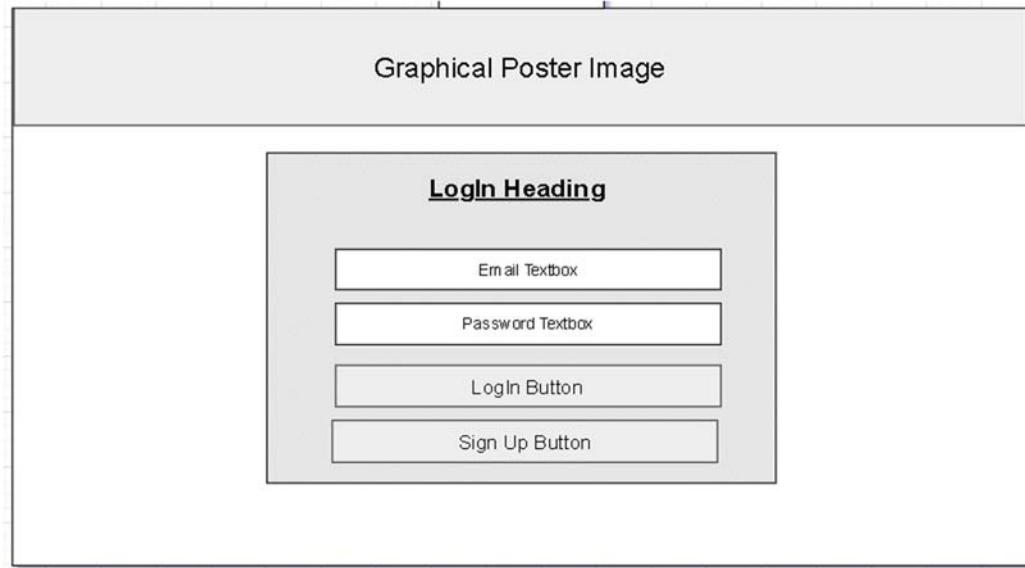
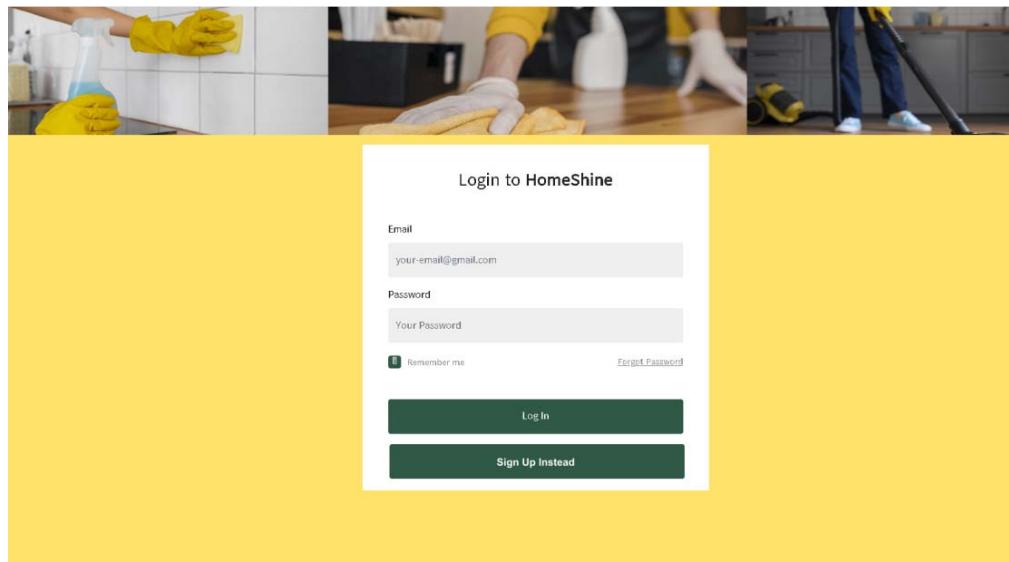


Fig 2.3.1b High Level Prototype for Customer Registration

## 2) Customer LogIn Form



*Fig 2.3.2a Low Level Prototype for Customer LogIn*



*Fig 2.3.2b High Level Prototype for Customer LogIn*

### 3) Customer Home

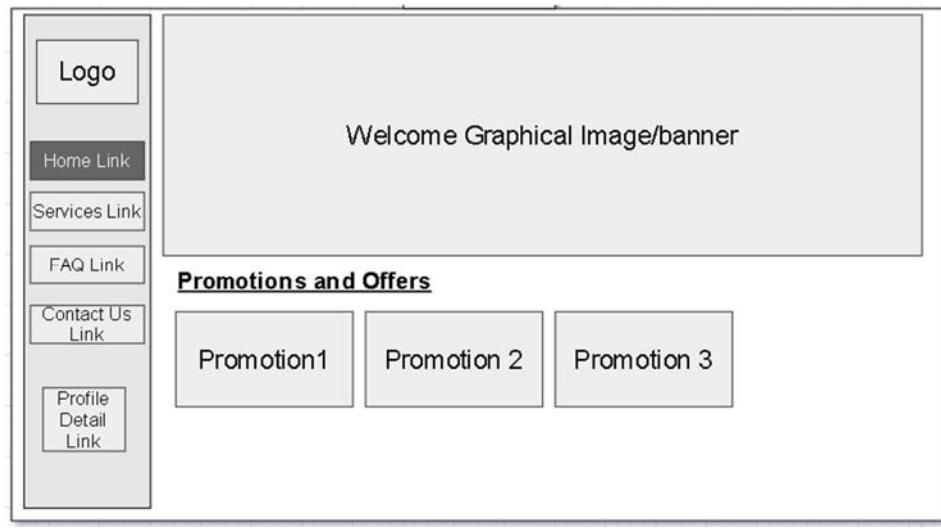


Fig 2.3.3a Low Level Prototype for Customer Home



Fig 2.3.3b High Level Prototype for Customer Home

#### 4) FAQ

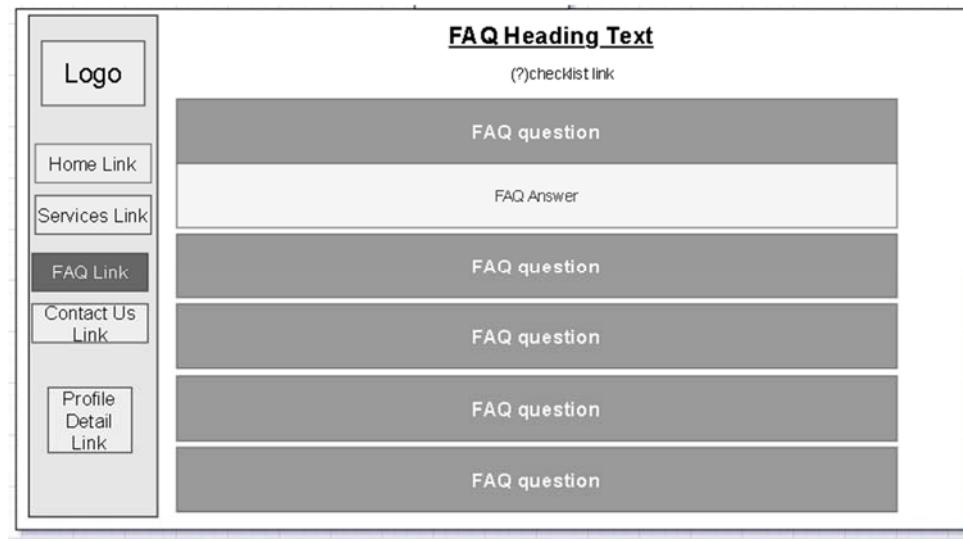


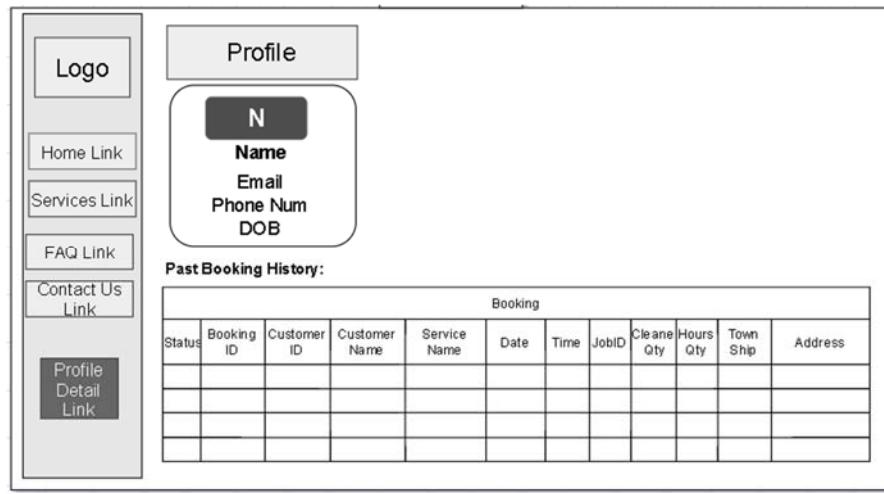
Fig 2.3.4a Low Level Prototype for FAQ

The diagram illustrates a high-level prototype for a Frequently Asked Questions (FAQ) section. On the left, there is a vertical sidebar menu with the following items: HomeShine Cleaning made Easy logo, Home, Services, FAQ (which is highlighted), Contact Us, and a profile icon with the letter 'P' and the text "Pyae Sone [edit]". The main content area has a title "Frequently Asked Questions" and a sub-link "Check Out our Service Comparison CheckList!". Below the title, there is a list of questions and their answers, each presented in a green box:

- Can I cancel or reschedule my booking?  
Yes, you can cancel or reschedule your booking up to 24 hours before the scheduled time without any additional charges.
- How do I book a cleaning service?
- What if I am not satisfied with the cleaning service?
- What cleaning products do you use?
- Do I need to provide cleaning equipment?
- Is there a satisfaction guarantee?

Fig 2.3.4b High Level Prototype for FAQ

## 5) Profile



*Fig 2.3.1a Low Level Prototype for Profile*

The diagram illustrates a high-level prototype for a 'User Profile' page. On the left, there is a vertical sidebar with a logo icon, followed by links for 'Home', 'Services', 'FAQ', and 'Contact Us'. Below these links is a dark green section with the text 'Pyae Sone [edit]' and a circular profile picture with a 'P' inside. The main content area is titled 'User Profile' and shows a profile card for 'Pyae Sone' with the email 'psaung1229@gmail.com' and the phone number '0922332123'. Below the profile card is a 'Logout' button. Underneath this is a section titled 'Your Past Bookings' with a circular profile picture with a 'P' inside. A table below this section lists past bookings with columns for Status, Booking ID, ServiceName, Addons, Address, Township, Date, and Total Price. The table data is as follows:

Status	Booking ID	ServiceName	Addons	Address	Township	Date	Total Price
Canceled	8	Move in Move Out	Waxing the Floor - \$20, Window Cleaning - \$25	Build 24 A, Pyay Road	Insein	2024-09-21	420.00
Pending	9	Yard Work	Fridge Cleaning - \$15, Window Cleaning - \$25	Address 1 is one	Hlaing	2024-09-11	15040.00
Pending	10	Move in Move Out	Waxing the Floor - \$20	12 rose road, Orchid Street, Building 221, Room 2	Sanchaung	2024-09-19	450020.00
Pending	11	Standard Cleaning	Window Cleaning - \$25	12 rose road, Orchid Street, Building 221, Room 2	Kameydi	2024-09-26	30025.00
Completed	12	Standard Cleaning	Waxing the Floor - \$20, Carpet Cleaning - \$30	55 Oval Street, Square Apt, Room3	Kameydi	2024-09-13	37550.00
Pending	15	Deep Cleaning	Fridge Cleaning - MMK 7500	22 A, 31 road, main street	Kyauktada	2024-10-05	1007500.00

*Fig 2.3.1b High Level Prototype for Profile*

## 6) Services

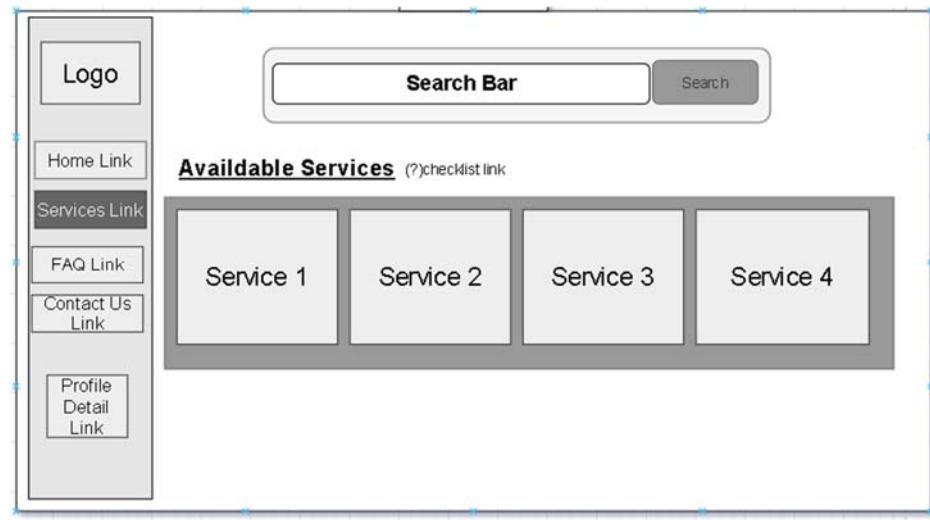


Fig 2.3.6a Low Level Prototype for Services

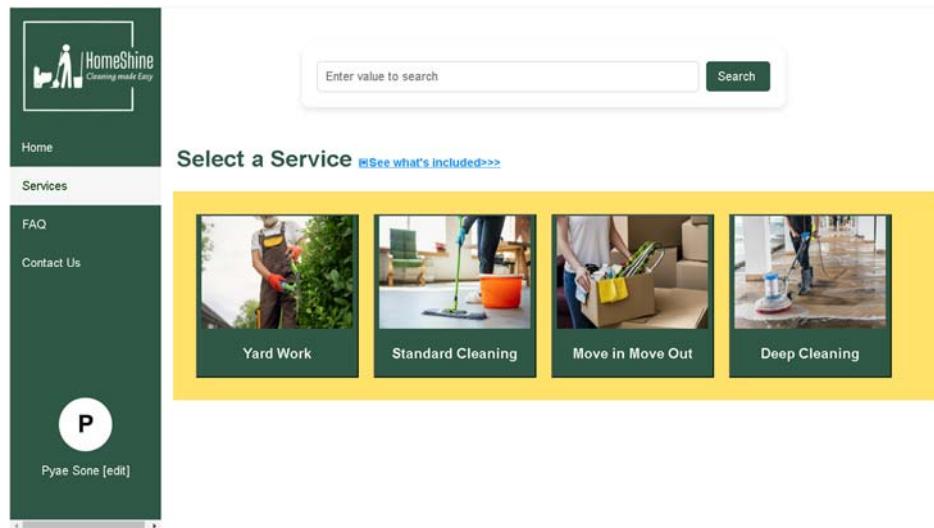


Fig 2.3.6b High Level Prototype for Services

## 7) Service Details

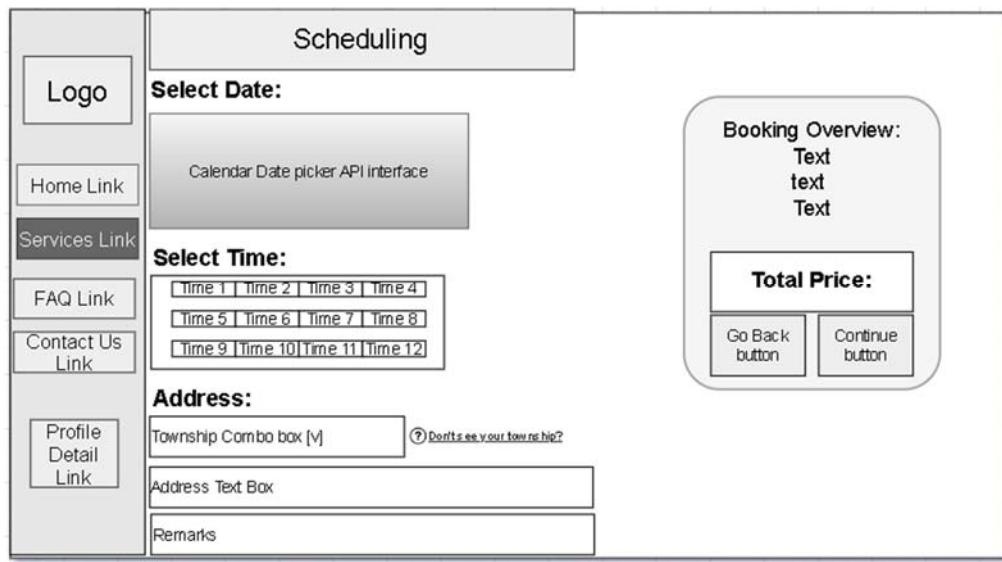
This low-level prototype for 'Service Details' shows a sidebar with links: Logo, Home Link, Services Link, FAQ Link, Contact Us Link, and Profile Detail Link. The main area has a title 'Service Details' and a sub-section 'Service Details' with a '(?)checklist link'. It includes a 'Description Text' input field, 'Number of Bedrooms' (Combo box [v]), 'Number of Bathrooms' (Combo box [M]), 'Extra Add ons' (two items: 'Add on 1' and 'Add on 2', each with an image, price, and checkbox), and a summary section with 'Cleaners Needed : XX', 'Hours Needed : XX', and a 'Total:' label.

*Fig 2.3.7a Low Level Prototype for Service Details*

This high-level prototype for 'Service Details' features a sidebar with Home, Services, FAQ, and Contact Us links, plus a profile icon labeled 'Pyae Sone [edit]'. The main page has a title 'Service Details' and a sub-section 'Move in Move Out Details' with a 'See what's included>>' link. It shows a 'Base Price: MMK300000.00' and a detailed description of the service. Below this, it asks to 'Select the number of Bedrooms and Bathrooms' with dropdown menus for 'Bedrooms' (Studio) and 'Bathrooms' (1 Bathroom). A 'Required Time and Crew' section on the right shows 'Total Hours: 0.5' and 'Total Cleaners: 1'. At the bottom, there's a summary 'Total : 300000 MMK' and 'Go Back' and 'Continue' buttons. The 'Additional Add-Ons' section lists 'Waxing the Floor' (MMK 15000) and 'Fridge Cleaning' (MMK 7500).

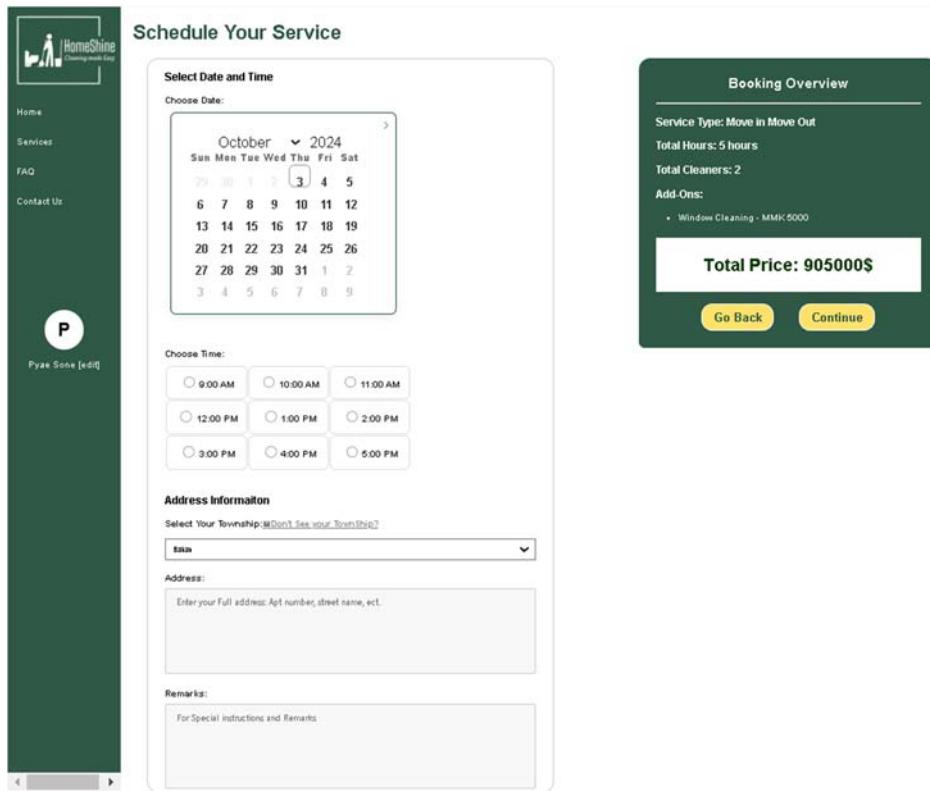
*Fig 2.3.7b High Level Prototype for Service Details*

## 8) Scheduling



This wireframe illustrates the initial structure of the scheduling interface. It features a sidebar on the left with links for Logo, Home Link, Services Link, FAQ Link, Contact Us Link, and Profile Detail Link. The main area is titled 'Scheduling' and contains sections for 'Select Date:' (with a calendar date picker API interface), 'Select Time:' (listing time slots from 1 to 12), 'Address:' (with Township Combo box, Address Text Box, and Remarks fields), and 'Booking Overview:' (Text, Total Price: \$100, Go Back button, and Continue button).

*Fig 2.3.8a High Level Prototype for Scheduling*



This mockup shows a more polished version of the scheduling interface. The sidebar includes Home, Services, FAQ, Contact Us, and a Profile section with a 'Pay Some [edit]' button. The main page title is 'Schedule Your Service'. It includes a 'Select Date and Time' section with a calendar showing October 2024 and time slots from 9:00 AM to 5:00 PM. Below this are 'Address Information' fields for Township and Address, and a 'Remarks' field. To the right is a 'Booking Overview' summary box containing service type (Move in Move Out), total hours (5 hours), total cleaners (2), add-ons (Window Cleaning - MMK 5000), and a total price of 905000\$. It also features 'Go Back' and 'Continue' buttons.

*Fig 2.3.8b High Level Prototype for Scheduling*

## 9) Credit Card Checkout

This low-level prototype for a credit card checkout interface is divided into three main sections:

- Left Sidebar:** Contains a logo, a navigation menu with links for Home Link, Services Link, FAQ Link, Contact Us Link, and Profile Detail Link.
- Center:** A large box titled "Checkout" contains payment selection radio buttons (KBZPay, Cash, Credit), a "Credit card payment" section with fields for Credit Card Number, Name of Card Holder, Exp Date, Zip Code, and CVV, and a "Payment Policy Checkbox". Below these is a "Proceed and Confirm Payment" button.
- Right Sidebar:** Titled "Order Summary" shows a total amount of "XXXX \$". The "Order Details" section lists service details: No. bedroom - xxx, No. bathroom - xxx, Service - XXXXX, Total Hours - xxx, and Total Cleaners - xx. The "Grand Total" section shows a total of "MMK 905000.00". The "Order Details" section also includes date, time, township, address, and a download link for the e-receipt.

Fig 2.3.9a Low Level Prototype for Credit Checkout

This high-level prototype for a credit card checkout interface is structured as follows:

- Left Sidebar:** Includes a logo for "HomeShine Cleaning made Easy", a navigation menu with Home, Services, FAQ, Contact Us, and a user profile section showing "P Pyae Sone [edit]".
- Center:** A "Check Out" section contains payment selection radio buttons (Credit Card selected, Cash on Delivery, KBZ Pay). The "Credit Card Payment" form includes fields for Accepted Cards (VISA, MasterCard, American Express, Discover), Credit card number (1111-2222-3333-4444), Name on Card (John Doe), Exp Month (September), Zip (10001), Exp Year (2018), and CVV (362). It also features a "I agree to Payment Policy" checkbox and a "Proceed to CheckOut" button.
- Right Sidebar:** Titled "Order Summary" displays a total amount of "MMK 905000.00". The "Order Details" section provides specific service information: OrderID - 23, No. Bedrooms - 3, No. Bathrooms - 3, Service - Move in Move Out, Total Hours - 5.00, and Total Cleaners - 2. The "Grand Total" section reiterates the total amount. The "Order Details" section also includes date, time, township, address, addons (Window Cleaning - MMK 5000), and remarks (No cats). A "Download E-Receipt" button is located at the bottom right.

Fig 2.3.9b High Level Prototype for Credit Checkout

## 10) Cash checkout

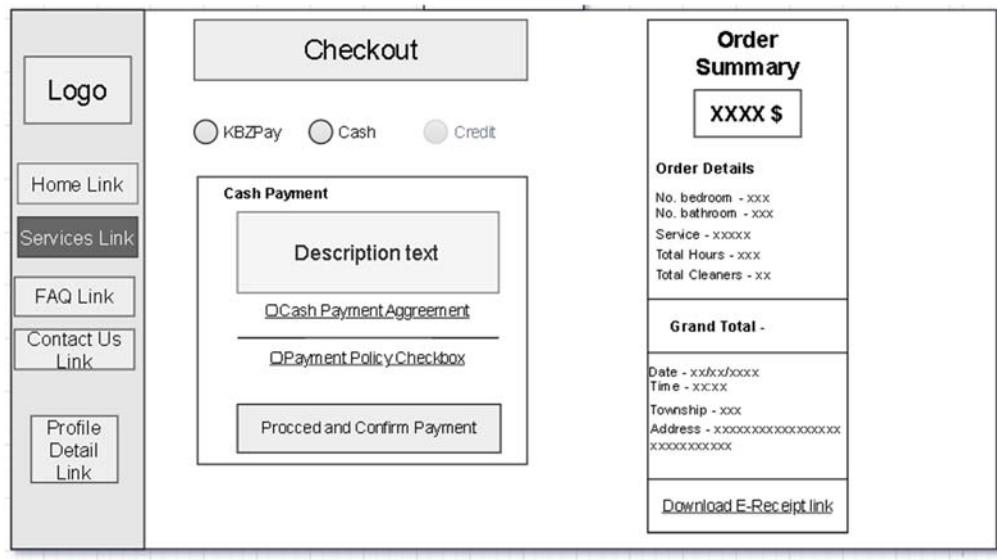


Fig 2.3.10a Low Level Prototype for Cash Checkout

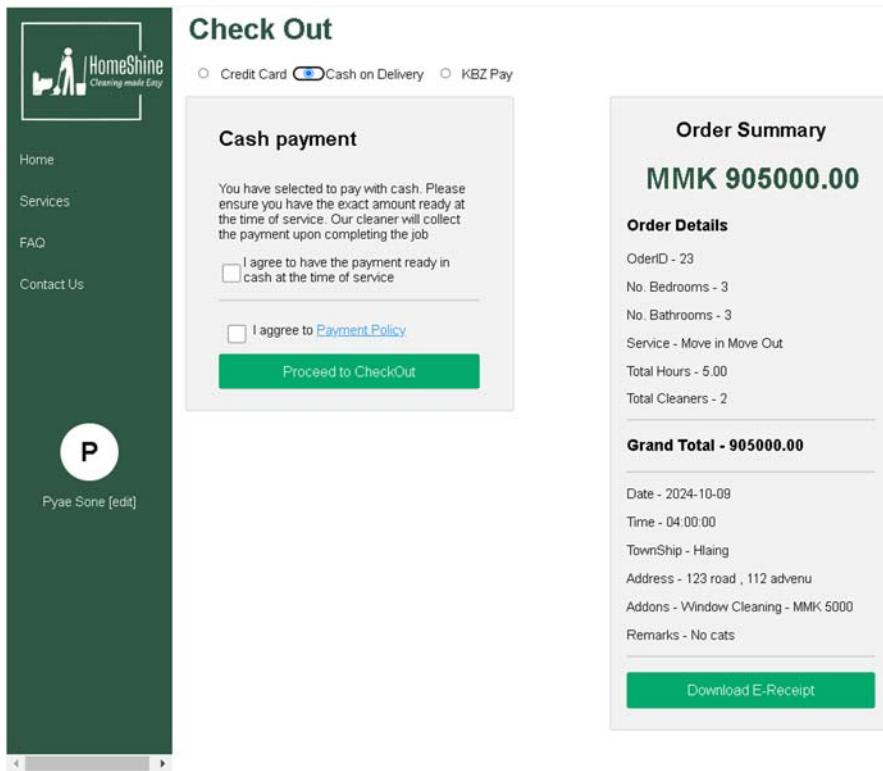


Fig 2.3.10b High Level Prototype for Cash Checkout

## 11) KBZPay Checkout

This low-level prototype for KBZ Checkout is a wireframe showing the layout of the payment screen. It includes a sidebar with links for Logo, Home Link, Services Link, FAQ Link, Contact Us Link, and Profile Detail Link. The main area has a 'Checkout' header and three sections: 'KBZPay Payment' containing a QR code and payment fields, 'Order Summary' showing a total of 'XXXX \$', and 'Order Details' with placeholder data like 'No. bedroom - xxx'. A 'Proceed and Confirm Payment' button is at the bottom.

*Fig 2.3.11a Low Level Prototype for KBZ Checkout*

This high-level prototype for KBZ Checkout is a detailed design. It features a sidebar with Home, Services, FAQ, Contact Us, and a profile section for 'Pyaie Sone [edit]'. The main content area has a 'Check Out' header and three sections: 'KBZPay payment' showing a QR code for 'Name: U Aung Kyaw' and '09-961234567', 'Order Summary' showing a total of 'MMK 905000.00', and 'Order Details' with specific values. A 'Proceed to CheckOut' button is at the bottom of the payment section.

*Fig 2.3.11b High Level Prototype for KBZ Checkout*

## 12) Booking Confirmation

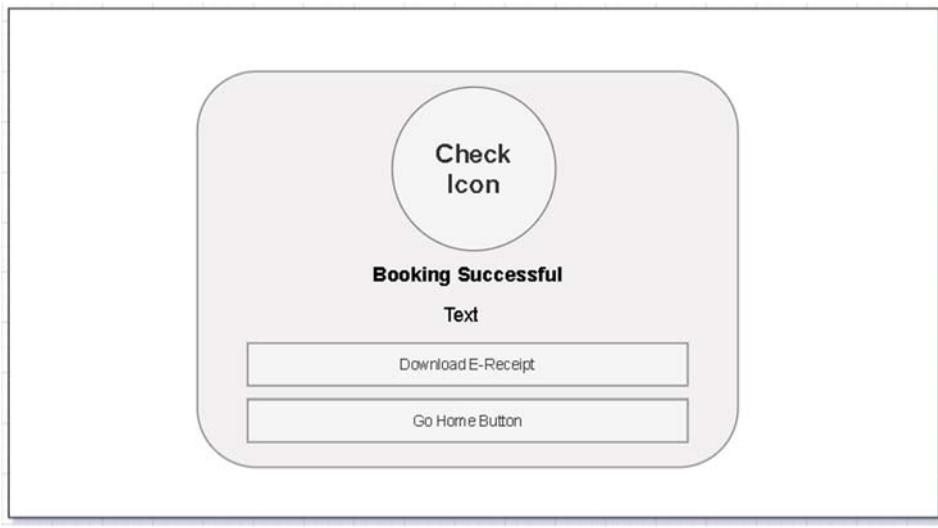


Fig 2.3.12a Low Level Prototype for Booking Confirmation

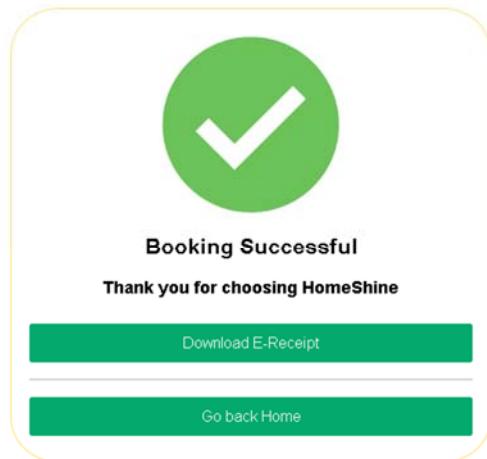


Fig 2.3.12b High Level Prototype for Booking Confirmation

## 2.4 Iteration for Screen Design

### 2.4.1 Iteration 1

Users says that the customer registration form is good but have a few suggestions to improve it. As they couldn't clearly find the login option from the registration form. Thus, the login option is slightly improved and changed into a button.

#### (Iteration 1) Screen Design for Customer Register Form

##### Before

The screenshot shows a registration form titled 'Create an Account'. It includes fields for 'Full Name' (with placeholder 'Enter name here' and example 'Example@gmail.com'), 'Phone number' (with placeholder '09-123456789' and date input field 'mm/dd/yyyy'), 'Password' (with placeholder 'a secured password'), 'Confirm Password' (with placeholder 'Retype the password'), and a checkbox for 'I agree to the Terms and Conditions'. A 'Register' button is at the bottom. On the left, there's a sidebar with a heading 'Register for a Cleaner Tomorrow' and a sub-section with text about hassle-free cleaning services and a photo of a cleaner. A link 'Already have an account? Log in here >>>' is also present.

##### After

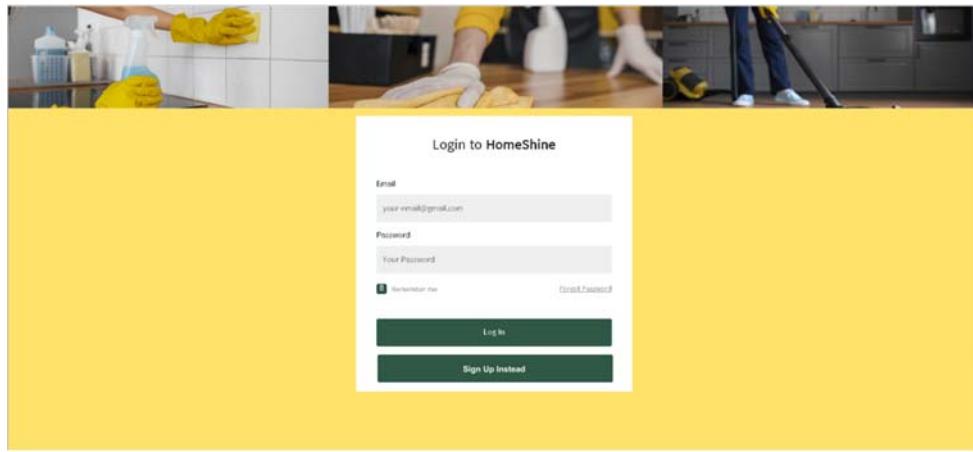
The screenshot shows the same registration form as before, but with a visual improvement. The 'Log in here' link has been converted into a blue button labeled 'Have An Account' with a white outline. The rest of the form and sidebar content remain the same.

### **2.4.1 Iteration 2**

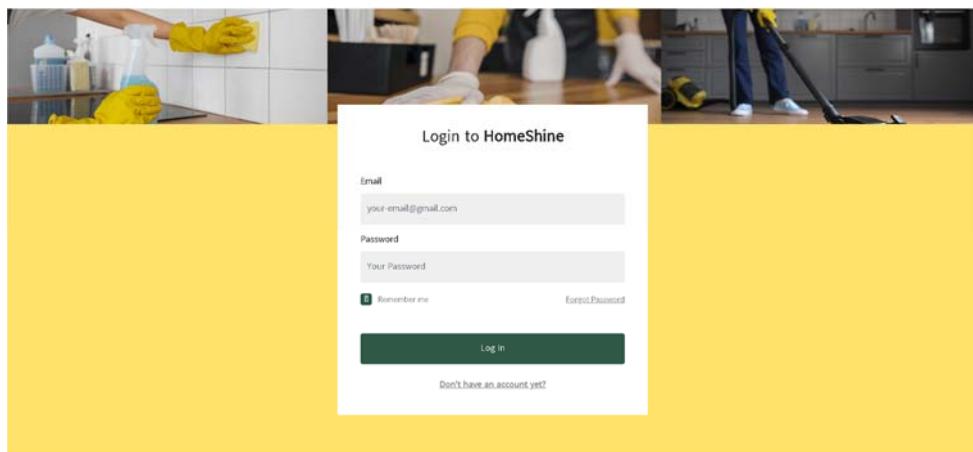
Users suggested making the Login page clearer and emphasize on the log in process. The use of using the exact same design for both sign up and log in can cause unnecessary confusion. To fix this, the sign up interface is changed in a way that is still remotely visible but doesn't overwhelm the log in button.

#### **(Iteration 1) Screen Design for Customer Login Form**

##### **Before**

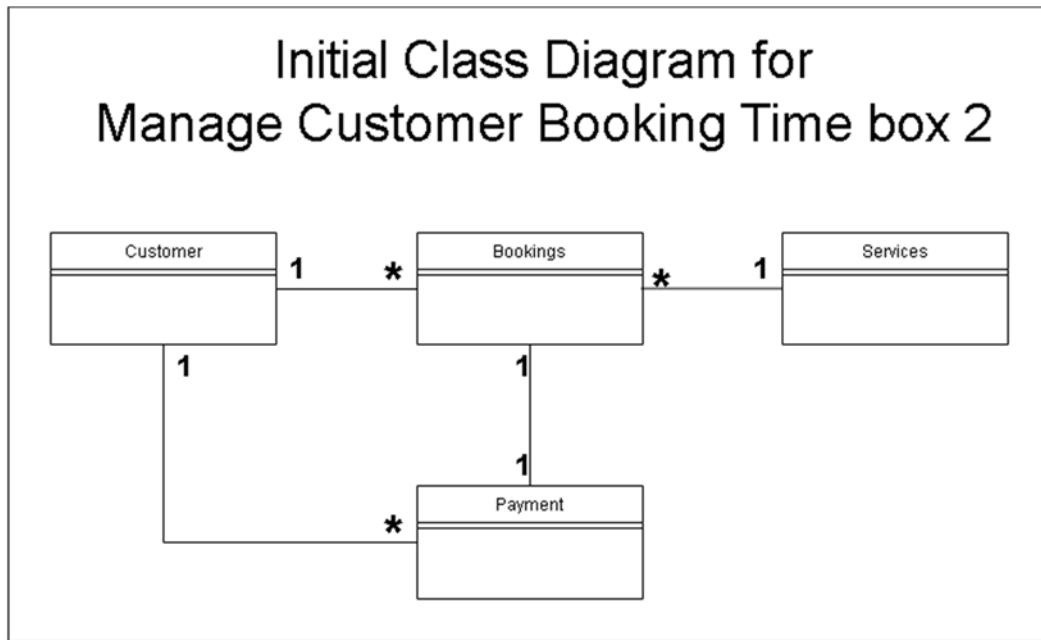


##### **After**

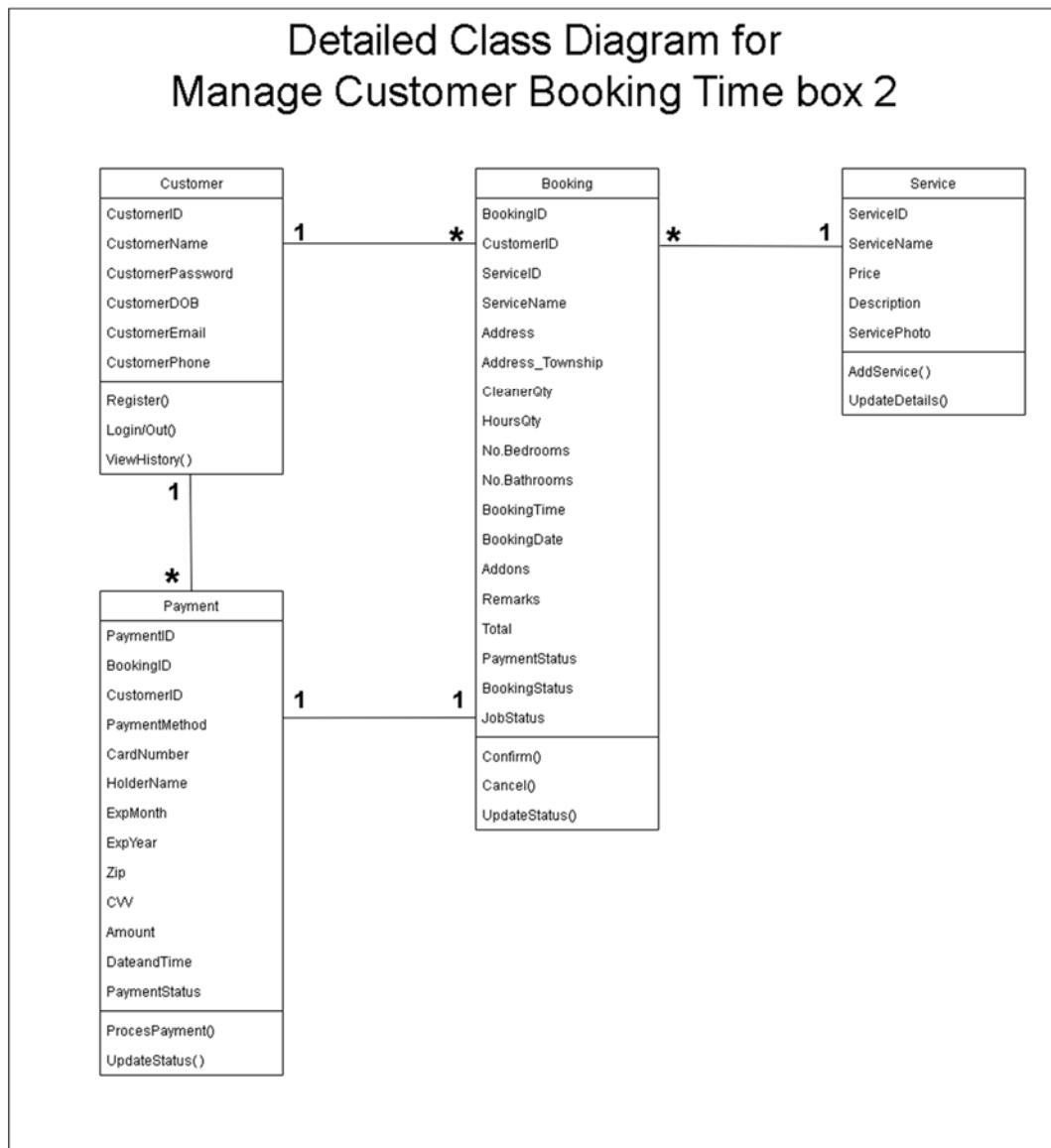


## 2.5 Class Diagram

### 2.5.1 Initial Class Diagram



## 2.5.2 Detailed Class Diagram

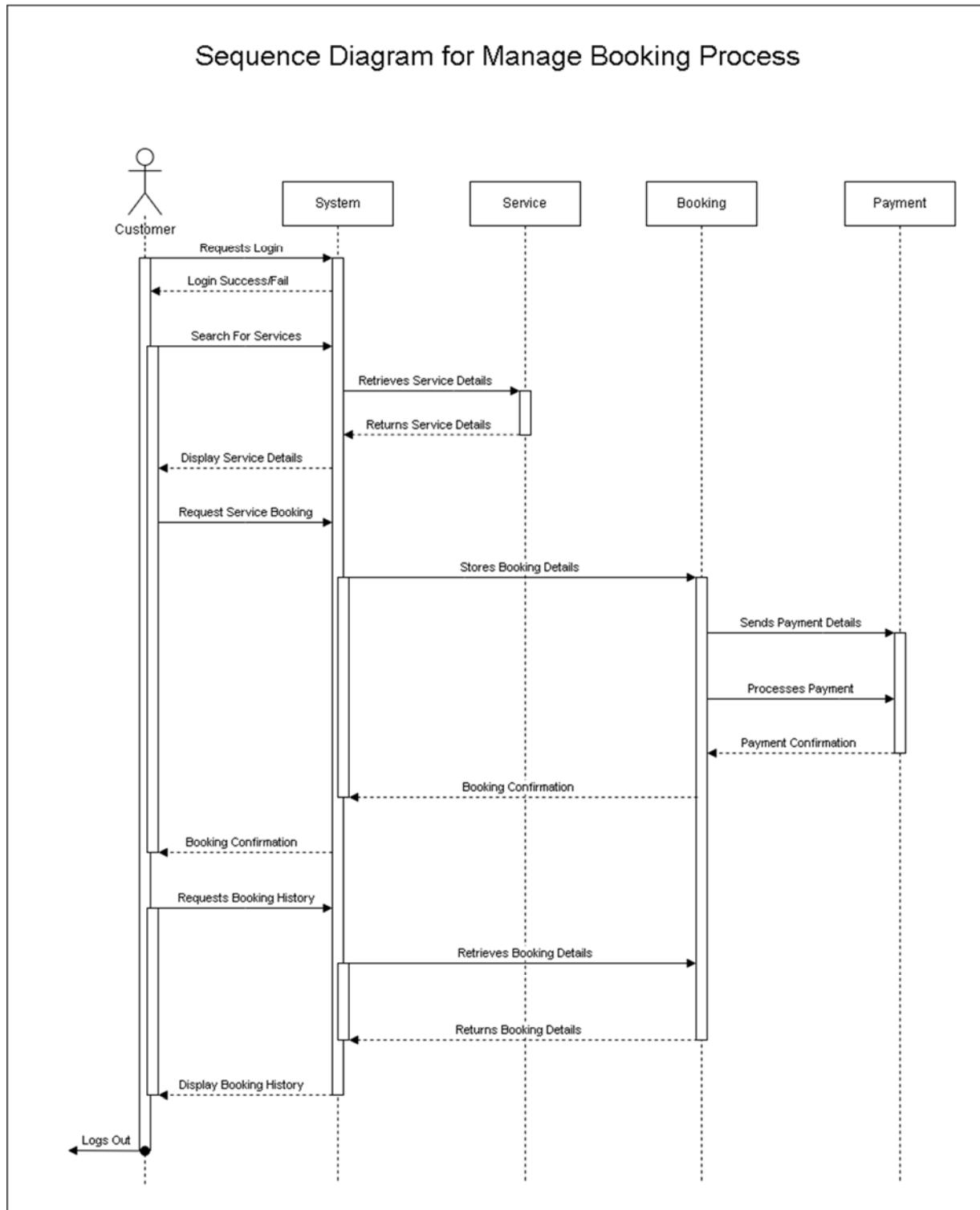


### Detail Class Definitions

<b>Class Name</b>	Customer
<b>Attributes</b>	Customer ID, Customer Name, Phone No, Address, Email,
<b>Operation</b>	Register (), Cancel (), AutoID(), Checkdata()
<b>Description</b>	<< The <b>Customer</b> class is used to do register for customers who booked.>>

For remaining, see Appendix.

## 2.6 Sequence Diagram for Booking Process



### **Sequence Diagram Description**

This diagram focuses on the Customer's interaction with the system. First, the customer searches for available services and views the service details, such as prices and descriptions. Once the customer selects a service, they proceed to confirm the booking by providing their information. The system generates a booking, and the customer is prompted to make a payment. After payment processing, the booking is confirmed, and the customer receives a notification. Additionally, the customer can view their booking history, retrieving past bookings along with payment details. The entities involved are Customer, System, Service, Booking, and Payment, capturing the full cycle from service search to payment and history retrieval.

## 2.7 Functional Testing

### 2.7.1 Test Plan

#### Module 1: Log In Authentication

Test Script	Description	Date	Tester
1.1	Test Customer Email text box can be null or not	1- September- 2024	Pyae Sone Aung
1.2	Test Customer Password to be null or not	1- September- 2024	Pyae Sone Aung
1.3	Test if the same email exists	1- September- 2024	Pyae Sone Aung
1.4	Test the '@' in the E mail	1- September- 2024	Pyae Sone Aung
1.5	Tests if the Password and emails exists	1- September- 2024	Pyae Sone Aung
1.6	Test Register Button	1- September- 2024	Pyae Sone Aung

#### Module 2: Admin Registration Entry

Test Script	Description	Date	Tester
2.1	Test Customer Username text box can be null or not	1- September- 2024	Pyae Sone Aung
2.2	Test Customer Email text box can be null or not	1- September- 2024	Pyae Sone Aung
2.3	Test Customer Password to be null or not	1- September- 2024	Pyae Sone Aung
2.4	Test Customer Retype Password to be null or not	1- September- 2024	Pyae Sone Aung
2.5	Test if the same Customer email exists	1- September- 2024	Pyae Sone Aung
2.6	Test the '@' in the E mail	1- September- 2024	Pyae Sone Aung
2.7	Tests if the Password are the same	1- September- 2024	Pyae Sone Aung
2.8	Test if DOB date can be null	1- September- 2024	Pyae Sone Aung

2.9	Test Log In Button	1- September- 2024	Pyae Sone Aung
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### **Module 3: Service Search Entry**

Test Script	Description	Date	Tester
3.1	Test Service Search Value can be null or no	2- September- 2024	Pyae Sone Aung
3.2	Test Service search with incorrect value	2- September- 2024	Pyae Sone Aung
3.3	Test Search Button	2- September- 2024	Pyae Sone Aung

### **Module 4: Scheduling Data Entry**

Test Script	Description	Date	Tester
4.1	Test Date can be not selected or not	2- September- 2024	Pyae Sone Aung
4.2	Test Time radio button can be not selected or not	2- September- 2024	Pyae Sone Aung
4.3	Test Address can be null or not	2- September- 2024	Pyae Sone Aung
4.4	Test Remark can be null or not	2- September- 2024	Pyae Sone Aung
4.5	Test if township can be null or not	2- September- 2024	Pyae Sone Aung
4.6	Test Go to Checkout Button	2- September- 2024	Pyae Sone Aung

### **Module 5: Credit Card Payment Entry**

Test Script	Description	Date	Tester
5.1	Test Card number can be null or not	3- September- 2024	Pyae Sone Aung
5.2	Test Card holder text box can be null or not	3- September- 2024	Pyae Sone Aung
5.3	Test EXP month to be null or not	3- September- 2024	Pyae Sone Aung
5.4	Test EXP Year to be null or not	3- September- 2024	Pyae Sone Aung
5.5	Test CVV to be null or not	3- September- 2024	Pyae Sone Aung
5.6	Test Zip to be null or not	3- September- 2024	Pyae Sone Aung
5.7	Test if payment policy checkbox can be not ticked or not	3- September- 2024	Pyae Sone Aung
5.8	Test Download E-Receipt Button	3- September- 2024	Pyae Sone Aung
5.9	Test Proceed Button	3- September- 2024	Pyae Sone Aung

### **Module 6: Cash Payment Entry**

Test Script	Description	Date	Tester
6.1	Test if Cash policy terms checkbox can be not ticked or not	3- September- 2024	Pyae Sone Aung
6.2	Test if payment policy checkbox can be not ticked or not	3- September- 2024	Pyae Sone Aung
6.3	Test Download E-Receipt Button	3- September- 2024	Pyae Sone Aung
6.4	Test Proceed Button	3- September- 2024	Pyae Sone Aung

## **Module 7: KBZPay Payment Entry**

Test Script	Description	Date	Tester
7.1	Test Account Name Holder textbox can be null or not	3- September- 2024	Pyae Sone Aung
7.2	Test Account Phone Number can be null or not	3- September- 2024	Pyae Sone Aung
7.3	Test if payment policy checkbox can be not ticked or not	3- September- 2024	Pyae Sone Aung
7.4	Test Download E-Receipt Button	3- September- 2024	Pyae Sone Aung
7.5	Test Proceed Button	3- September- 2024	Pyae Sone Aung
7.6	Test if payment policy checkbox can be not ticked or not	3- September- 2024	Pyae Sone Aung
7.7	Test Download E-Receipt Button	3- September- 2024	Pyae Sone Aung

### **Test Script (1)**

<b>Unit Test 1</b>		<b>Test Case:</b> Register by data entry customers	<b>Designed by:</b> Pyae Sone Aung	
<b>Data Source:</b> Customer Table		<b>Objective:</b> To test the Register of data entry customers	<b>Tester:</b> Pyae Sone Aung	
<b>Test Case</b>	<b>Description</b>	<b>Test Procedure</b>	<b>Expected Result</b>	<b>Actual Results</b>
1.1	Test customer Name text box	Login button is clicked. Customer Email is blanked.	Show 'Please fill out this field' message.	See Fig.1.1 & 1.2

Before Testing

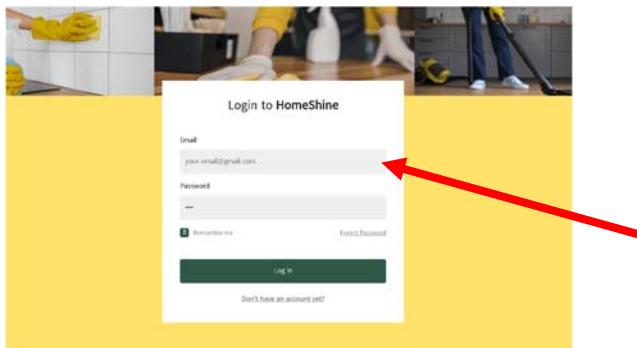


Fig.1.1

After Testing

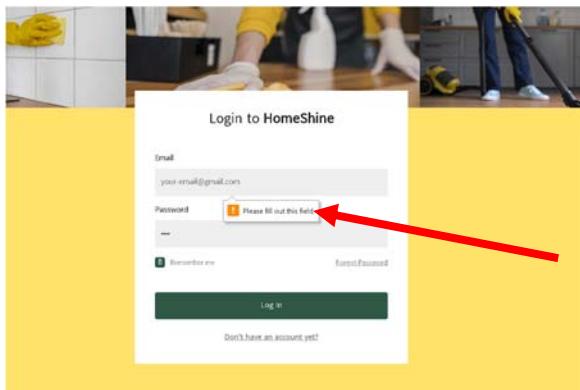


Fig.1.2

Test Case	Description	Test Procedure	Expected Result	Actual Results
1.2	Test Customer Password Textbox	Log button is clicked. Customer Password is blanked.	Show 'Please fill out this field' message.	See Fig.1.2

Before Testing

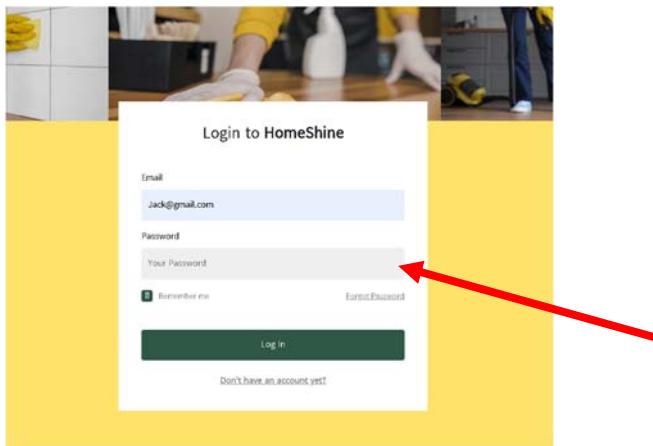


Fig.1.1

After Testing

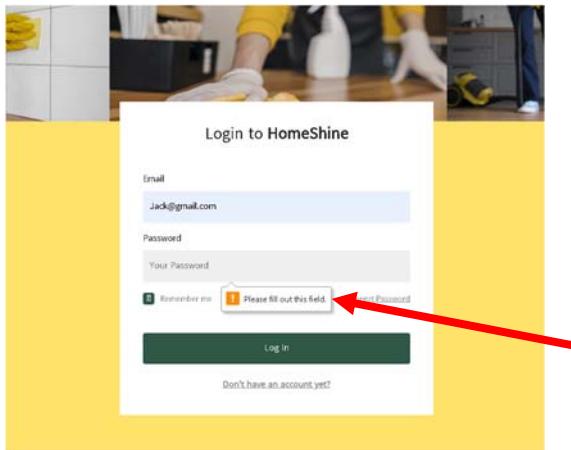


Fig.1.2

\*For remaining test cases, please see Appendix.

## 3.8 Usability Testing

### Visibility of System Status

The image shows two screenshots of a web application's booking process. The left screenshot is titled 'Schedule Your Service' and shows a date and time selection interface. The right screenshot is titled 'Booking Overview' and displays the service details and total price. A red circle highlights the title 'Booking Overview' in the second screenshot, and another red circle highlights the 'Total Price: 457500\$' field. A callout box labeled 'Visible Information on process status' points to the 'Booking Overview' title.

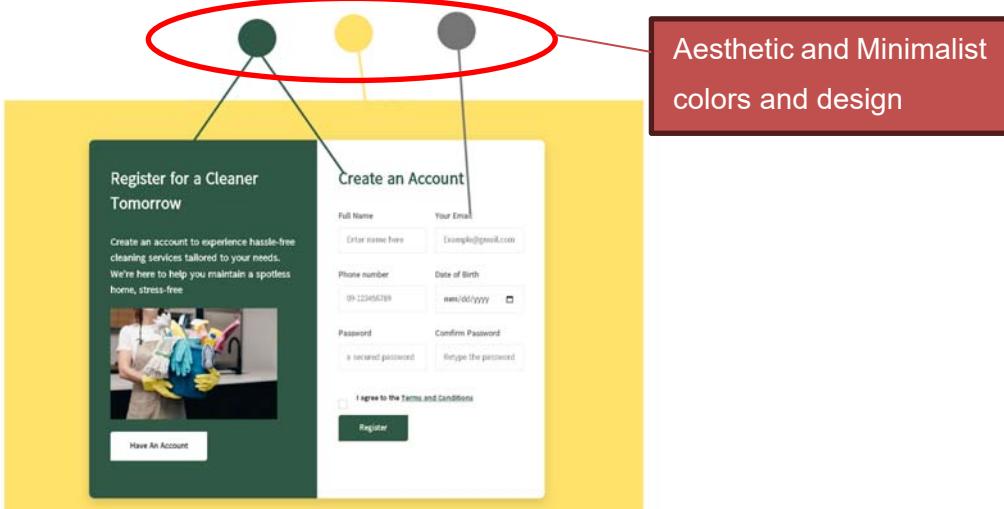
The web-application is developed in a way that keeps customers informed about the status of their actions. For example, during the many processes of booking process, the process name is labeled at the top.

### Match between System and Real World

The image shows a screenshot of a FAQ page. A red circle highlights the title 'Frequently Asked Questions'. Another red circle highlights a question and its answer: 'Can I cancel or reschedule my booking?' followed by the response 'Yes, you can cancel or reschedule your booking up to 24 hours before the scheduled time without any additional charges.' A callout box labeled 'Familiar and real world language' points to the question and answer.

The whole entire interface uses familiar language and multiple descriptions to keep users from confusion. The most emphatic example is the FAQ page. Not only it answers questions customers may have, the interface is also made to be familiar and comfortable.

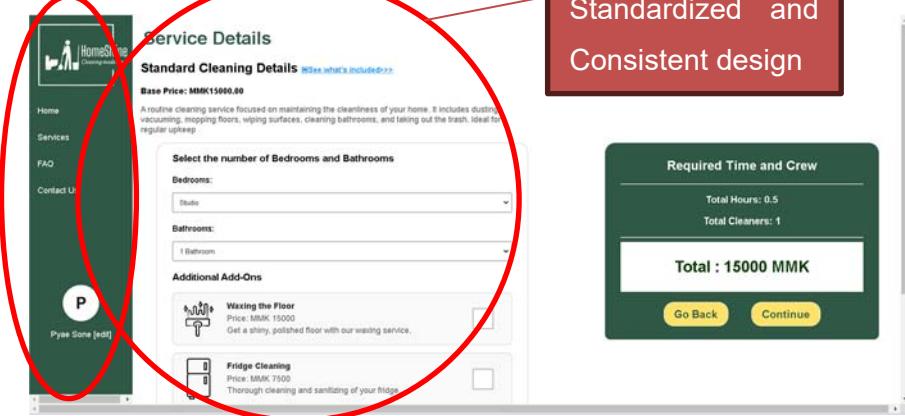
## Aesthetic and Minimalist Design



Aesthetic and Minimalist colors and design

Every page follows the same aesthetic and color palate strictly. Not only the color palate is simple and minimalist, its color also exudes cleanliness and quality. With this enriched color and simple design, the web-application is pleasing to look at from start to finish.

## Consistency and standard



Standardized and Consistent design

The interface is laid out and designed with the standardized design of a common business web-application. The interface is also consistent throughout all the pages of all processes.

## Error Prevention

The screenshot shows a booking form for 'Waxing the Floor - MMK 15000'. It includes a date selector, a time selector ('Choose Time' with radio buttons for 9:00 AM to 5:00 PM), and an address dropdown ('Address Information' with a placeholder 'Select Your Township...'). A red box highlights the time selection area, and another red box highlights the address dropdown. A callout box states: 'Limited Data input to prevent errors'.

Although customers can fully customize their bookings, some limitations were put to prevent both technical and operation error. This includes using interfaces such as combo boxes and radio buttons to restrict the input data.

## User Control and Freedom

The screenshot shows a booking overview page for 'Deep Cleaning' with a total price of 550000\$. It includes sections for service type, total hours, total cleaners, add-ons, and a summary box. At the bottom are 'Go Back' and 'Continue' buttons. A red box highlights these buttons, and a callout box states: 'Accessible continues and undo buttons'.

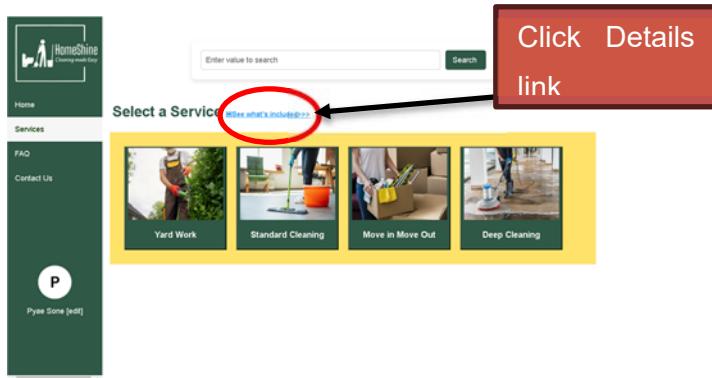
The web-application allows users to fully control their actions by putting multiple confirmation checks and go back buttons on every part of the process. This allows users to be more daring navigating the web-application without needing to worry about mistakes.

## 2.9 Iteration for Usability Testing

### 2.9.1 Iteration 1

Users gave complaint feedbacks about how there wasn't a sufficient and easy to use indicator to compare between different services. To accommodate this, a comparison checklist is made for different services, and made accessible in multiple steps of the booking process.

#### (Iteration 1) Iteration For Visibility of System Status



#### After Clicking Details

Cleaning Services CheckList						
Included Service	Standard	Deep Cleaning	Move-In/Move-Out Cleaning	Post-Construction Cleaning	Eco-Friendly Cleaning	Yard Cleaning
Dusting of surfaces	✓	✓	✓	✓	✓	
Vacuuming carpets and floors	✓	✓	✓	✓	✓	
Mopping hard floors	✓	✓	✓	✓	✓	
Wiping down countertops	✓	✓	✓	✓	✓	
Cleaning bathrooms	✓	✓	✓	✓	✓	
Taking out trash	✓	✓	✓	✓	✓	
Window cleaning	Optional	Optional	✓	✓	Optional	
Inside oven cleaning	Optional	Optional	✓	✓	Optional	
Scrubbing grout		✓	✓	✓		
Cleaning behind/under appliances		✓	✓	✓		
Detailed baseboard cleaning		✓	✓	✓		
Deep dusting (vents, ceiling fans)		✓	✓	✓		

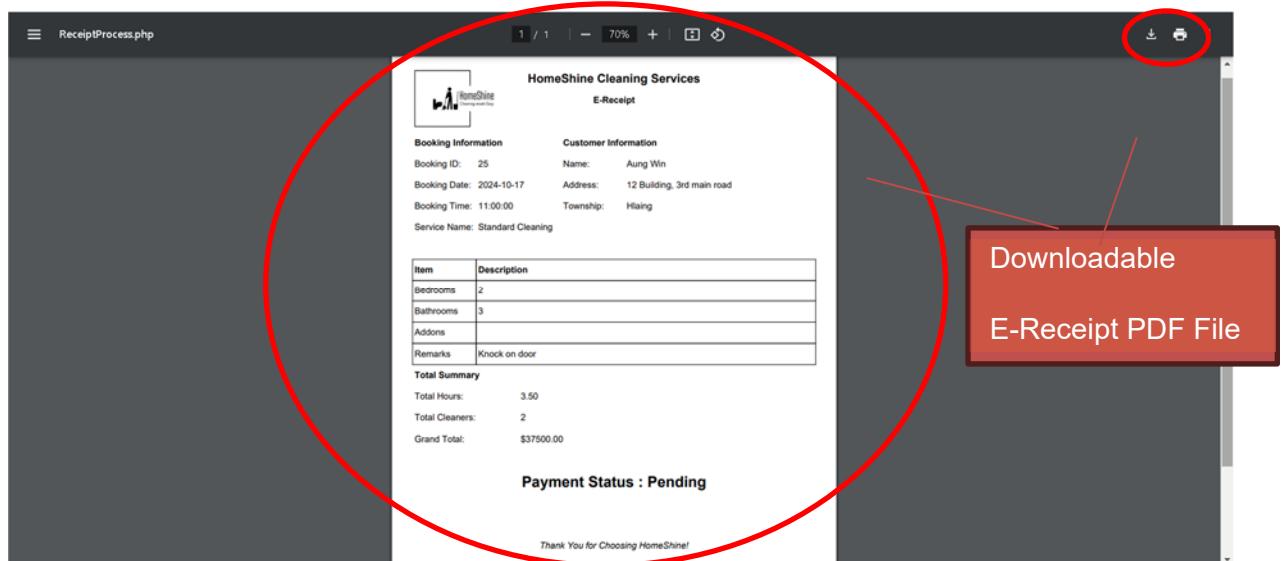
## 2.9.2 Iteration 2

Users, especially old loyal customers from HomeShine didn't feel satisfied by the fact that there is no receipt they can use to show and validate their bookings. And suggested a way to make some form of receipt. To improve this, an automatic E-Receipt maker is implemented, which automatically allows users to get a pdf file of their Booking receipt.

### (Iteration 2) Iteration For Help and Documentation



### After clicking



## 2.10 Time box Summary

### Work Done

Just like in the previous timebox, **all work assigned** for this timebox was able to be done successfully. All functionalities and non-functionalities were able to be implemented into the developed web-application. All functions and interfaces were iterated and improved based on user feedback. Functional testing and Usability testing was also done for each of the processes in mentioned in the timebox table. Various improvements including both functional and non-functionals are also made.

### Problems (Issues)

Two (2) main problems were encountered during the development of this timebox.

The first was the loss of working time caused by **damaged device**. Just after the early initial phase of this timebox, the developer's laptop was sent to be serviced as its ledge was damaged.

The second issue was the by-product of the first problem. After it was returned from the servicing center, several files were corrupted and lost from the damage before. Luckily most of all the files needed had a back-up on the cloud server. But unfortunately, The low-level prototype **file was lost**. This made the developer redesign and redraw the whole file.

### Solutions

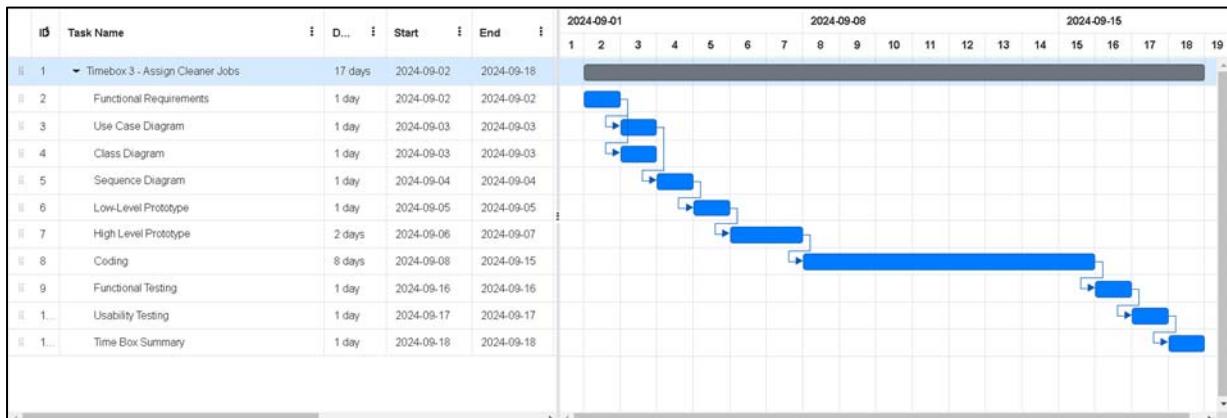
During the time the device was being fixed, the developer used a public computer from the library. As most of the files were accessible via the cloud, it was possible to be able to continue the development process. And although there wasn't a direct solution for the lost prototype file, the flexible timeline of the timebox allowed the timebox to be done despite having to redo the prototyping steps.

### Remaining Time-boxes

There is only one more timebox left to be developed in this project. The final one, timebox 3 is about admins assigning specific cleaners to confirmed booking.

## 5.3 Assign Cleaners Job Time Box 3 Development

### 3.1 Project Plan for Time Box 3



#### 3.1.1 Functional Requirements List

### 3. Assign Cleaners Job Process (Timebox 3)

#### 3.1 Manage Cleaner Account (C)

- Login Cleaner
  - Email already exists check (LL)
  - Password Length check (LL)
  - Check text Fields Null (LL)
- Change Status
  - Check status (LL)
  - Confirmation Check (LL)
- View Assigned work
  - Detailed Assigned Job (LL)

#### 3.2 Assign Jobs to Cleaner (C)

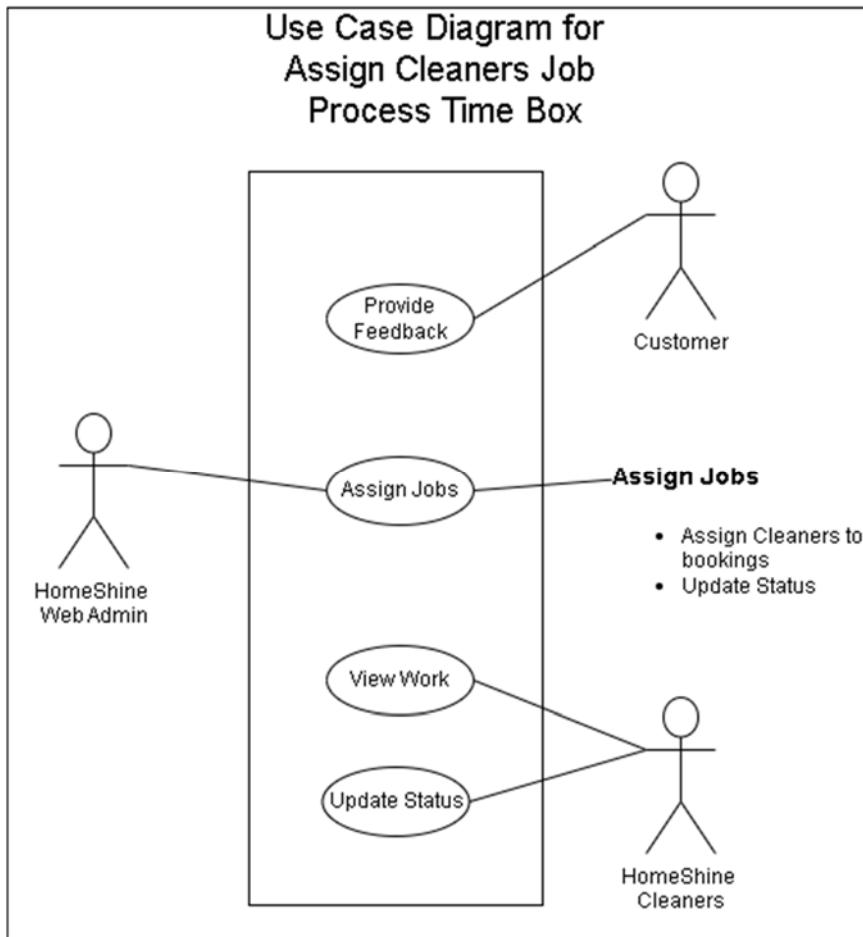
- View Jobs
  - Detailed assigned/unassigned jobs (LL)
- Assign Cleaners to Jobs
  - Check Cleaner Status
  - Detailed Assigned Job (LL)
- Update Jobs
  - Update Job Status

- Detailed Assigned Job (LL)

### **3.3 Manage Feedback (W)**

- Add Feedback
  - Check text Fields Null (LL)
  - Confirmation Check (LL)
- Search Feedback
  - Check based on Column Value (LL)

### 3.2 Use Case Diagram



#### Use Case Description

<b>Use Case Name</b>	Manage Customer Booking Process
<b>Actor</b>	Customer, Admin, Cleaner
<b>Flow of Event</b>	Fill details in Feedback form. New Feedback is created.  Assign cleaners into bookings. Cleaners are now assigned to each booking.

\*For remaining, see Appendix.

## Screen Design

### 1) Cleaner Register Form

A low-level wireframe prototype for a 'Cleaner' registration form. The interface is contained within a rounded rectangular frame. On the left side of the frame, there is a vertical column labeled 'Logo' at the top, followed by a 'Log In link' at the bottom. To the right of this column is a large rectangular area labeled 'Cleaner' at the top. This area contains several input fields: 'User Name:' with a 'Name Text Box', 'Email:' with an 'Email Text Box', 'Password:' with an 'Email Text Box', 'Confirm Password:' with an 'Email Text Box', 'Position:' with a 'Position Combo Box', and a 'Register Button' at the bottom.

Fig 3.3.1a Low Level Prototype for Cleaner Registration

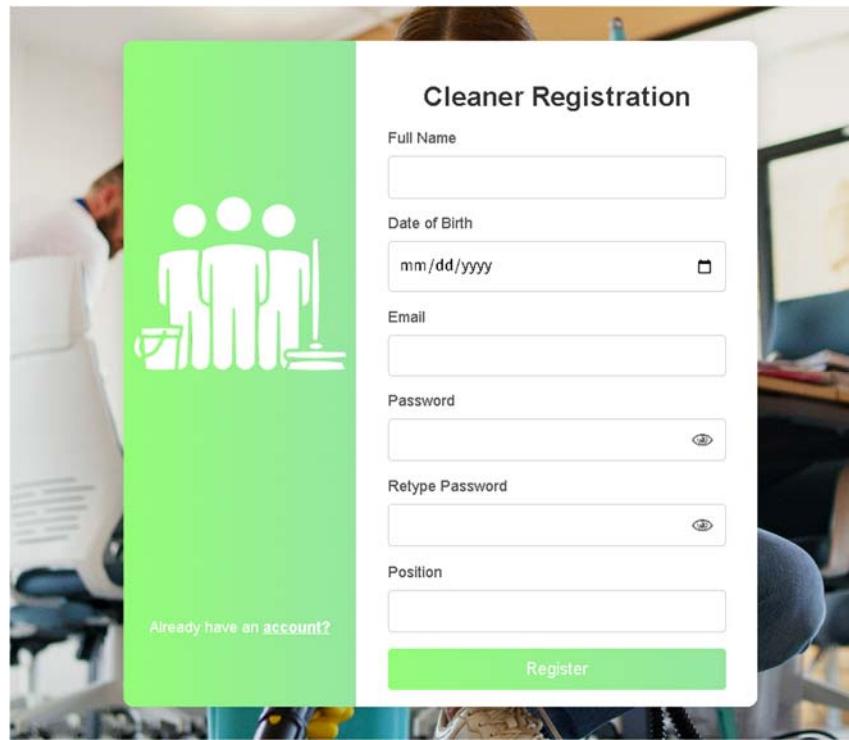


Fig 3.3.1b High Level Prototype for Cleaner Registration

## 2) Cleaner Login



Fig 3.3.2a Low Level Prototype for Cleaner Login

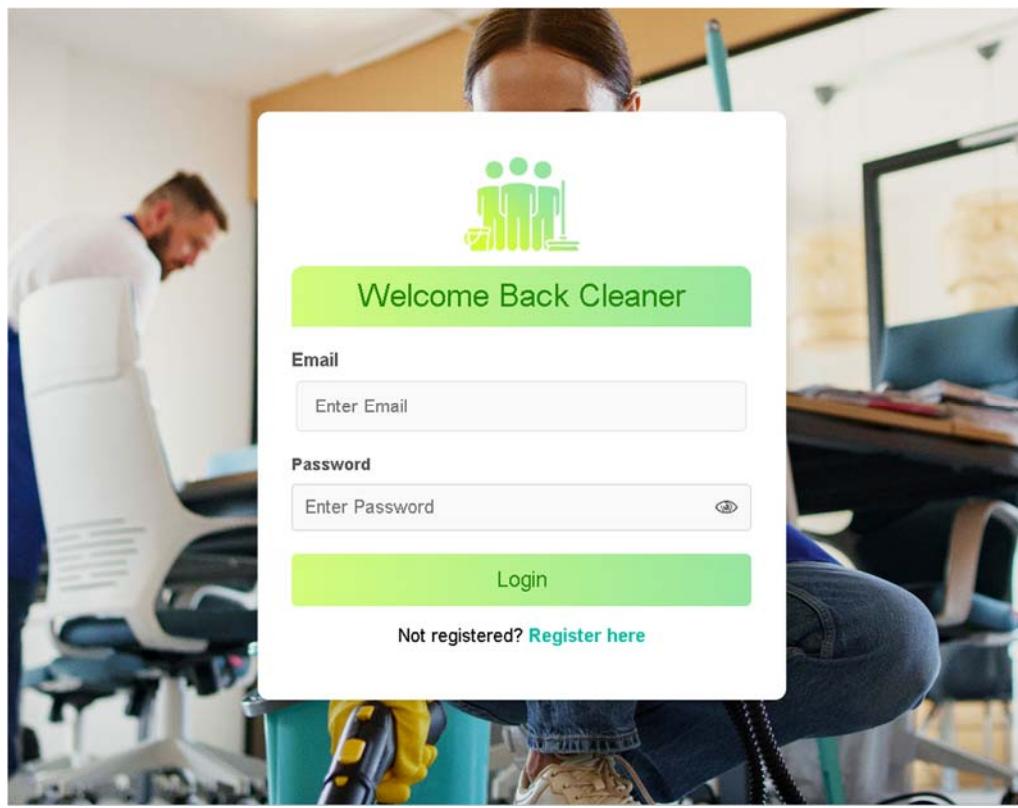


Fig 3.3.2b High Level Prototype for Cleaner Login

### 3) Assign Page

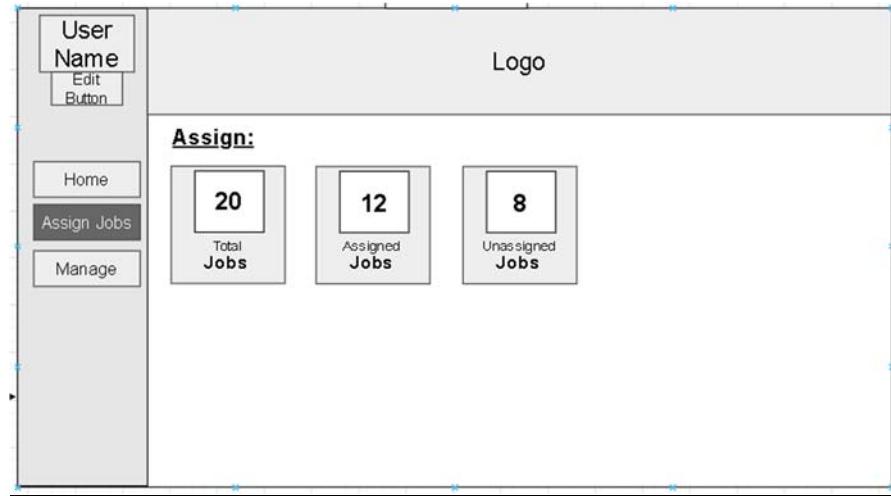


Fig 3.3.3a Low Level Prototype for Assign Page

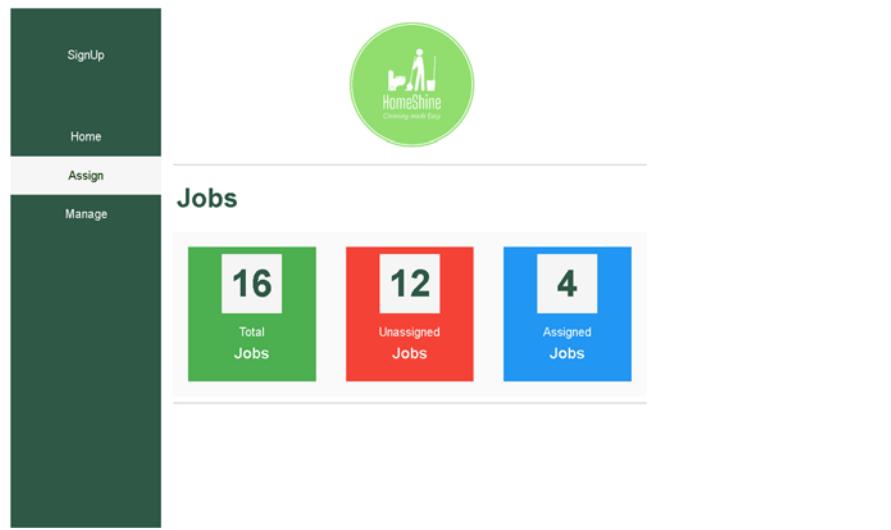


Fig 3.3.3b High Level Prototype for Assign Page

#### 4) Total Jobs

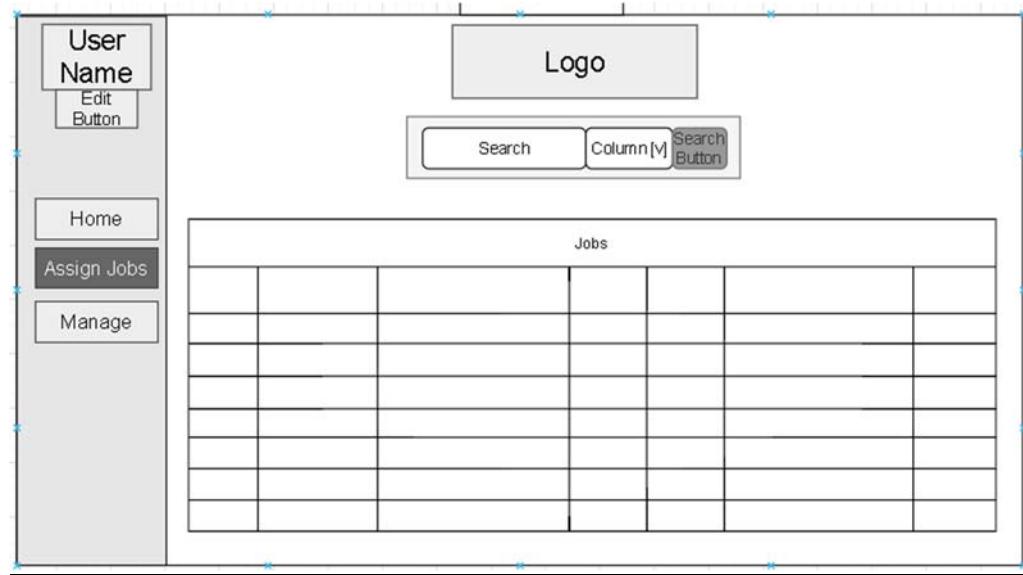


Fig 3.3.4a Low Level Prototype for Total Jobs

The diagram shows a high-level prototype for the 'Total Jobs' application. On the left, a dark sidebar lists 'SignUp', 'Home', 'Assign', and 'Manage' links. The main area features a circular 'HomeShine Cleaning Job' logo. Below the logo is a search bar with fields for 'Enter value to search', 'Select Column', and a 'Search' button. The title 'Total Jobs' is centered above a table titled 'Jobs'. The table has a green header row with columns: Status, BookingID, ServiceName, TownShip, CleanerQty, HoursQty, BookingTime, BookingDate, and CustomerID. Data rows include:

Status	BookingID	ServiceName	TownShip	CleanerQty	HoursQty	BookingTime	BookingDate	CustomerID
Assigned	8	Move-in/Move-out Cleaning	Insein	2	4.50	05:00:00	2024-09-21	1
Assigned	9	Yard Work	Hlaing	2	5.50	11:00:00	2024-09-11	1
Assigned	10	Move in Move Out	Sanchaung	1	2.50	11:00:00	2024-09-19	1
Unassigned	11	Standard Cleaning	Kamayut	2	3.50	05:00:00	2024-09-26	1

Fig 3.3.4b High Level Prototype for Total Jobs

## 5) Assigning Cleaners

This diagram illustrates a low-level prototype for assigning cleaners. It consists of three main panels:

- User Name Panel:** Contains fields for "User Name" and an "Edit Button". Below these are buttons for "Home", "Assign Jobs", and "Manage".
- Assign Cleaners Panel:** Contains fields for "BookingID", "Customer Name", "Service Name", "Date", "Time", and "Cleaner Qty." (represented by two dropdown boxes). At the bottom are "Assign Cleaner" and "Cancel" buttons.
- Available Cleaners Panel:** A table titled "Cleaners" with columns for "ID", "Name", and "Status". The table has 17 rows, each representing a cleaner with ID numbers 2 through 17 and names like Aung Aung, Kyaw, etc.

Fig 3.3.5a Low Level Prototype for Assigning Cleaners

This diagram illustrates a high-level prototype for assigning cleaners. It consists of three main panels:

- Left Sidebar:** Includes buttons for "SignUp", "Home", "Assign", and "Manage".
- Assign Cleaners to Jobs Panel:** Displays booking details: "Booking ID: 11", "Customer Name: Pyae Sone", "Service Date: 2024-09-26", "Service Time: 05:00:00", "Total Hours: 3.50", and "Number of Cleaners Required: 2". It also includes dropdowns for "Select Cleaner 1" and "Select Cleaner 2", and an "Assign Cleaners" button.
- Available Cleaners Panel:** A table titled "Available Cleaners" with columns for "Cleaner ID", "Name", and "Status". The table lists 17 cleaners, all marked as "Available".

Fig 3.3.5b High Level Prototype for Assigning Cleaners

## 6) Assignment Detail

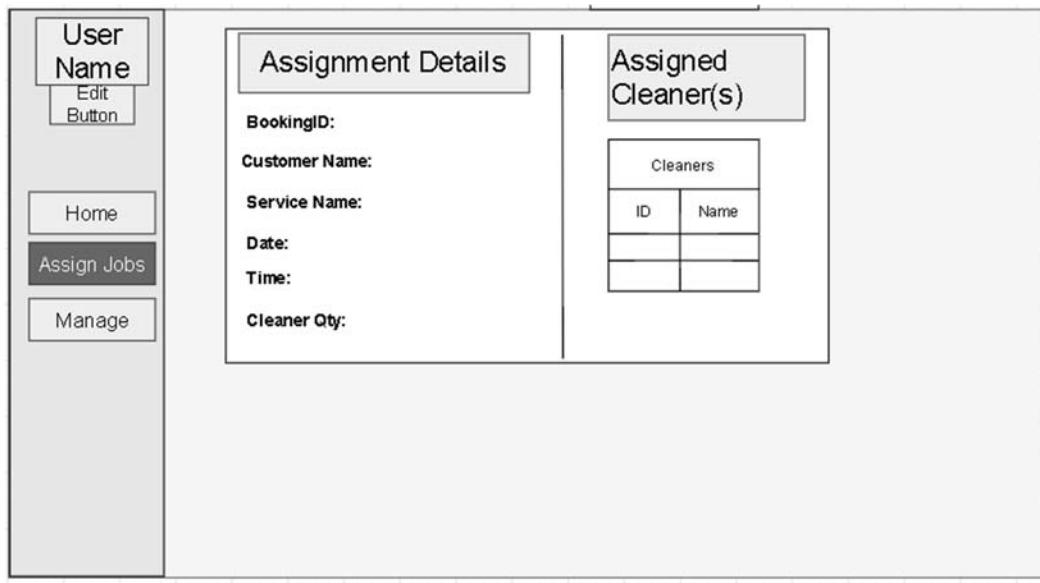


Fig 3.3.6a Low Level Prototype for Assignment Detail

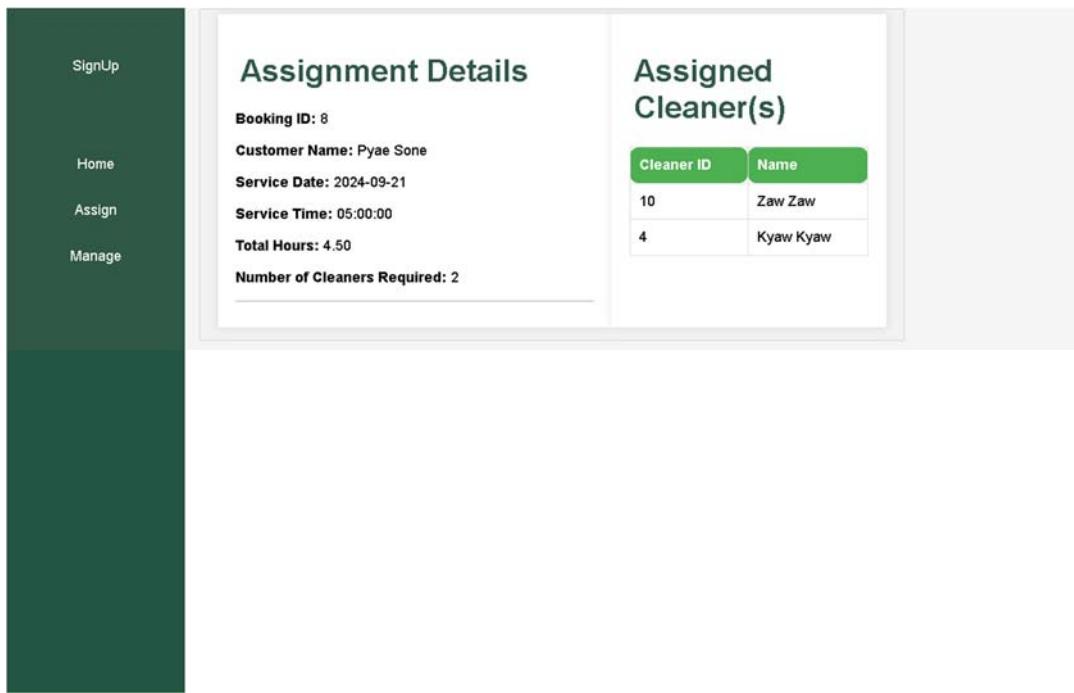


Fig 3.3.6b HighLevel Prototype for Assignment Detail

## 7) Cleaner Home

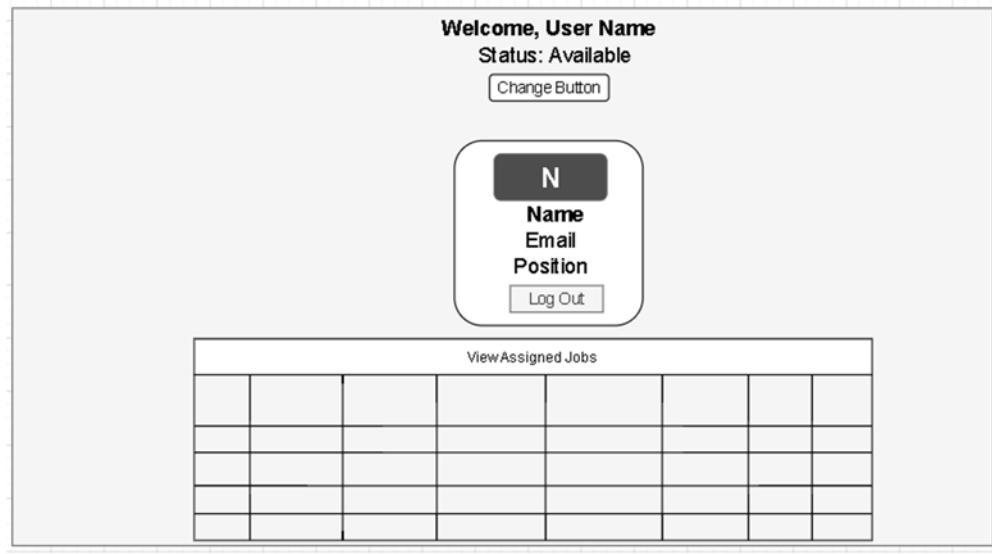


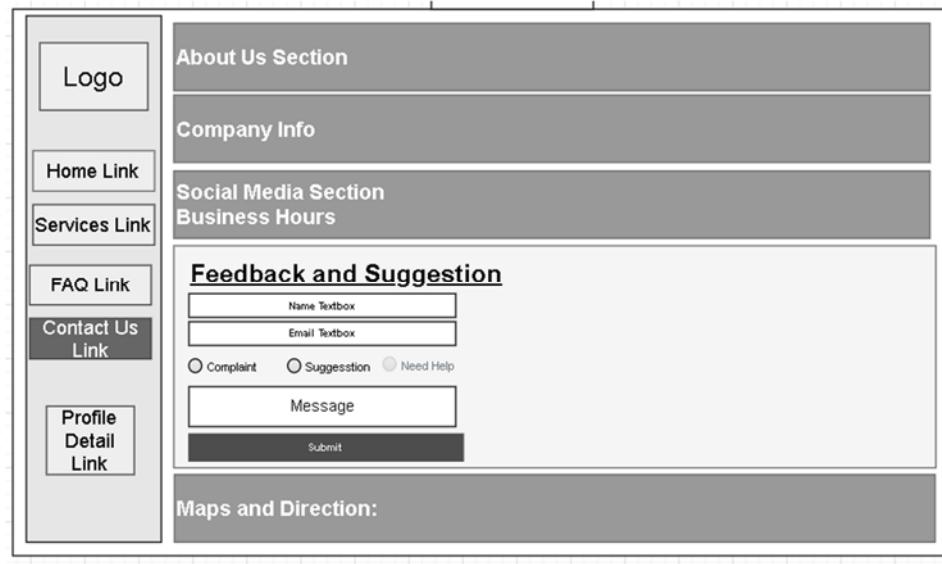
Fig 3.3.7a Low Level Prototype for Cleaner Home

The High Level Prototype for Cleaner Home shows a welcome message "Welcome, Kyaw Kyaw", a status indicator "Status: Available", and a "Change" button. Below this is a detailed user profile box for "Kyaw Kyaw" with fields for email (kyawkyaw@example.com), position (Senior), and a "Logout" button. At the bottom, there is a section titled "View Assigned Jobs" containing a table with four rows of booking information:

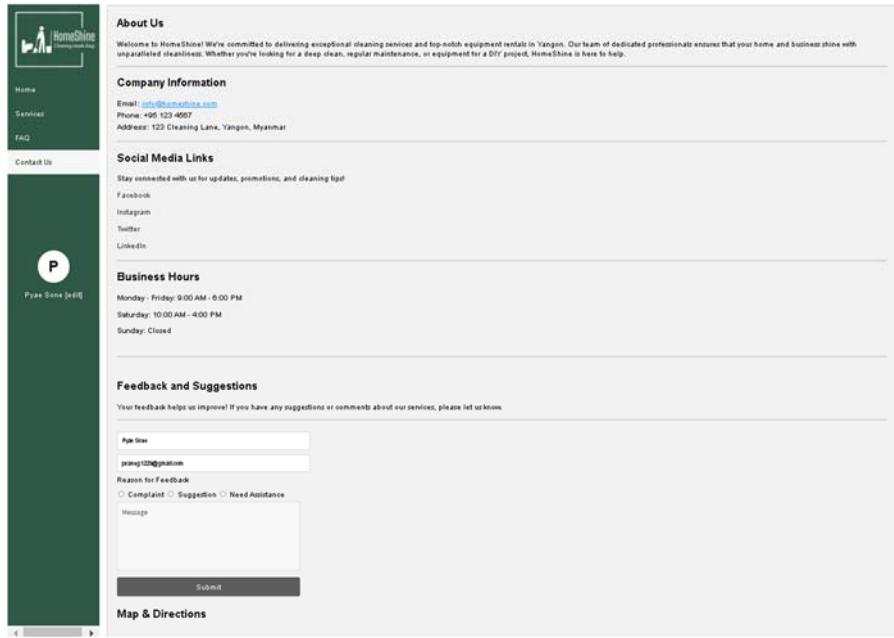
Booking ID	Date	StartTime	EndTime	Customer	Service Type
8 <a href="#">View</a>	2024-09-21	05:00:00	09:30:00	Pyae Sone	Move-in/Move-out Cleaning
10 <a href="#">View</a>	2024-09-19	11:00:00	13:30:00	Pyae Sone	Move in Move Out
12 <a href="#">View</a>	2024-09-13	02:00:00	06:30:00	Pyae Sone	Standard Cleaning
9 <a href="#">View</a>	2024-09-11	11:00:00	16:30:00	Pyae Sone	Yard Work

Fig 3.3.7b High Level Prototype for Cleaner Home

## 8) Contact Page



*Fig 3.3.8a Low Level Prototype for Contact Page*



*Fig 3.3.8b High Level Prototype for Contact Page*

## 9) Feedbacks

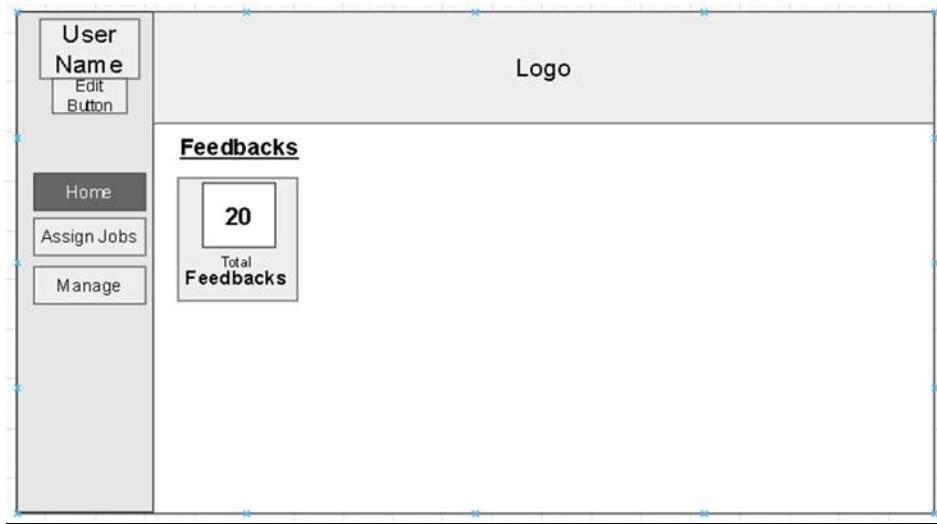


Fig 3.3.9a Low Level Prototype for Feedbacks

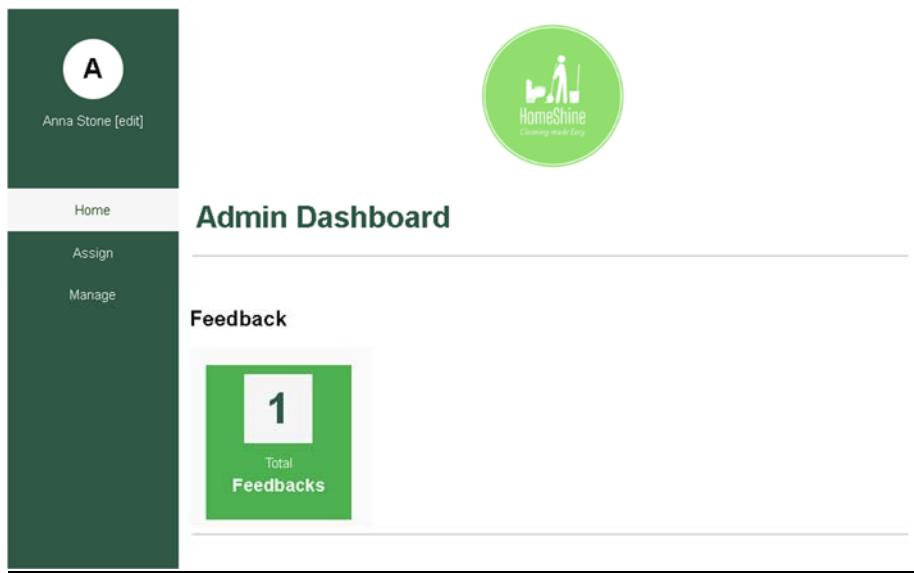


Fig 3.3.9b High Level Prototype for Feedbacks

## 10) Feedback Details

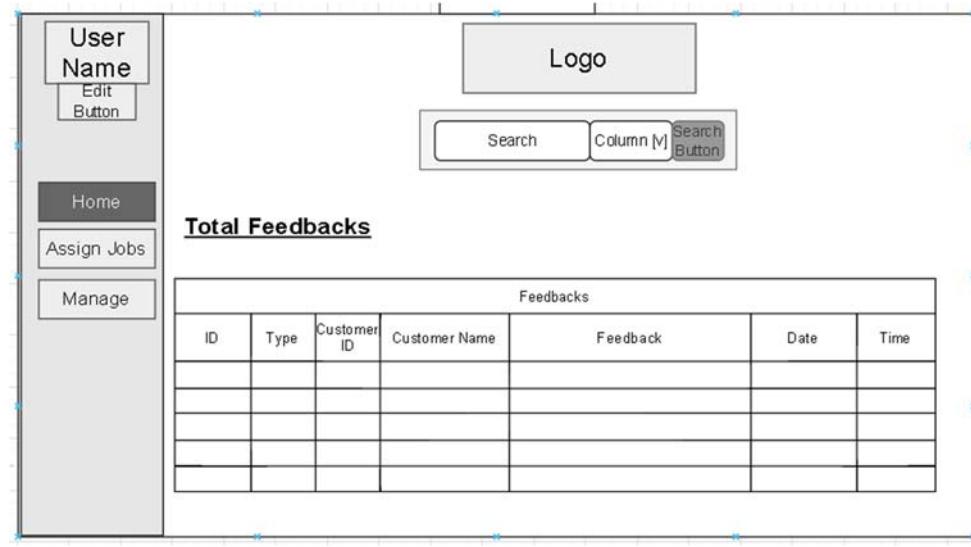


Fig 3.3.10a Low Level Prototype for Feedback Details

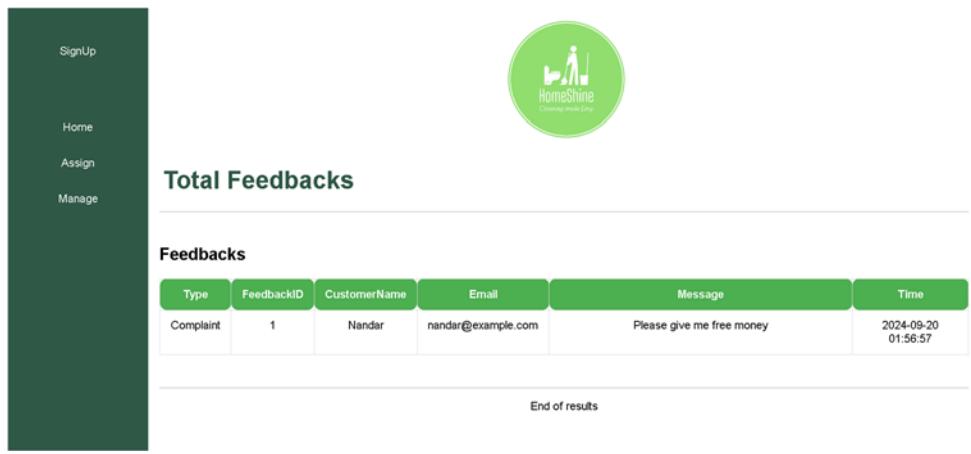


Fig 3.3.10b High Level Prototype for Feedback Details

## 3.4 Iteration for Screen Design

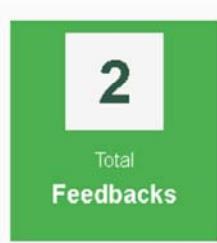
### Iteration 1

Just like in the previous iterative suggestion in timebox 1, users also suggested putting automatic sorted options to better view and grasp the information. Especially for the Feedback management part. To accommodate this, feedbacks managing is further automatically divided to better view.

#### (Iteration 1) Screen Design for Feeback Management

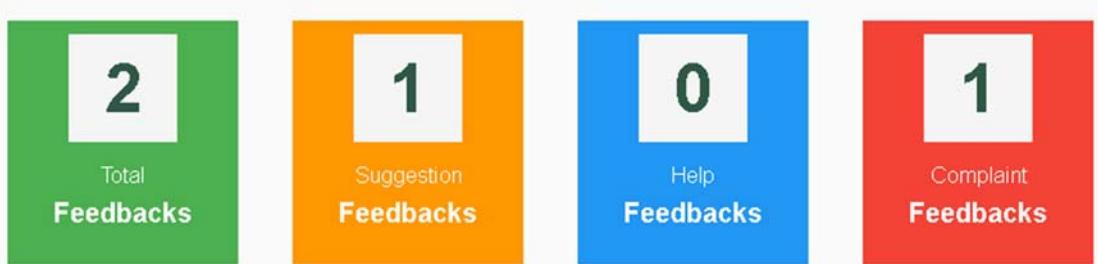
##### Before

###### **Feedback**



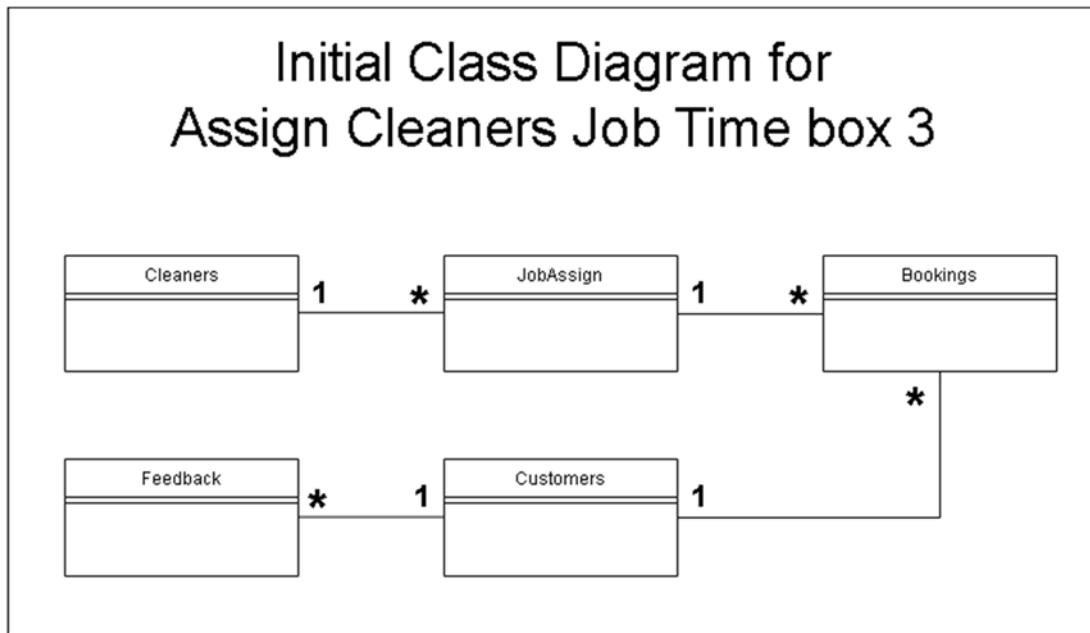
##### After

###### **Feedback**

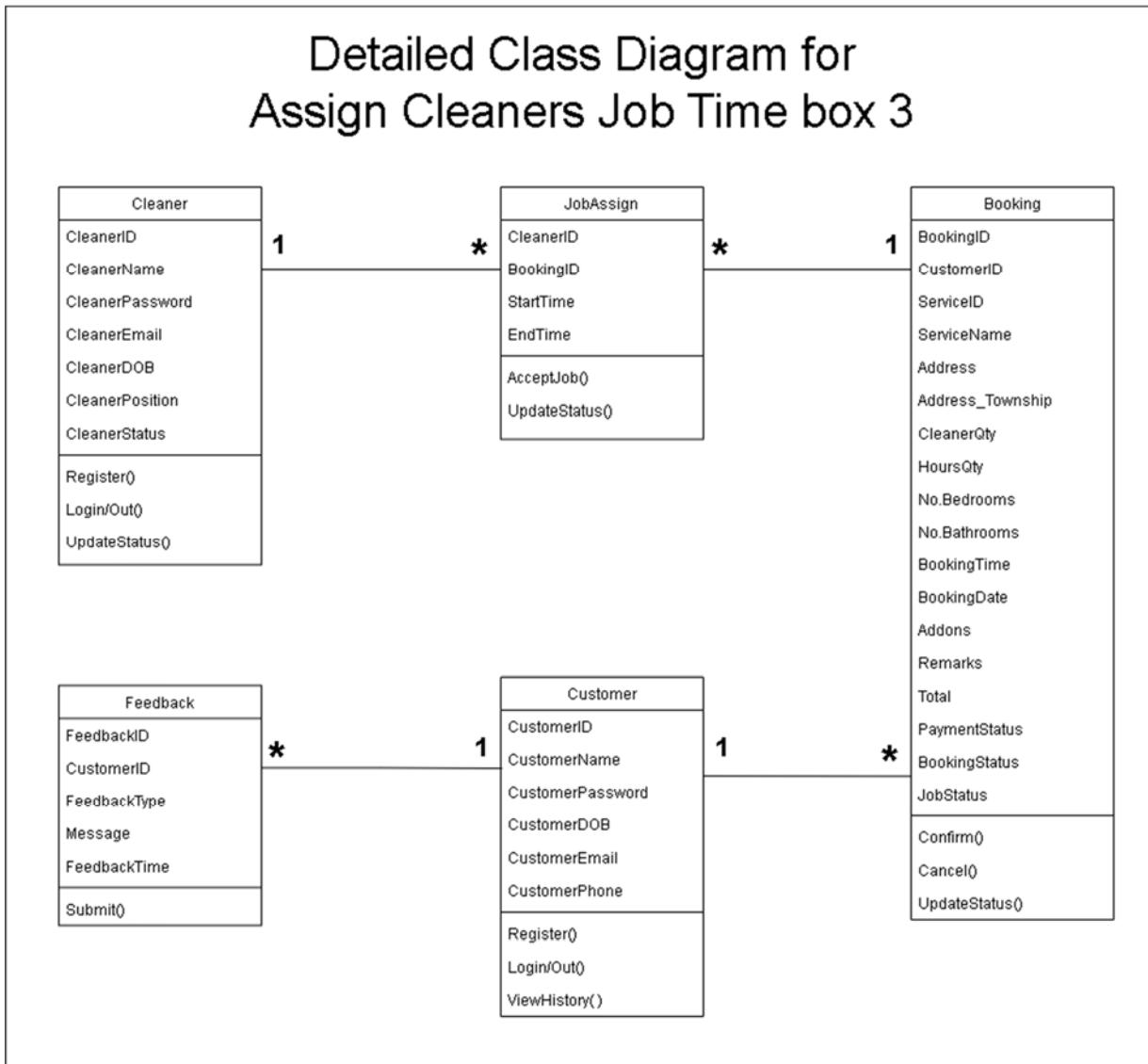


## 3.5 Class Diagram

### 3.5.1 Initial Class Diagram



### 3.5.2 Detailed Class Diagram

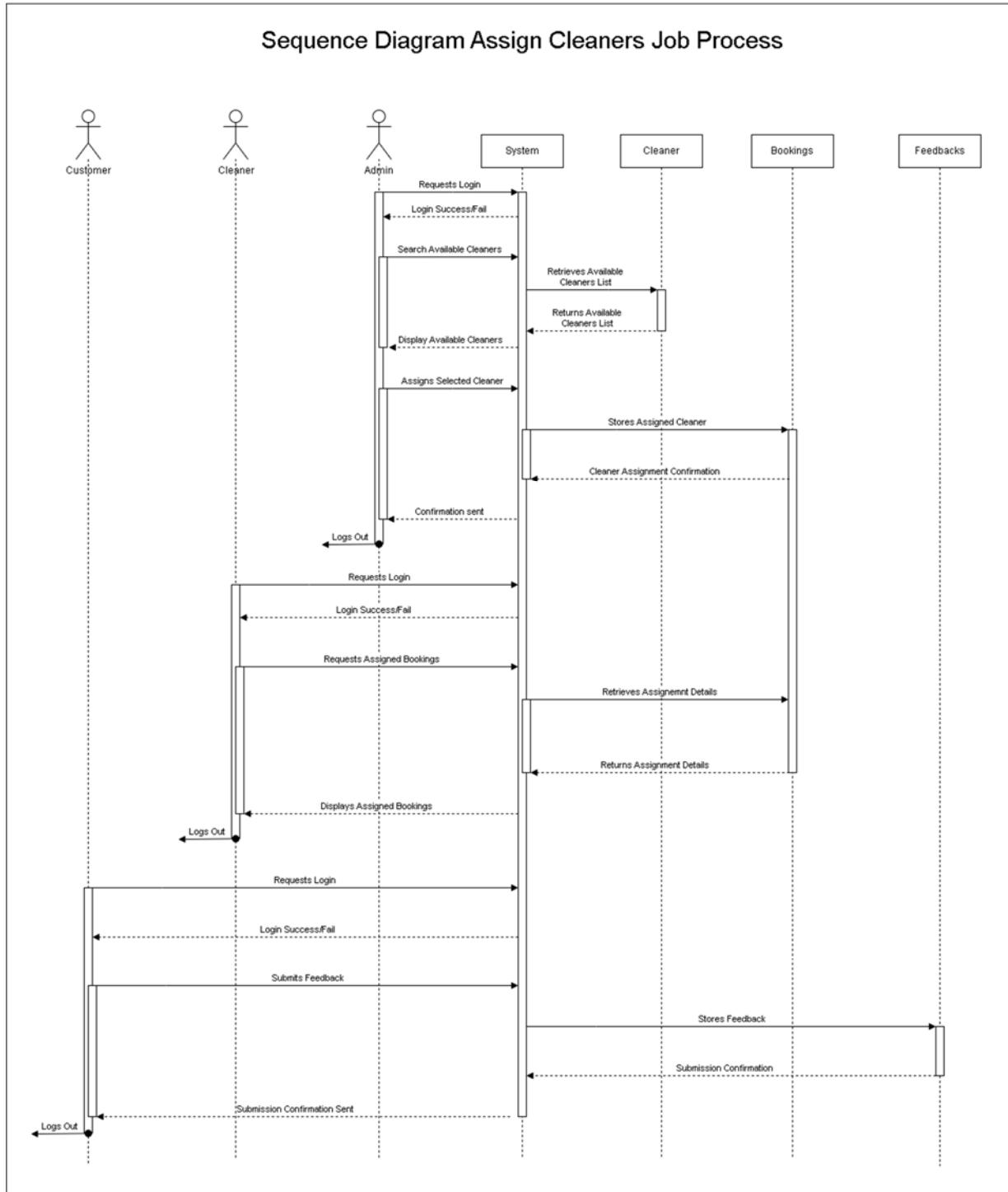


#### Detail Class Definitions

<b>Class Name</b>	Customer
<b>Attributes</b>	Customer ID, Customer Name, Phone No, Address, Email, Member Type
<b>Operation</b>	Register (), Cancel (), autoCalculatePrice(), ViewHistory()
<b>Description</b>	<< The <b>Customer</b> class is used to do register for customers who booked.>>

For remaining, see Appendix.

### 3.6 Sequence Diagram for Booking Process



### **Sequence Diagram Description**

This sequence diagram shows how the Admin assigns cleaners to specific bookings. The admin first searches for available cleaners by checking their availability and assigns one or more cleaners for a booking. The system updates the booking with the assigned cleaners.

Once the cleaners are assigned, they can log into the system and view their assigned jobs. After completing the job, the customer can provide feedback on the cleaner's performance. This feedback is stored and can be accessed by the admin for review.

The key entities involved are Admin, Cleaner, Customer, Booking, and Feedback, emphasizing the flow from cleaner assignment to feedback collection

## 3.7 Functional Testing

### 3.7.1 Test Plan

#### Module 1: Log In Authentication

Test Script	Description	Date	Tester
1.1	Test Cleaner Email text box can be null or not	18- September- 2024	Pyae Sone Aung
1.2	Test Cleaner Password to be null or not	18- September- 2024	Pyae Sone Aung
1.3	Test if the same email exists	18- September- 2024	Pyae Sone Aung
1.4	Test the '@' in the E mail	18- September- 2024	Pyae Sone Aung
1.5	Tests if the Password and emails exists	18- September- 2024	Pyae Sone Aung
1.6	Test Register Button	18- September- 2024	Pyae Sone Aung

#### Module 2: Admin Registration Entry

Test Script	Description	Date	Tester
2.1	Test Cleaner Username text box can be null or not	18- September- 2024	Pyae Sone Aung
2.2	Test Cleaner Email text box can be null or not	18- September- 2024	Pyae Sone Aung
2.3	Test Cleaner Password to be null or not	18- September- 2024	Pyae Sone Aung
2.4	Test Cleaner Retype Password to be null or not	18- September- 2024	Pyae Sone Aung
2.5	Test if the same Cleaner email exists	18- September- 2024	Pyae Sone Aung
2.6	Test the '@' in the E mail	18- September- 2024	Pyae Sone Aung
2.7	Tests if the Password are the same	18- September- 2024	Pyae Sone Aung
2.8	Test if DOB date can be null	18- September- 2024	Pyae Sone Aung

2.9	Test Log In Button	18- September- 2024	Pyae Sone Aung
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### **Module 3: Change Availability Cleaner**

Test Script	Description	Date	Tester
3.1	Test “Change” status Button to see if cleaner status changed or not	18- September- 2024	Pyae Sone Aung

### **Module 4: Feedback submission form**

Test Script	Description	Date	Tester
4.1	Test Email can be null or not	18- September- 2024	Pyae Sone Aung
4.2	Test Name can be null or not	18- September- 2024	Pyae Sone Aung
4.3	Test Type of Feedback radio button can be not selected or not	18- September- 2024	Pyae Sone Aung
4.4	Test Message can be null or not	2- September- 2024	Pyae Sone Aung
4.5	Test Submit Feedback Button	2- September- 2024	Pyae Sone Aung

### Test Script (1)

<b>Unit Test 1</b>		<b>Test Case:</b> Register by data entry cleaners	<b>Designed by:</b> Pyae Sone Aung	
<b>Data Source:</b> Customer Table		<b>Objective:</b> To test the Register of data entry Cleaners	<b>Tester:</b> Pyae Sone Aung	
<b>Test Case</b>	<b>Description</b>	<b>Test Procedure</b>	<b>Expected Result</b>	<b>Actual Results</b>
1.1	Test customer Name text box	Login button is clicked. Customer Email is blanked.	Show 'Please fill out this field' message.	See Fig.1.1 & 1.2

Before Testing

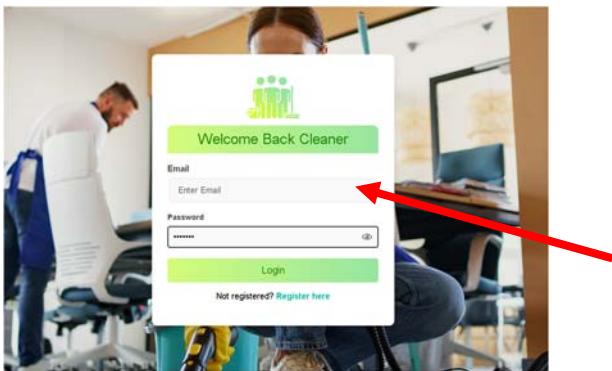


Fig.1.1

After Testing

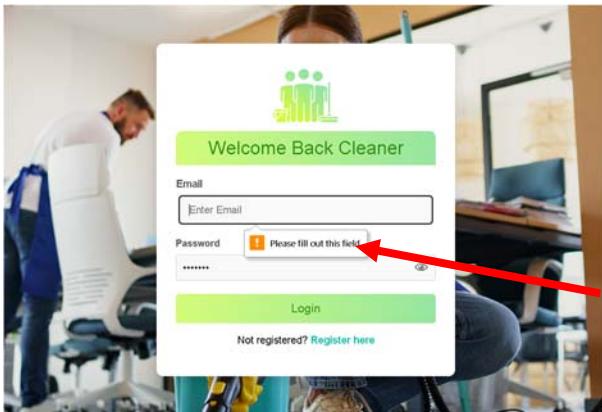


Fig.1.2

Test Case	Description	Test Procedure	Expected Result	Actual Results
1.2	Test Cleaner Password Textbox	Log button is clicked. Cleaner Password is blanked.	Show 'Please fill out this field' message.	See Fig.1.2

Before Testing

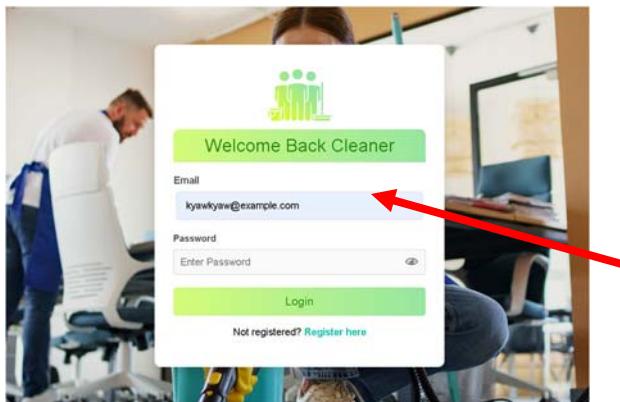


Fig.1.1

After Testing

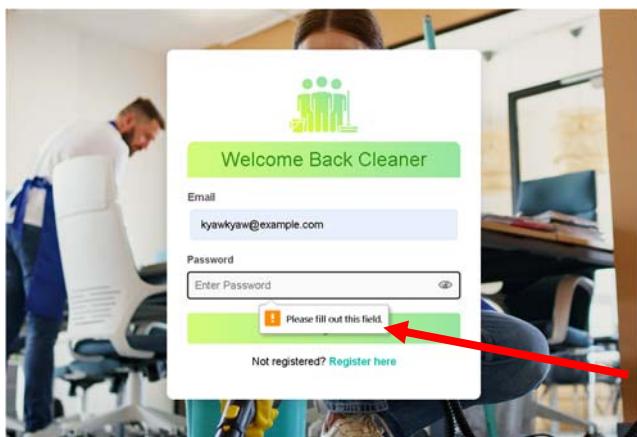
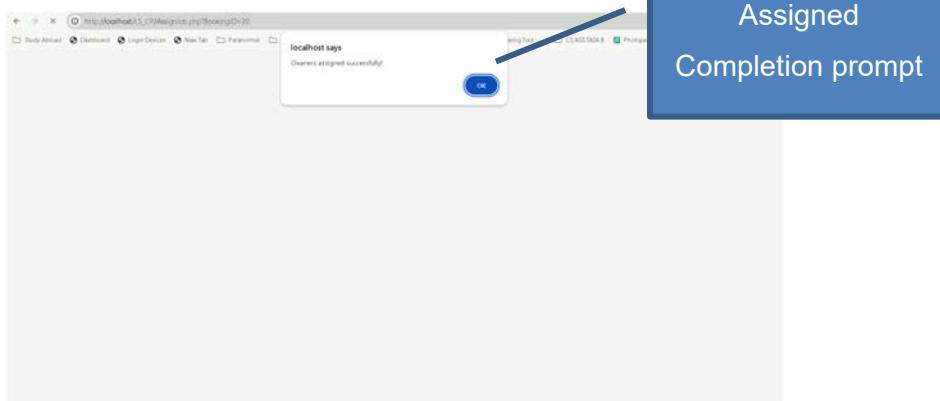


Fig.1.2

\*For remaining test cases, please see Appendix.

## 3.8 Usability Testing

### Visibility of System Status



The part of web-application is developed to allow all users to have a comprehensive view on the status. The prime example is admins assigning cleaners to bookings. Each status is made visible and easy to understand.

### Match between System and Real World

A screenshot of a web application showing a user profile for "Kyaw Kyaw" and a table of assigned jobs. A red callout box labeled "Real world information on job details" points to the table. A red oval highlights the table area.

Welcome, Kyaw Kyaw  
Status: Available  
Change

Kyaw Kyaw  
kyawkyaw@example.com  
Position: Senior  
Logout

View Assigned Jobs

Booking ID	Date	StartTime	EndTime	Customer	Service Type
8	2024-09-21	05:00:00	09:30:00	Pyae Sone	Move-in/Move-out Cleaning
10	2024-09-19	11:00:00	13:30:00	Pyae Sone	Move in Move Out
12	2024-09-13	02:00:00	06:30:00	Pyae Sone	Standard Cleaning

The languages and layout of the labels make it easy for users to be familiar with the web-application. This includes the assigned table of cleaners that allows them to easily view their assigned jobs.

## Aesthetic and Minimalist Design

The screenshot shows a user interface for a cleaner named Kyaw Kyaw. At the top left, a red box highlights the text "Simple Colors & design". The main header "Welcome, Kyaw Kyaw" is in bold black text. Below it, the status "Status: Available" is shown with a "Change" button. A blue line connects the "Available" text to a red circle around two circular icons: a blue one and a green one. To the right of these icons is a green oval containing a white letter "K". Below this section, Kyaw Kyaw's profile is displayed with the name, email (kyawkyaw@example.com), position (Senior), and a "Logout" button. A blue line connects the "Available" text to the "Logout" button. At the bottom, a table titled "View Assigned Jobs" lists three tasks:

Booking ID	Date	StartTime	EndTime	Customer	Service Type
8	2024-09-21	05:00:00	09:30:00	Pyae Sone	Move-in/Move-out Cleaning
10	2024-09-19	11:00:00	13:30:00	Pyae Sone	Move-in/Move Out
12	2024-09-13	02:00:00	06:30:00	Pyae Sone	Standard Cleaning

All part of the web-application including this part of the timebox uses simple and eye pleasing design. But the cleaner's interface color is made different to differentiate users within HomeShine's staff force.

## Consistency and standard

The screenshot shows a feedback submission form. At the top left, a red circle highlights the "Feedback and Suggestions" section. Inside this section, there is a text input for "Name" (Aung Win) and an email input (aungwin@example.com). Below these, a section for "Reason for Feedback" has three radio buttons: "Complaint", "Suggestion", and "Need Assistance". A large red circle covers the entire "Reason for Feedback" section and extends down to the "Message" text area. To the right of the "Reason for Feedback" section, a red box highlights the text "Standardized and Consistent lay out". At the bottom of the form is a "Submit" button. A link "Map & Directions" is visible at the very bottom.

This part of the web-application also follows the standardized web-application layout and maintains its consistency in both design and colors. For example, the feedback submission form is made consistent using the standardized feedback layout most users are familiar with.

## Error Prevention

The screenshot shows a user interface for assigning cleaners to a job. On the left, there's a form with booking details: Booking ID: 11, Customer Name: Pyae Sone, Service Date: 2024-09-26, Service Time: 05:00, Total Hours: 3.50, and Number of Cleaners: 1. Below these, a dropdown menu titled 'Select Cleaner 1:' is open, showing a list of cleaner names. A red circle highlights this dropdown. To the right, a table titled 'Available Cleaners' lists cleaner IDs (10-17), names (Zaw Zaw, Soe Soe, Tun Tun, Nilar, Ko Ko, Moe Moe, Aye Aye), and their status (all available). A red box with the text 'Combo box to restrict data error input' is overlaid on the dropdown menu area.

To prevent errors and operational errors, data input is limited. Particularly in the cleaner assignment page. All available cleaners are shown and the combo boxes are automatically generated based on the number of cleaners required for the respective booking.

## User Control and Freedom

The screenshot shows a cleaner profile page for 'Kyaw Kyaw'. At the top, it says 'Welcome, Kyaw Kyaw'. Below that, there's a status indicator 'Status: Available' with a 'Change' button. A red box with the text 'Can freely control statuses' is overlaid on the status area. To the right, there's a card with the cleaner's name 'Kyaw Kyaw', a large letter 'K', their email 'kyawkyaw@example.com', their position 'Position : Senior', and a 'Logout' button. A red oval highlights the 'Logout' button.

Users can also freely navigate and confidently try out processes without having to worry for mistakes. The most prime example is allowing cleaners to change their availability status based on the flexibility of their schedules.

### 3.9 Iteration for Usability Testing

#### Iteration 1

Users suggested putting a “Go back” button in the assignment details page. Although this was intentionally made this way as the assign jobs can be accessed via the navigation bar, putting this button will definitely increase user control and freedom over the system.

#### (Iteration 1) Iteration For User Control and Freedom

The image shows a screenshot of a web application interface titled "Assignment Details". On the left, there is a section for "Customer Name" containing "Pyae Sone". Below it are "Service Date: 2024-09-19" and "Service Time: 11:00:00". Further down is "Total Hours: 2.50" and "Number of Cleaners Required: 1". At the bottom left is a green "Go Back" button, which is circled in red. A red callout box to the right of the button says "Go Back button is added". On the right side, there is a section titled "Assigned Cleaner(s)" with a table showing one cleaner: "Cleaner ID: 4" and "Name: Kyaw Kyaw".

Cleaner ID	Name
4	Kyaw Kyaw

## **3.10 Time box Summary**

### **Work Done**

For the final timebox, like its predecessors, **all work assigned** for this timebox was able to be done successfully. All functionalities and non-functionalities are implemented And functions and interfaces were iterated and improved based on user feedback. Functional testing and Usability testing was also done for each of the processes in mentioned in the timebox table. Various improvements including both functional and non-functionals are also made.

### **Problems (Issues)**

1 problem was unfortunately encountered during the development of this timebox. There was a devastating flooding disaster rampaging during the development time of this timebox. Although the developer's place of work didn't suffer water damage like other the many devastating victims, the long flooding caused multiple internet connection downtimes and power outages. This had a devasting impact on the workflow of this timebox development.

### **Solutions**

Learning from the past timebox, all work progress is carefully back upped across multiple platforms. This allowed work to be effectively done during the time-windows between the power outages. Although costly, mobile hotspot transmitted using cellular data connection was made to compromise for the Wi-Fi downtimes due to the flood. This significantly reduced the impact of the problem.

### **Remaining Time-boxes**

As for the timeline and planning of the project, there are no more Time-Boxes left. Although the web-application is now applicable to be used, repeated series of iterations can be made for the overall system again to further improve both users' expectations and business needs.

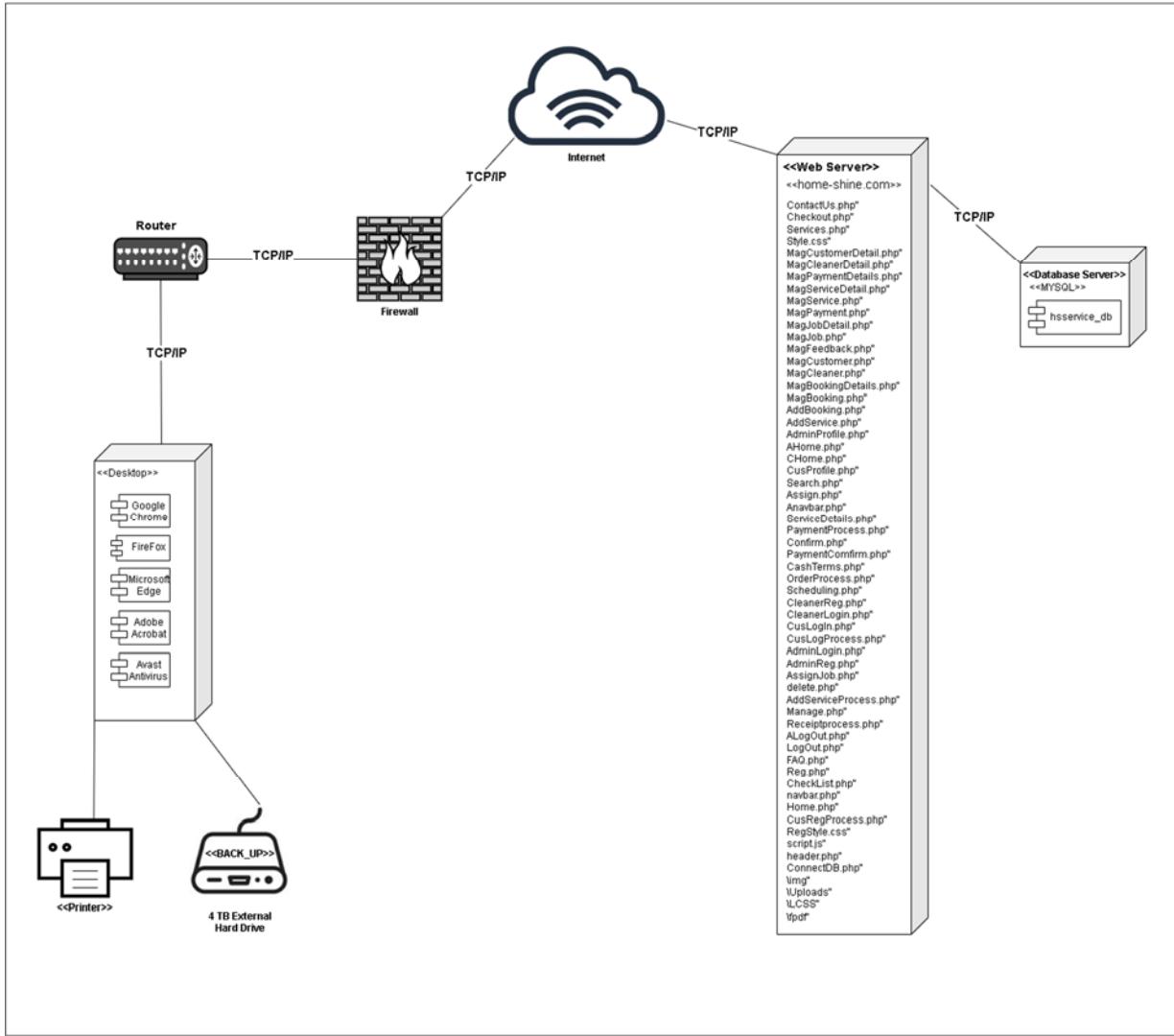


# **Topic - 6**

# **Deployment**

# 6.0 Topic 6 – Deployment

## 6.1 Deployment Diagram



### 6.1.1 Summary and Explanation of the Deployment Diagram

The deployment diagram for the HomeShine Web-Application outlines both the software and hardware components that the business needs to deploy the developed web application.

First the **desktop** of the users (client) using the web-application, will need 3 main components. The first one is a browser to access the web-application and the web-application is developed available across **Google Chrome**, **Firefox** and **Microsoft Edge**. The other 2 are **Adobe Acrobat** for pdf files viewer and **Avast Antivirus** software for protection. This component is also connected with a **printer** to print out documents and an **External Hard Drive** to act as a physical backup plan.

Next, the client is connected to the web-application through various mediums. First, the desktop access connection via the **router**. The connection to the **internet** is secured by the **Firewall**. Then via the internet, the **web server** hosting the web-application is accessed by the user.

The web application would have its own registered domain called **home-shine.com**. This would host all the PHP coded **files** and **folders** used to build up the web-application itself. This web server is then connected to the **database server** and **MySQL** which was chosen for. All the connections made is secured with **TCP/IP** protocol to interconnect all the components over the internet.

## 6.2 Data Migration

### 6.2.1 Data to Migrate

The data migration process for the HomeShine project is divided into 3 parts based on each developed timeboxes. As each timebox focuses on their respective functions and features, their respective data will also be migrated based on that. The following is a table that specifies which **Master data** and **Transaction Data** to be migrated for each of the three Timeboxes.

Time Box	Master Data	Transaction Data
<b>Time Box 1: Manage Booking Process Time-Box</b>	Admin	Booking, Payment, Services, Customers, Cleaners, Admin
<b>Time Box 2: Manage Customer Booking Process Time-Box</b>	Admin, Customer	Booking, Payment, Customers
<b>Time Box 3: Assign Cleaners Job Process Time-Box</b>	Admin, Customer, Cleaner(Staff)	Feedbacks, Jobs, Cleaners, Booking

## 6.2.2 Plan

The following table shows the detailed plan of how the data will be planned to be migrated accordingly. This plan will ensure that all critical data is moved into the system at the right time. This will allow all end-users to operate smoothly with minimal disruption.

Timebox	Data To Migrate	Duration	Start Date	End Date	Responsible person
<b>Time Box 1: Manage Booking Process Time-Box</b>	- Admin - Booking - Payment - Services - Customers - Cleaners	3 days	20 September 2024	22 September 2024	Receptionist, General Manager
<b>Time Box 2: Manage Customer Booking Process Time-Box</b>	- Booking - Payment - Customers	2 days	23 September 2024	24 September 2024	Receptionist
<b>Time Box 3: Assign Cleaners Job Process Time-Box</b>	- Booking - Cleaners - Feedbacks - Jobs	3 days	25 September 2024	27 September 2024	Receptionist, General Manager

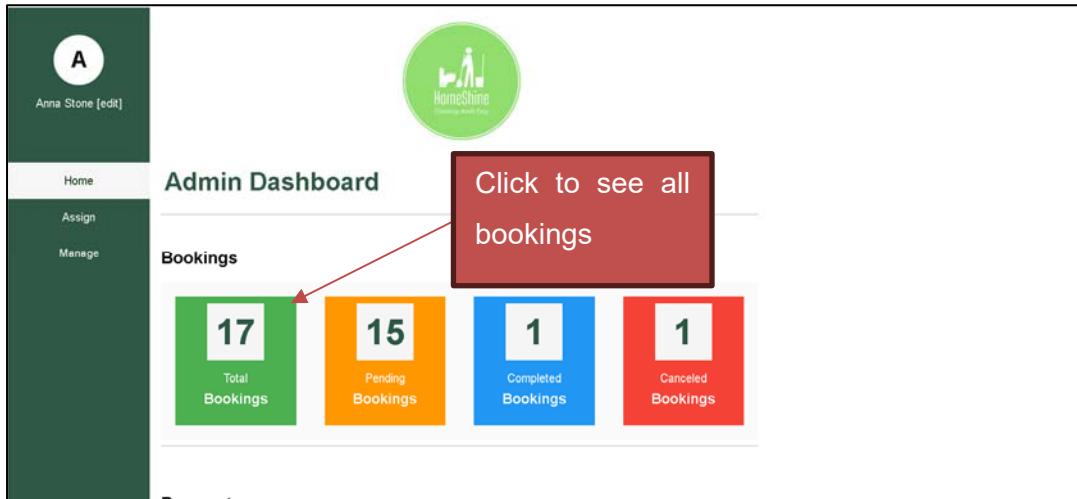
## 6.3 Training

### 6.3.1 Training plan

No	Content	Trainee	Start Date	End Date	Venue	Time
1	<b>Time Box 1</b> - Admin - Booking - Payment - Services - Customers - Cleaners	Receptionist, Accountant, Cleaners, General Manger	28 September 2024	30 September 2024	HomeShine Central Office	5 pm – 7 pm
2	<b>Time Box 2</b> - Booking - Payment - Customers	Receptionist, Accountant, General Manger	1 October 2024	2 October 2024	HomeShine Central Office	5 pm – 7 pm
3	<b>Time Box 3</b> - Booking - Cleaners - Feedbacks - Jobs	Receptionist, Cleaners, General Manger	3 October 2024	4 October 2024	HomeShine Central Office	5 pm – 7 pm

## 6.3.2 User Manual

### Admin Adding and Managing Booking



The screenshot shows the 'Pending Bookings' list. At the top, there's a search bar with 'Enter value to search', a 'Select Column' dropdown, and a 'Search' button. Below the header, there's a table with columns: Status, BookingID, ServiceName, Full Address, TownShip, CleanerQty, HoursQty, Bedrooms, Bathrooms, BookingTime, BookingDate, Remarks, Addons, Total, and CustomerID. Two rows of data are visible. An 'Add' button is located above the table. A red callout box with the text 'Click to add new booking entry' points to the 'Add' button.

Status	BookingID	ServiceName	Full Address	TownShip	CleanerQty	HoursQty	Bedrooms	Bathrooms	BookingTime	BookingDate	Remarks	Addons	Total	CustomerID
Pending	9	Yard Work	Address 1 is one	Hlaing	2	5.50	3	3	11:00:00	2024-09-11	No no nonon	Fridge Cleaning -\$15, Window Cleaning -\$25	15040.00	1
Pending	10	Move in Move Out	12 rose road, Orchid Street, Building 221, Room 2	Sanchaung	1	2.50	1	2	11:00:00	2024-09-19	Have Dog at home	Waxing the Floor -\$20	450020.00	1

**A**

Anna Stone [edit]

Home  
Assign  
Manage

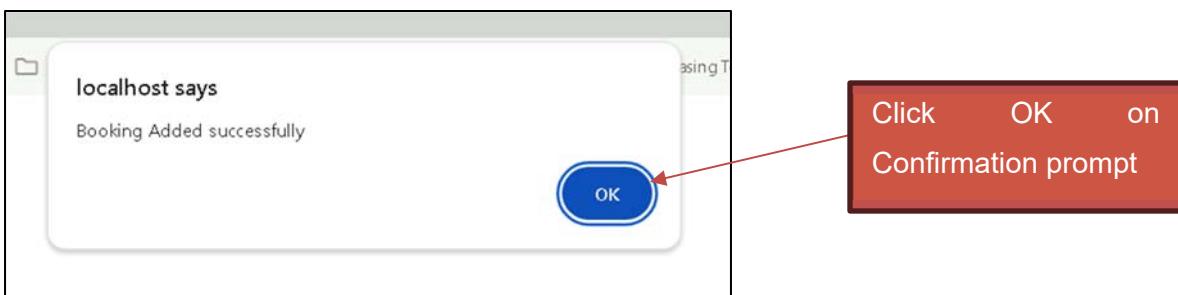
**Booking ID: 26**

**1. Fill Details**

Customer ID: 24 - Aye Chan  
Service Name: Standard Cleaning  
TownShip: Insein  
Address: 123 Moon Road  
CleanerQty: 3  
HourQty: 4  
Bedrooms: 4  
Bathrooms: 5  
Date: 10/09/2024  
Time: 1:00 PM  
Remarks: None  
Add ons: None  
Total: 55000

**2. Click add**

Add    Go Back



Pending	13	Yard Work	Landing road 1123, building 3a	Sanchaung	2	3.50	2	2	11:00:00	2024-09-28	Have 2 dogs	Waxing the Floor - \$20	10000.00	42	Pending	Unassigned
Pending	14	Yard Work	Thazin Street, Building 112 A	Sanchaung	2	4.00	2	3	10:00:00	2024-09-28	Knock on Door	Fridge Cleaning - MMK 7500	20000.00	43	Pending	Unassigned
Pending	15	Deep Cleaning	22 A, 31 road, main street	Kyauktada	2	4.00	2	3	02:00:00	2024-10-05	Knock on the front door	Fridge Cleaning - MMK 7500	1007500.00	1	Pending	Unassigned
Pending	16	Standard Cleaning	123 Cherry Road, Building A	Kyauktada	3	3.00	3	2	13:00:00	2024-10-09	Tell Reception for Entry	None	45000.00	23	Unpaid	Unassigned
Pending	18	Standard Cleaning	Building 2002, Main Road	Insein	4	4.00	4	3	09:00:00	2024-10-11	None	None	50000.00	24	Unpaid	Unassigned
Pending	19	Standard Cleaning	09mp4qq	Kyauktada	4	3.00	2	3	12:00:00	2024-10-03	areawrwa	aeraerae	100000.00	26	Unpaid	Unassigned
Pending	20	Deep Cleaning	123 Road, 24 building, room 2	Insein	4	4.00	2	3	14:00:00	2024-10-04	Knock on door	None	450000.00	31	Unpaid	Assigned
Pending	21	Deep Cleaning	13 Road, 4 building, room 43						12:00:00	2024-10-04	Knock on door	None	480000.00	33	Unpaid	Unassigned
Pending	22	Yard Work	23 sky road 18 street						10:00:00	2024-10-16	No dogs	Waxing the Floor - MMK 12000, Window Cleaning - MMK 5000	167500.00	36	Pending	Unassigned
Pending	23	Move in Month Out	123 road , 112 advenu	Hlaing	2	5.00	3	3	04:00:00	2024-10-09	No cats	Window Cleaning - MMK 5000	905000.00	1	Pending	Unassigned
Pending	24	Standard Cleaning	112 building	Hlaing	1	0.50	0	1	01:00:00	2024-10-07	Knock please		15000.00	1	Pending	Unassigned
Pending	25	Standard Cleaning	12 Building, 3rd main road	Hlaing	2	3.50	2	3	11:00:00	2024-10-17	Knock on door		37500.00	38	Pending	Unassigned
Pending	26	Standard Cleaning	123 Moon Road	Insein	3	4.00	4	5	13:00:00	2024-10-09	None	None	55000.00	24	Unpaid	Unassigned

**Booking ID: 26**

Status:

Customer ID:

Service Name:

Address:

CleanerQty:

Bedrooms:

Bathrooms:

Time:

Date:

Remarks:

Addons:

Total:

PaymentStatus:

JobStatus:

1. Edit Details

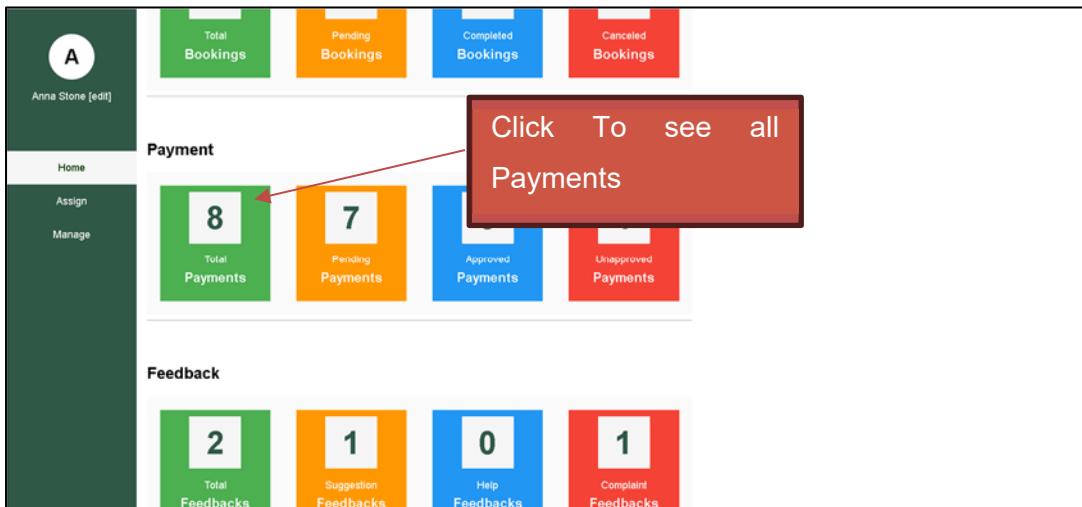
localhost says

Booking status updated!

Click OK on Confirmation prompt

248 | Page

## Admin Managing Payments



**Total Payments**

**Payment**

PaymentStatus	PaymentID	CustomerID	BookingID	Method	ExpMonth	ExpYear	Zip	CVV	Amount	DateandTime
Unapproved	40	1			December	2026	8822	332	37550.00	2024-09-17 00:16:31
Pending	51	42	14	Cash					10020.00	2024-09-23 01:03:18
Pending	52	43	14	Cash					20000.00	2024-09-26 20:28:28
Pending	53	1	15	Cash					1007500.00	2024-09-30 02:12:01
Pending	54	36	22	Cash					167500.00	2024-10-02 22:57:03
Pending	55	1	23	Cash					905000.00	2024-10-03 00:03:38

**Click to update Payment Status**

**1. Change Payment Status**

**2. Click Update**

Payment ID: 51

Status: Pending

Customer ID: Approved

Booking ID: Unapproved

Payment Method: KBZPay

Card Number: 092233212233

Holder Name: U Jack Ronan

Amount: 10020.00

Date and Time: 2024-09-23 01:03:18

**Update** **Go Back**

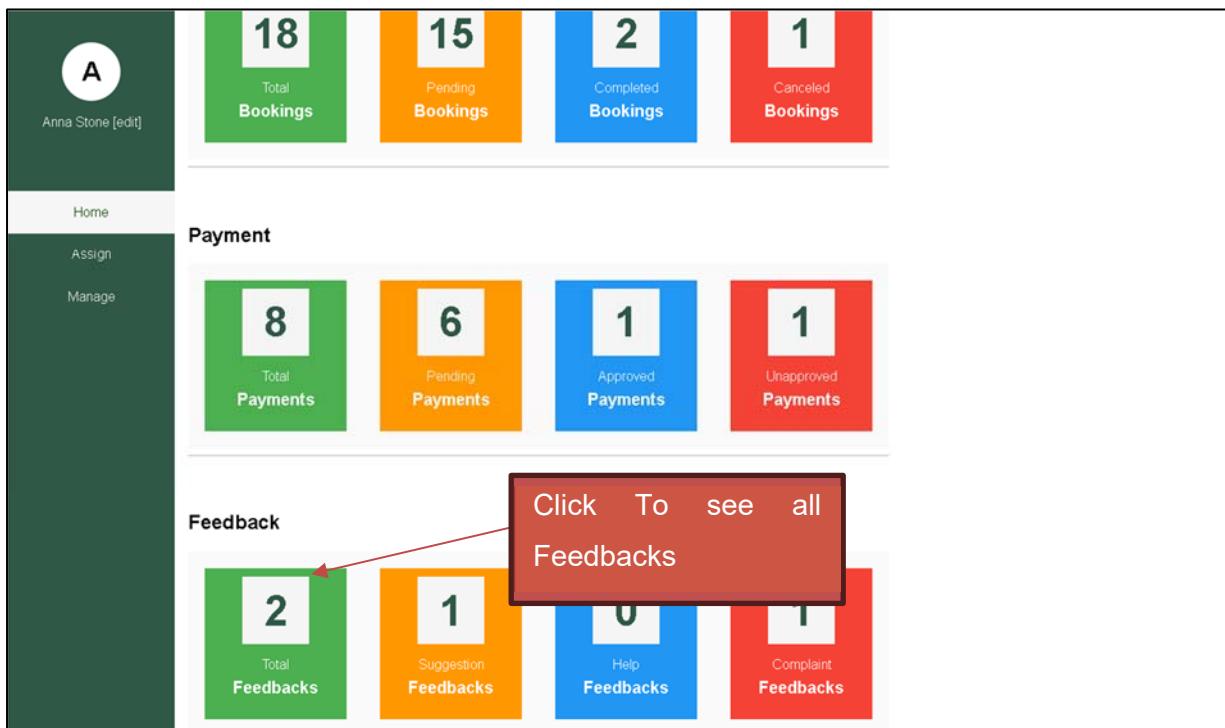
localhost says

Payment status updated!

OK

Click OK on  
Confirmation prompt

## Admin Managing Feedbacks



**Total Feedbacks**

Feedbacks					
Type	FeedbackID	CustomerName	Email	Message	Time
Complaint	1	Nandar	nandar@example.com	The cleaners left trash at the house	2024-09-20 01:56:57
Suggestion	2	Aung Win	aungwin@example.com	Good service, but I suggest the company call before arriving the place	2024-10-03 10:45:51

End of results

## Admin Managing Customers



The screenshot shows a "Customers" table with columns: Action, CustomerID, Name, and others. The first row has an "Edit" button highlighted with a red arrow. A red callout box with the text "Click to Edit Customer Details" points to the "Edit" button in the first row.

Action	CustomerID	Name				
Edit	1	Pyae Sone				
Delete						
Edit	22	Thura	password123	thura@example.com	0945001111	1990-06-15
Delete						
Edit	23	Sanda	password123	sanda@example.com	0945002222	1993-09-22
Delete						
Edit	24	Aye Chan	password123	ayechan@example.com	0945003333	1987-11-30
Delete						
Edit	25	Wai Yan	password123	waiyan@example.com	0945004444	1994-03-05

**Customer ID: 23**

Name: Sanda

Password: Password234

DOB: 1993-09-22

Email: sanda@example.com

Phone: 0945002222

**1. Edit Details**

**2. Click Update**

**Update**    **Go Back**



**Customers**

Action	CustomerID	Name	Password	Email	Phone	DOB
<a href="#">Edit</a>	1	Pyae Sone	1122	psaung1229@gmail.com	0922332123	2024-09-10
<a href="#">Delete</a>						
<a href="#">Edit</a>	22	Thura	password123	thura@example.com	0945001111	1990-06-15
<a href="#">Delete</a>						
<a href="#">Edit</a>	23	Sanda	Password234	sanda@example.com	091122334455	1993-09-22
<a href="#">Delete</a>						
<a href="#">Edit</a>	24	Aye Chan	password123	ayechan@example.com	0945003333	1987-11-30
<a href="#">Delete</a>						
<a href="#">Edit</a>	25	Wai Yan				1994-03-05
<a href="#">Delete</a>						
<a href="#">Edit</a>	26	Su Su				1990-08-19
<a href="#">Delete</a>						
<a href="#">Edit</a>	27	Zin Mar	password123	zinmar@example.com	0945006666	1991-07-17
<a href="#">Delete</a>						
<a href="#">Edit</a>	28	Myo Myint	password123	myomyint@example.com	0945007777	1989-01-11
<a href="#">Delete</a>						
<a href="#">Edit</a>	29	Tin Tin	password123	tintin@example.com	0945008888	1992-12-09
<a href="#">Delete</a>						

**Click To delete Customer Account**

The screenshot shows a web application interface. At the top right, a red callout box contains the text "Click OK on Confirmation prompt". A red arrow points from this text to the "OK" button in a white confirmation dialog box. The dialog box asks, "Are you sure you want to delete this Customer Account?" with "OK" and "Cancel" buttons. Below the dialog is a navigation bar with a search input field ("Enter value to search"), a dropdown menu ("Select Column"), and a "Search" button. The main content area is titled "Customers" and displays a table with the following data:

Action	CustomerID	Name	Password	Email	Phone	DOB
<a href="#">Edit</a>	1	Pyae Sone	1122	psaung1229@gmail.com	0922332123	2024-09-10
<a href="#">Delete</a>	22	Thura	password123	thura@example.com	0945001111	1990-06-15
<a href="#">Edit</a>	23	Sanda	Password234	sanda@example.com	091122334455	1993-09-22
<a href="#">Delete</a>	24	Aye Chan	password123	ayechan@example.com	0933448484	1987-11-30
<a href="#">Edit</a>	25	Wai Yan	password123	waiyan@example.com	0945004444	1994-03-05

The screenshot shows a confirmation message box with the text "localhost says" at the top left and "Record has been Deleted" below it. A red callout box on the right contains the text "Click OK on Confirmation prompt". A red arrow points from this text to the "OK" button in the message box. The message box has a blue rounded rectangular shape with the word "OK" in white.

## Admin Managing Cleaners

The dashboard features a sidebar on the left with a user profile (Anna Stone [edit]), navigation links (Home, Assign, Manage), and a central area titled "Management". It displays three key metrics in colored boxes: "Total Customers" (22, green), "Total Cleaners" (17, orange), and "Total Services" (4, blue). A red callout box with a pointer to the "Total Cleaners" box contains the text "Click To see all Cleaners".

The table has columns: Action, CleanerID, CleanerName, Email, Position, and Status. The "Action" column contains "Edit" and "Delete" buttons for each row. A red callout box with a pointer to the "Edit" button in the first row contains the text "Click To Edit cleaners".

Action	CleanerID	CleanerName	Email	Position	Status		
<a href="#">Edit</a>	1	John Doe	john.doe@example.com	Junior	Available		
<a href="#">Edit</a>	2	Aung Aung	password123	1985-05-10	aungaung@example.com	Senior	Available
<a href="#">Edit</a>	3	Mya Mya	password123	1990-12-08	myamya@example.com	Junior	Unavailable
<a href="#">Edit</a>	4	Kyaw Kyaw	password123	1987-02-15	kyawkyaw@example.com	Senior	Available
<a href="#">Edit</a>	5	Thandar	password123	1995-06-25	thandar@example.com	Junior	Available

## Cleaner ID 1

Name: John Doe

Password: JJ1122

DOB: 2024-07-02

Email: johnny@gmail.com

Position: Senior

Status: Available

Available  
Unavailable

Update      Go Back

1. Edit Details

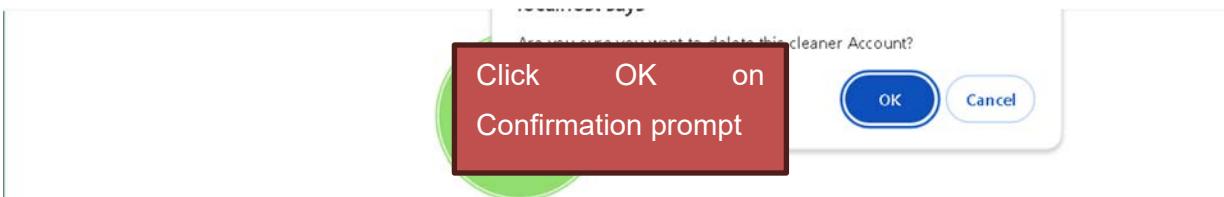
2. Click Update

localhost says

Cleaner updated!

OK

Click OK on  
Confirmation



Enter value to search  Select Column  Search

## Cleaners

Action	CleanerID	CleanerName	Password	DOB	Email	Position	Status
<a href="#">Edit</a> <a href="#">Delete</a>	1	John Doe	JJ1122	2024-07-02	johnny@gmail.com	Senior	Available
<a href="#">Edit</a> <a href="#">Delete</a>	2	Aung Aung	password123	1990-05-15	aung.aung@example.com	Senior	Available
<a href="#">Edit</a> <a href="#">Delete</a>	3	Mya Mya	password123	1995-06-25	mya.myamya@example.com	Junior	Unavailable
<a href="#">Edit</a> <a href="#">Delete</a>	4	Kyaw Kyaw	password123	1987-02-15	kyawkyaw@example.com	Senior	Available
...		Thandar	password123	1995-06-25	thandar@example.com	Junior	Available



## Admins Managing Services

The dashboard displays a summary of service management. It features a sidebar with user profile (Anna Stone) and navigation links (Home, Assign, Manage). A central area shows a green circular icon with a cleaner silhouette and the text 'Homes Cleaning'. A red callout box with a white border and rounded corners contains the text 'Click To see all Services' with a downward-pointing arrow. Below this are three colored boxes: green (Total Customers: 22), orange (Total Cleaners: 16), and blue (Total Services: 4).

A table lists service details. At the top left is a green 'Add' button. To its right, a red callout box with a white border and rounded corners contains the text 'Click To Add new service'. A red arrow points from the word 'Services' in the table header to this callout box. The table has columns: Action, ServiceID, ServiceName, Price, Description, and Photo. It contains four rows of data:

Action	ServiceID	ServiceName	Price	Description	Photo
<a href="#">Edit</a> <a href="#">Delete</a>	1	Yard Work	5000.00	Designed to keep your outdoor spaces neat and tidy, this service includes yard waste removal, leaf raking, mowing, trimming bushes, and gutter cleaning. Great for regular lawn care or seasonal yard maintenance.	
<a href="#">Edit</a> <a href="#">Delete</a>	3	Standard Cleaning	15000.00	A routine cleaning service focused on maintaining the cleanliness of your home. It includes dusting, vacuuming, mopping floors, wiping surfaces, cleaning bathrooms, and taking out the trash. Ideal for regular upkeep.	
<a href="#">Edit</a> <a href="#">Delete</a>	4	Move in Move	300000.00	A specialized service for preparing homes for new occupants or leaving a property spotless when moving out. It covers all rooms, including inside cabinets.	

**A**

Anna Stone [edit]

- Home
- Assign
- Manage

**2. Click Add service**

**Add Services**

Service Name:

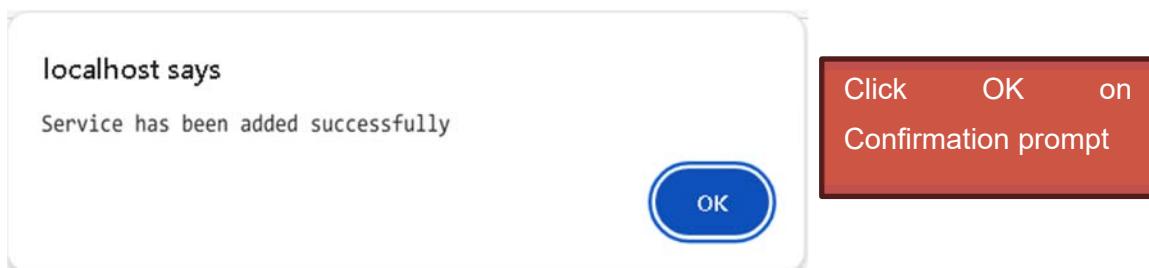
Description:   
This service is example

Price:

Upload Service Image:

**Add New Service**

**1. Fill Details**

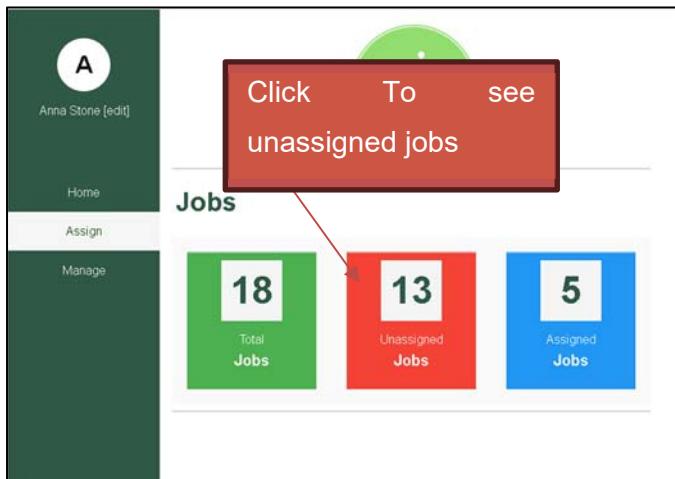


	1	Yard Work	5000.00	localhost says	
<a href="#">Edit</a>	2	Landscaping	10000.00	Are you sure you want to delete this item?	<a href="#"><b>OK</b></a> <a href="#">Cancel</a>
<a href="#">Edit</a>	3	Standard Cleaning	15000.00	A routine cleaning service focused on maintaining basic cleanliness.	
<a href="#">Edit</a>	4	Move in Move Out	300000.00	A specialized service for preparing homes for new occupants or leaving a property spotless when moving out. It covers all rooms, including inside cabinets, closets, and appliances, ensuring the space is ready for its next residents.	
<a href="#">Edit</a>	5	Deep Cleaning	400000.00	Targets hard-to-reach areas like grout, behind appliances, and detailed dusting of vents. Perfect for a periodic or seasonal deep cleanse.	
<a href="#">Edit</a>	10	Example Service	300000.00	This service is example	

**Click To Delete Service**

**Click OK on Confirmation prompt**

## Admins Assigning jobs to cleaners



Enter value to search

Select Column

Search

**Unassigned Jobs**

**Jobs**

Click To assign cleaners

Status	BookingID	ServiceName	Address	Area	Time	BookingDate	CustomerID	
Unassigned	11	Standard Cleaning	Kyauktada	1	10:00:00	2024-09-26	1	
Unassigned	13	Yard Work	Sanchaung	2	3.50	11:00:00	2024-09-28	42
Unassigned	14	Yard Work	Sanchaung	2	4.00	10:00:00	2024-09-28	43
Unassigned	15	Deep Cleaning	Kyauktada	2	4.00	02:00:00	2024-10-05	1
Unassigned	16	Standard Cleaning	Kyauktada	3	3.00	13:00:00	2024-10-09	23
Unassigned	18	Standard Cleaning	Insein	4	4.00	09:00:00	2024-10-11	24
Unassigned	19	Standard Cleaning	Kyauktada	4	3.00	12:00:00	2024-10-03	26

**Assign Cleaners to Jobs**

Booking ID: 11  
Customer Name: Pyae Sone  
Service Date: 2024-09-26  
Service Time: 05:00:00  
Total Hours: 3.50  
Number of Cleaners Required: 2

Select Cleaner 1:  
-- Select Cleaner --

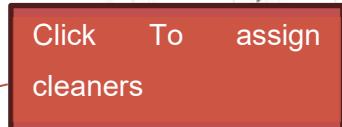
Select Cleaner 2:

-- Select Cleaner --  
-- Select Cleaner --  
Aung Aung  
Kyaw Kyaw  
Thandar  
Win Win  
Nay Lin  
Zaw Zaw  
Soe Soe  
Tun Tun  
Nilar  
Ko Ko  
Moe Moe  
Aye Aye

**Available Cleaners**

Cleaner ID	Name	Status
2	Aung Aung	Available
4	Kyaw	Available
6	Nay Lin	Available
10	Zaw Zaw	Available
11	Soe Soe	Available
12	Tun Tun	Available
13	Nilar	Available
14	Ko Ko	Available
16	Moe Moe	Available
17	Aye Aye	Available

**Click To assign cleaners**

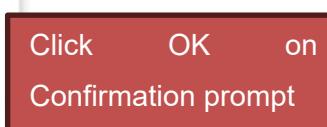


localhost says

Cleaners assigned successfully!

OK

**Click OK on Confirmation prompt**





Enter value to search Select Column Search

## Assigned Jobs

Jobs

Status	BookingID	ServiceName	BookingTime	BookingDate	CustomerID
Assigned	8	Move-in/Move-out	05:00:00	2024-09-21	1
Assigned	9	Yard Work	11:00:00	2024-09-11	1
Assigned	10	Move in/Move Out	Sanchaung	1	2.50
Assigned	11	Standard Cleaning	Kamayut	2	3.50
Assigned	12	Standard Cleaning	Kamayut	2	4.50
Assigned	20	Deep Cleaning	Insein	4	4.00

Click To see  
assignment details

End of results

## Assignment Details

Booking ID: 8

Customer Name: Pyae Sone

Service Date: 2024-09-21

Service Time: 05:00:00

Total Hours: 4.50

Number of Cleaners Required: 2

## Assigned Cleaner(s)

Cleaner ID	Name
10	Zaw Zaw
4	Kyaw Kyaw

## Cleaners Seeing Assignment details

Welcome, Kyaw Kyaw

Status: Available

[Change](#)

**K**

Kyaw Kyaw

kyawkyaw@example.com

Position : Senior

[Logout](#)

**Click To Change availability status**

**View Assigned Jobs**

Booking ID	Date	StartTime	EndTime	Customer	Service Type
8 <a href="#">View</a>	2024-09-21	05:00:00			
10 <a href="#">View</a>	2024-09-19	11:00:00			
12 <a href="#">View</a>	2024-09-13	02:00:00			
9 <a href="#">View</a>	2024-09-11	11:00:00			
20 <a href="#">View</a>	2024-10-04	14:00:00	18:00:00	Kyaw Naing	Deep Cleaning

**Click To see assignment details**

### Assignment Details

**Booking ID:** 8

**Customer Name:** Pyae Sone

**Service Date:** 2024-09-21

**Service Time:** 05:00:00

**Total Hours:** 4.50

**Number of Cleaners Required:** 2

### Assigned Cleaner(s)

Cleaner ID	Name
10	Zaw Zaw
4	Kyaw Kyaw

## Customers Booking Process

Enter value to search  Search

Select a Service [See what's included>>](#)

Home Services FAQ Contact Us Tin Tin [edit]

**Choose a service to book**

**Yard Work** **Standard Cleaning** **Move in Move Out** **Deep Cleaning**

1. Choose number of bedrooms and bathrooms

Service Details  
Standard Cleaning Details [See what's included>>](#)  
Base Price: MMK15000.00  
A routine cleaning service focused on maintaining the cleanliness of your home. It includes dusting, vacuuming, mopping floors, wiping surfaces, cleaning bathrooms, and taking out the trash. Ideal for regular cleaning.

Select the number of Bedrooms and Bathrooms

Bedrooms: 1 Bedroom  
Bathrooms: 4 Bathrooms

Additional Add-Ons

- Waxing the Floor
- Fridge Cleaning  Total Price: MMK 7500  
Through cleaning and sanitizing of your fridge.
- Window Cleaning

Required Time and Crew  
Total Hours: 3.5  
Total Cleaners: 2  
Total : 45000 MMK

Go Back Continue

2. Add extra services if requires

3. Click continue to proceed

1. Choose Date and

Schedule Your Service

Select Date and Time  
Choose Date:

		October				
Sun	Mon	Tue	Wed	Thu	Fri	Sat
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2
3	4	5	6	7	8	9

Choose Time:  
 9:00 AM  10:00 AM  11:00 AM  
 12:00 PM  1:00 PM  2:00 PM  
 3:00 PM  4:00 PM  5:00 PM

Booking Overview  
Type: Standard Cleaning  
Jurs: 3.5 hours  
Total Cleaners: 2  
Add-Ons:  
Fridge Cleaning - MMK7500  
Total Price: 45000\$

Go Back Continue

2. Fill Address details

Select Your Township: [Don't see your Township?](#)  
Meyangone

Address:  
123 Sun Road, Building 12

3. Click continue to proceed

## 1. Choose Payment Type

The screenshot shows the 'Check Out' page. At the top, there are three payment options: 'Credit Card' (selected), 'Cash on Delivery', and 'KBZ Pay'. Below this is a 'Credit Card Payment' section with fields for card number, name on card, expiration month, zip code, and CVV. A checkbox for 'I agree to Payment Policy' is present. A green 'Proceed to CheckOut' button is at the bottom. To the right is an 'Order Summary' box showing a total of MMK 45000.00. Red arrows point from the 'Credit Card' radio button and the 'Proceed to CheckOut' button to the respective numbered steps above.

## 2. Fill Details

3. Click continue to proceed

## 1. Choose Payment Type

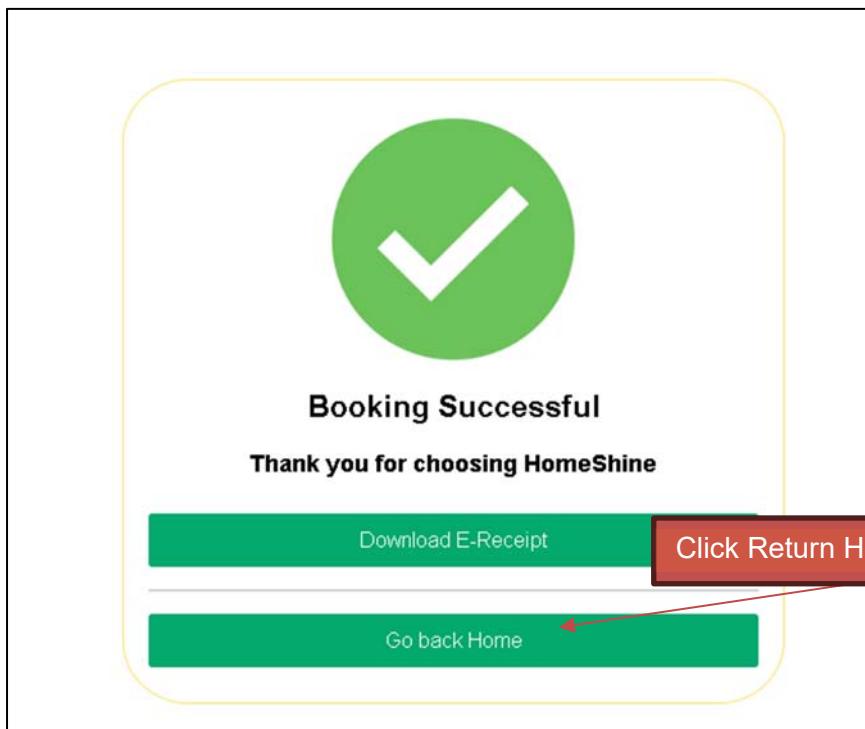
The screenshot shows the 'Check Out' page with 'KBZ Pay' selected as the payment method. The 'KBZPay payment' section displays the recipient's name (U Aung Kyaw) and phone number (09-961234567). A QR code is provided for payment. Below this is a 'Sender Information' section with fields for account name and phone number. A checkbox for 'I agree to Payment Policy' is present. A green 'Proceed to CheckOut' button is at the bottom. To the right is an 'Order Summary' box showing a total of MMK 45000.00. Red arrows point from the 'KBZ Pay' radio button and the 'Proceed to CheckOut' button to the respective numbered steps above.

## 2. Fill Details

3. Click continue to proceed

## 1. Choose Payment Type

The screenshot shows the 'Check Out' page for a cleaning service. At the top, there are three payment options: 'Credit Card', 'Cash on Delivery' (which is selected), and 'KBZ Pay'. Below this, a 'Cash payment' section contains two checkboxes: 'I agree to have the payment ready in cash at the time of service' and 'I agree to Payment Policy'. A large red box labeled '2. Check boxes' highlights these checkboxes. A green button labeled 'Proceed to CheckOut' is at the bottom of this section. To the right, an 'Order Summary' box displays the total amount 'MMK 45000.00' and 'Order Details' including 'OderID - 27', 'Service - Standard Cleaning', 'Total Hours - 3.50', 'Total Cleaners - 2', and 'Grand Total - 45000.00'. It also lists service details like Date - 2024-10-10, Time - 10:00:00, TownShip - Mayangone, Address - 123 Sun Road, Building 123, Addons - Fridge Cleaning - MMK 7500, and Remarks - . A red box labeled '3. Click continue to proceed' points to the 'Download E-Receipt' button.



## Customer Feedback submission

The screenshot shows a website for "HomeShine Cleaning made Easy". On the left sidebar, there are links for Home, Services, FAQ, and Contact Us. A user profile "Tin Tin [edit]" is displayed. The main content area has a "Business Hours" section with operating times for Monday-Friday, Saturday, and Sunday. Below this is a "Feedback and Suggestions" section. A red box labeled "1. Choose Feedback Type" highlights the "Reason for Feedback" dropdown, which contains "Complaint", "Suggestion", and "Need Assistance", with "Suggestion" selected. A red box labeled "2. Write feedback message" highlights the text input field containing "Add more services please". A red box labeled "3. Click Submit to send feedback" highlights the "Submit" button. Red arrows point from each numbered box to its corresponding element on the page.

**Business Hours**

**Monday - Friday:** 9:00 AM - 6:00 PM  
**Saturday:** 10:00 AM - 4:00 PM  
**Sunday:** Closed

**Feedback and Suggestions**

Your feedback helps us improve. If you have any suggestions or comments about our service,

Tin Tin

tintin@example.com

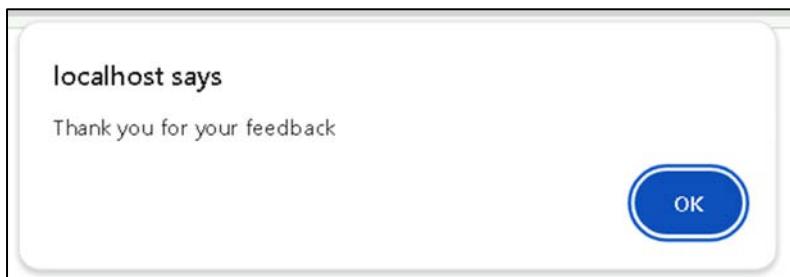
Reason for Feedback

Complaint  Suggestion  Need Assistance

Add more services please

Submit

Map & Directions



# **Topic – 7**

## **Conclusion**

**&**

## **Evaluation**

## **7.0 Topic 7 – Conclusion and Evaluation**

### **7.1 Evaluation against Aim & Objectives**

#### **Aim**

In the initial pre-project phases the aim for the outcome of the project was outlined.

It aimed that the new application would automate the booking business process. The developed application successfully fulfilled that with a fully automated system with real-time tracking.

Another important aspect of the aim was to improve customer experience as a whole and improve communication between the cleaners of HomeShine. The developed application allowed customers to independently make bookings online. And it also allowed administrators to give booking details to the assigned cleaners.

In conclusion, the developed application successfully met the predetermined aims and will help HomeShine's growth as a leading cleaning provider in Yangon

#### **Objective 1 Analysis**

In Objective 1(Analysis), 4 main aspects were set.

##### **1. Requirements Collect (Interview)**

The requirement collection interview was held with Mr. Aung Kyaw, the manager of Home Shine. Several questions including his vision of the project was answered. After the interview was done sufficient requirements needed to develop the web-application was collected successfully.

##### **2. SWOT Analysis**

A SWOT analysis was made to analyze HomeShine. It carefully documented the strength, weakness, opportunities and threats the new automated web-application would bring to impact their current manual system.

### **3. Similar System Research**

The booking system web-application of two successful two home cleaning services **MyClean** and **Urban Company** were compared and researched. Both the functionalities and non-functionalities were evaluated and given heuristic evaluations.

### **4. Feasibility Study**

Various kinds of feasibility studies were conducted for the development of the web-application. This included technical feasibility study, determining the technologies to be used and DSDM feasibility study, determining the suitable development process. Highly detailed LESPI Study was also made to outline various possible issues that the developed web-application could bring.

## **Objective 2 Design**

In this objective, there are 6 aspects.

### **1. Functional Requirements**

Functional requirements needed for the features of the web-application were detailed. This included the admin being able to manipulate and manage operations and customers being able to make bookings online.

### **2. Time box planning**

Based on the requirements, a total of 3 timeboxes were planned to track the timeline of the development process. Timebox 1 included the admin being able to manage bookings and payments and Timebox 2 included the customer's side of creating and scheduling bookings. The last Timebox 3 includes feedback management.

### **3. MOSCOW Prioritization**

The features to be included in the application were listed based on its priority using the MOSCOW method. This made sure “must have” important features like booking

management were prioritized first. Then less important features and plausible features are prioritized in order.

#### **4. Non-functional Requirements**

A total of 11 non-functional requirements needed to be included were carefully researched. The requirements such as usability and reliability makes sure that the web-application not only has its functional features but also has a reliable and user-friendly experience.

#### **5. Risk Management**

The Risk management covered the control of issues that can be encountered in the development process. It clearly identified and assessed potential risks such as Technical, security-related and related to requirement changes. that can impact both the project's development process and success.

#### **6. Critical Success Factors**

6 highly critical aspect that would determine the success of the project was documented. This outlined the factors that must be taken into account during the development process from user-friendly interfaces to system performance.

### **Objective 3 Implementation**

In this objective there are 5 aspects.

#### **1. Prototyping**

For each of the timeboxes, both low level prototypes of screen designs were made. This allowed adjustments and improvements to be made freely before implementing it into the development process.

#### **2. Diagrams**

Holistic Visualizations such as use case diagrams, sequence diagrams and class diagrams were drawn for each of the timeboxes. This detailed the work flow and components that would be used for the operational processes of the web-application.

### **3. Development for Timebox (1)**

The features included in timebox 1 were developed into the web-application. This timebox mainly focuses on admin. This mainly includes managing and manipulating data records of bookings, payments and the services in the application.

### **4. Development for Timebox (2)**

The features included in timebox 2 were developed into the web-application. This timebox mainly focuses on the customer's side of view. It mainly includes the customer making and scheduling a booking based of the services that the company offered. It also included payment interfaces and booking history interfaces that the customer can navigate.

### **5. Development for Timebox (3)**

The features included in timebox 3 were also successfully developed into the web-application. This timebox focuses on all users, admins, cleaners(staff) and customers. As for this timebox, admins are able to assign different cleaners to the bookings made by customers. Cleaners can then view their assigned jobs in details with their own accounts. And the interface for customers to give feedbacks was also added.

## **Objective 4 Testing**

In this objective there are 3 aspects.

### **1. Functional Testing**

Functional testing was made each after the interface was coded for its functionality. This made sure the developed interface met user's expectations, it also allowed adjustments to be made based on use feedbacks.

### **2. Usability Testing**

Usability testing was also done after each interface was tested for its functionalities. This kind of testing made sure users would not struggle navigating the interfaces of the web-application.

### **3. Iterative development**

After each functional and usability testing was made, adjustments were made and iteratively tested again. With series of iterative improvements throughout the development process, the final product is ensured to meet user's expectations.

## **Objective 5 Training**

In this objective there are 4 aspects.

### **1. Deployment**

This aspect clearly outline the processes and plans needed to actively deploy the web application. The included deployment diagram detailed software and hardware components and the architectural structure HomeShine would need in order to deploy the developed Web-application.

### **2. Data Migration**

Detailed data migration planning and information are accounted. This includes the comprehensive timeline plan of data migration explaining when the migration would take place and the people responsible for them.

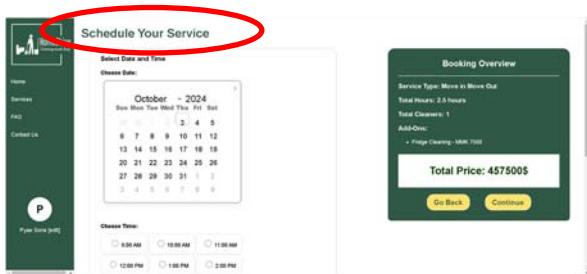
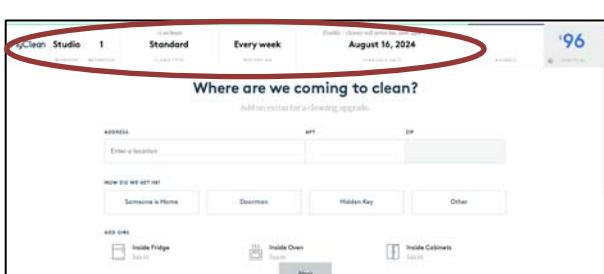
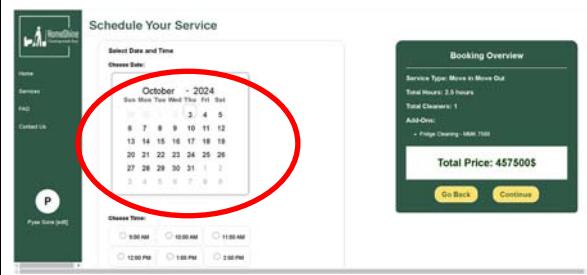
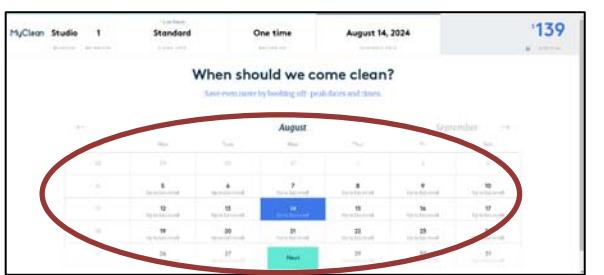
### **3. Training Plan**

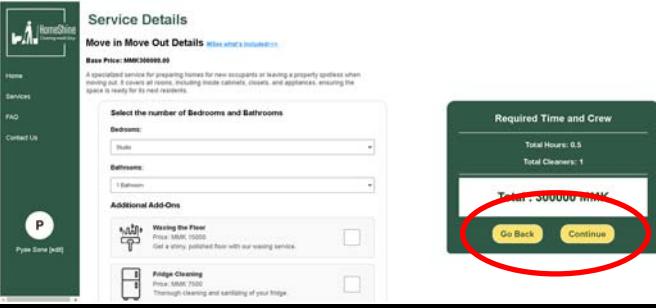
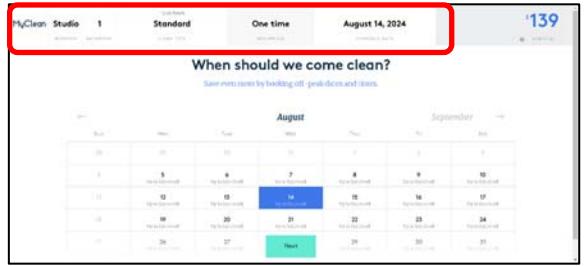
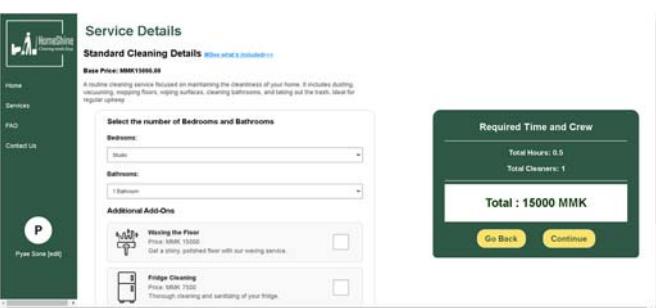
Associated staffs at HomeShine would need to be trained effectively to efficiently use the new web-application system. The training plan made sure that the respective staff at HomeShine would be properly trained during the short scheduled time.

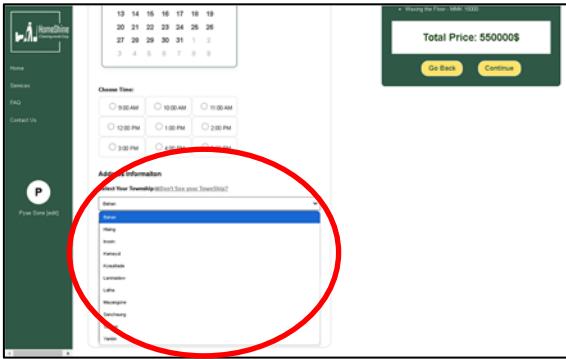
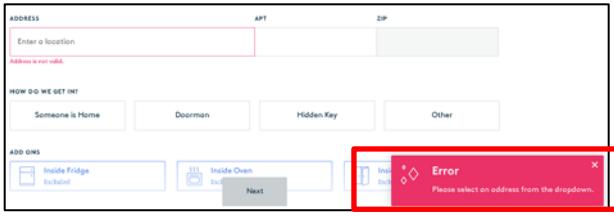
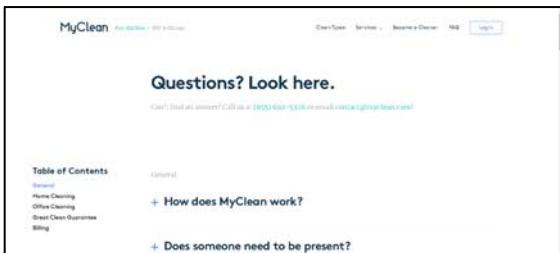
### **4. User Manual**

A comprehensive and detailed user manual is made for the entirety for the system. It includes all the operations that would be done by all users including admins, cleaners(staff) and customers. Each process and operations are explained with images and directive texts.

## 7.2 Evaluation Against Similar System

No	HomeShine's System (My System)	MyClean
1	<p><b>Visibility of System Status</b></p>  <p><b>HomeShine's</b> web-application is developed in a way that keeps customers informed about the status of their actions. For example, during the many processes of booking process, the process name is labeled at the top.</p>	<p><b>Visibility of System Status</b></p>  <p><b>MyClean's</b> website shows the status such as the booking progress. Each step completed is shown on top of the interface with the details chosen by the user.</p>
2	<p><b>Match Between System and Real World</b></p>  <p><b>HomeShine's</b> Web-application uses familiar terms and visuals for customers to navigate easily. Each detail are explained and interactive interfaces such as the calendar for date picking is used.</p>	<p><b>Match Between System and Real World</b></p>  <p><b>MyClean's</b> website also uses familiar terms and visual representations for the customers. Although the services are not as detailedly explained. But they uses a Calander interface to realistically present the customer to pick the date.</p>

3	<h3>User Control and Freedom</h3>  <p><b>HomeShine's</b> web-application have go back and continue buttons in all of the processes. This allows users to freely and confidently navigate through the pages.</p>	<h3>User Control and Freedom</h3>  <p><b>MyClean</b> also allows users to seamlessly toggle between steps back and forth. Although the transition is smooth and user-friendly, there are no “back” buttons, switching to another page is by directly clicking home or the desired webpage.</p>
4	<h3>Consistency and Standards</h3>  <p><b>HomeShine's</b> interface is laid out and designed with the standardized design of a common business web-application. The interface is also consistent throughout all the pages of all processes.</p>	<h3>Consistency and Standards</h3>  <p><b>MyClean</b> also maintains its standards and consistency throughout the entirety of the website. The components has a more modern and artistic presentation and strictly follows its eye pleasing color palate.</p>

5	<h3>Error Prevention</h3>  <p>In <b>HomeShine's</b> web-application, some limitations were put to prevent both technical and operation error. This includes using interfaces such as combo boxes and radio buttons to restrict the input data</p>	<h3>Error Prevention</h3>  <p><b>MyClean</b> uses a more traditional and user-friendly form of error prevention. When entering the user's address, an instant feedback of error message is displayed when the user enters the invalid or unavailable address</p>
6	<h3>Help and Documentation</h3>  <p><b>HomeShine's</b> has a dedicated FAQ page to keep users from confusion. Not only it answers questions customers may have, the interface is also made to be familiar and comfortable</p>	<h3>Help and Documentation</h3>  <p><b>MyClean</b> also offers a selection of detailed help and support options such as FAQ, detailed guides, customer support and a dedicated help page</p>

7

## Recognition rather than recall

Cleaning Services CheckList						
Included Services	Standard	Deep Cleaning	Very In-Depth Cleaning	Post-Construction Cleaning	Bi-Weekly Cleaning	Year Cleaning
Cleaning surfaces	✓	✓	✓	✓	✓	✓
Vacuuming carpets and floors	✓	✓	✓	✓	✓	✓
Mopping hard floors	✓	✓	✓	✓	✓	✓
Wiping down countertops	✓	✓	✓	✓	✓	✓
Cleaning bathrooms	✓	✓	✓	✓	✓	✓
Taking out trash	✓	✓	✓	✓	✓	✓
Window cleaning	Optional	Optional	✓	✓	Optional	✓
Inside oven cleaning	Optional	Optional	✓	✓	Optional	✓
Scrubbing grout	✓	✓	✓	✓	✓	✓
Cleaning refrigerator appliance	✓	✓	✓	✓	✓	✓
Detailed baseboard cleaning	✓	✓	✓	✓	✓	✓
Deep-dusting curtains, ceiling fans	✓	✓	✓	✓	✓	✓

In **HomeShine's** interfaces, a comparison checklist is made for different services, and made accessible in multiple steps of the booking process.

## Recognition rather than recall

The MyClean Checklist		
	40pt Checklist	50pt Checklist
<b>Dust</b>		
Lighting fixtures	✓	✓
Vents	✓	✓
TV & other monitors (not screens)	✓	✓
Fans	✓	✓
Door frames	✓	✓
Picture Frames	✓	✓
Tables & chairs	✓	✓
Shelves	✓	✓
Blinds	✓	✓
Behind wall units	✓	✓
<b>Wipe Down</b>		

**MyClean** also uses familiar elements and icons to help users recognize past interactions. The website explains different cleaning services by a comparison checklist

8

## Flexibility and Efficiency of Use

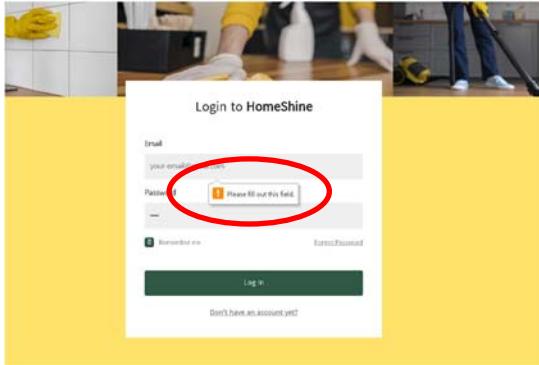
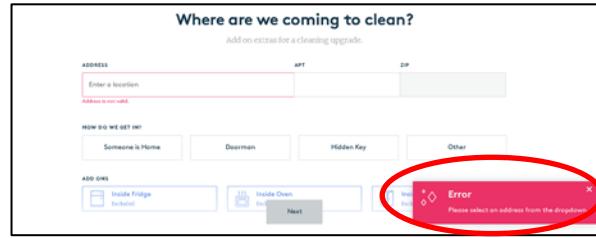
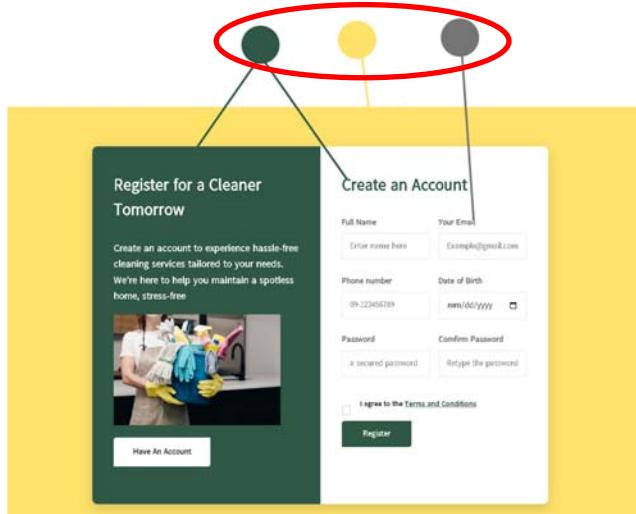
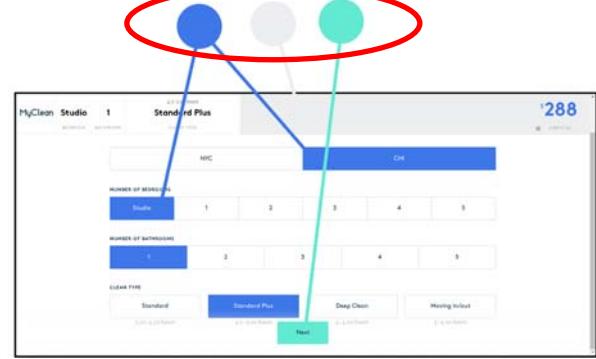
The screenshot shows the 'Service Details' page for a standard cleaning service. It includes fields for 'Number of Bedrooms and Bathrooms' (selected as '1 Bed, 1 Bath'), 'Required Time and Crew' (Total Hours: 8.5, Total Cleaners: 1), and a total price of 15000 MMK. Below these, there is a section for 'Additional Add-Ons' which includes 'Washing the Floor' and 'Fridge Cleaning'. The 'Fridge Cleaning' option is checked, indicated by a blue box around it.

**HomeShine's** web-application makes the booking process more efficient by using interfaces like check boxes and combo boxes. It also allows customers to flexibly customize their booking to their preferences.

## Flexibility and Efficiency of Use

The screenshot shows the 'Service Details' page for a 'Deep Clean' service. It includes fields for 'Number of Bedrooms' (selected as 'Studio') and 'Number of Bathrooms' (selected as '1'). Below these, there is a 'CLEAN TYPE' section with options for 'Standard', 'Standard Plus', 'Deep Clean', and 'Moving Assist'. The 'Deep Clean' option is selected. A red box highlights the 'Number of Bedrooms' and 'Number of Bathrooms' sections.

**MyClean** has a more straightforward design of the booking process and also allows customers to easily customize their bookings via a single click. This flexibility in the design allow users to easily modify their bookings such as the cleaning types and addresses.

9	<h3>Help Users with Errors</h3>  <p><b>HomeShine's</b> Web-Application has various interfaces to help users with errors. The simplest yet prominent example is the log in form that shows and helps users with invalid data input.</p>	<h3>Help Users with Errors</h3>  <p><b>MyClean</b> also excels in helping users recognize and recover from errors. They give out clear and detailed error messages with alternative suggestions. For example, when an invalid address is typed in, an error message with clear instructions is shown.</p>
10	<h3>Aesthetic and Minimalist Design</h3>  <p>Every page of <b>HomeShine</b> follows the same aesthetic and color palate strictly. Not only the color palate is simple and minimalist, With this enriched color and simple design, the web-application is pleasing to look at from start to finish.</p>	<h3>Aesthetic and Minimalist Design</h3>  <p><b>MyClean's</b> website has even more of a modern and clean look. The use of whitespaces and the consistent use of the color scheme throughout the website makes it aesthetically pleasing to use and navigate</p>

## 7.3 Evaluation against Justification Made

### 1. Methodology (Agile)

**Selected:** Agile development was chosen to break the project into manageable timeboxes and allow multiple iterative improvements to be made.

**Problems Encountered:** Keeping up with the timeline and making iterative improvements based on user feedback was challenging. At some point, in Timebox 1, the functional requirement was suddenly changed near last minute which took a lot of work to adjust to.

**Lessons Learned:** Initially, it was thought that Agile only allowed for flexibility and client-centric development. But it highlighted the importance of clear communication and managing expectations. It was experienced first handed that misaligned communication resulted in significant scope creep.

### 2. Language (PHP)

**Selected:** PHP was selected due to its compatibility with other web technologies and its maintainability.

**Problems Encountered:** Debugging PHP code was tricky as it doesn't exactly show the problem. Especially with large blocks of PHP code handling multiple data sources, became more time-consuming than expected. And it was found to be quite limited in terms of performance without the use of JavaScript.

**Lessons Learned:** From this, it was gained a deeper appreciation for writing cleaner and organized code. Also, the importance of how essential it is to optimize PHP code to handle the system's growing demands with more features and functions.

### **3. Database (MySQL)**

**Selected:** MySQL was chosen as it's a robust database system that works well with PHP, making it a logical choice for this project.

**Problems Encountered:** The main challenge was building and tracking complex relationships within the database. This includes linking services, payments, and cleaner assignments. In some cases, it was difficult to undo changes and track data flow, especially when pulling large sets of booking data.

**Lessons Learned:** It was learnt that optimizing queries and using various simple queries allowed the data to be more manageable. It also highlighted the importance of a well-defined database design from the start, to prevent headaches during the development processes. Additionally, it showed how important it is to handle data integrity when multiple updates are done simultaneously.

## **7.4 Evaluation against Time Box Plan**

### **Time Box 1: Manage Booking Process Time Box**

When making the time box plan, the end date for time box 1 is ‘August 10, 2024’. And time box 1 was finished including the iterative improvements within this date. Therefore, end date was matched with time box plan. The encountered issue of sudden requirement changing was also overcome.

The time box was successfully done and all functionalities and non-functionalities are implemented into the developed web-application. Functional testing and Usability testing was also done for each of the processes in mentioned in the timebox table.

### **Time Box 2: Manage Customer Booking Time Box**

When making the time box plan, the end date for time box 2 is ‘August 31, 2024’. And time box 2 was successfully developed within its timeframe. Therefore, the actual development was able to be matched with the predicted timebox.

Various testing such as usability and functional testing and iterative improvements were also actively made within this time box. All functionalities and non-functionalities are also implemented into the developed web-application

### **Time Box 3: Assign Cleaners Job Time Box**

When planning the timebox 3, the end date for time box 3 is ‘September 20, 2024’. Although there were issues encountered, they were resolved. The actual development was also able to be developed within this timeframe without being overdue.

All the components planned in the time box was also successfully done within the predetermined time. This included the usability and functional testing and iterative improvements. All functionalities and non-functionalities agreed were also fully implemented.

## **7.5 Personal Evaluation**

This project was a challenging yet rewarding experience for me, both technically and personally. During the initial phases of the project, it was quite overwhelming. Although I have made similar projects in the past, it was still particularly nerve-wrecking to me.

But as the project phases moved on from another, everything started to fall in place and I started feeling less nervous. Of course, there were multiple roadblocks in the way. Whether they were coding errors that took multiple hours just to figure out or balancing between functionalities and non-functionalities. But overcoming them allowed me sharpen and refine my skills that I would need as a developer.

Overall, this project forced me to expand my technical skill set and my ability to keep my focus under pressure. Interviews and communication with HomeShine also made me improve on my social skills as a professional rather than as a student. Ultimately, I genuinely enjoyed the development process and the developed product itself.

## 7.6 Strength & Weakness of HomeShine Online Booking System

### Strength

- **User-Friendly Interface:** The web application is designed with usability in mind. This allows customers, administrators, and cleaners to easily navigate and interact with the system. Features like dynamic dropdowns and real-time booking updates further improve the usability of the interface.
- **Operational Efficiency:** As it was envisioned, the web-application automates several manual processes. This mainly included booking management, cleaner assignments and payment processing. These processes are not only made efficient but also less prone to error with the new system.
- **Customizable Booking Options:** The web-application allows customers to fully customize their bookings based on the offered services. This includes choosing extra services to be added on and flexible scheduling.
- **Real-Time Functionality:** In the Web-application, real-time updates for the operational processes. Mainly for both bookings and cleaner assignments. This further enhance communication between users and increase both accuracy and efficiency.

### Weaknesses

- **Limited Scalability:** As for the current system is only made in mind with around 100 users per month, it needs to be optimized based on the increase of users. As without these adjustments, it can strain the system and decrease its performance.
- **Security Concerns:** While the system includes basic security measures, it is not the most ideal for keeping sensitive data like payment information safe. But fortunately, the web-application is developed in a way that can allow various security measures to be implemented.

- **Limited Offline Functionality:** The web-based nature of the application means it relies heavily on stable internet connections. This means in areas with poor internet connectivity, users will face challenges accessing and using the platform.

## 7.7 Future Amendment

### Program

In the future, improvements to the program can be made mainly around optimizing performance and adding new features. While the current system is expected to handle well for HomeShine's size and growth to a degree, enhancements and optimizations will still need to be done as the user base grows. As for the new features, useful features like customer notification systems and point collection systems can be added to further enhance user experience.

### Design

The current design is simple and functional, but there's always room for refinement. For example, as HomeShine adds more and more services into the system, the service selection interface might look cluttered and unorganized. UI components like icons, filters and interactive layout will accommodate these future needs.

### Report

For reporting, future amendments can focus on improving the range and clarity of reports. While the current reports meet the business's needs and scope of the project, in the future, more advanced analytics can be made to further improve. This way HomeShine will be able to get more accurate insights on the reports to further make improvements.

# **Appendix**

# Appendix

## Section A: Use Case Descriptions

### Timebox 1: Room and Table Booking Timebox

#### 1. Time box 1: Manage Booking Process Time box

<b>Time box Name</b>		Manage Booking Process Time-box	
<b>Start Date</b>		22 July 2024	
<b>End Date</b>		10 August 2024	
<b>Total Duration</b>		20 Days	
Task	Duration	Start Date	End Date
Functional Requirement	1 day	22 July 2024	22 July 2024
Use Case Diagram	1 day	23 July 2024	23 July 2024
Class Design	1 day	24 July 2024	24 July 2024
Sequence Diagram	1 day	24 July 2024	24 July 2024
Low-Level Prototype	1 day	25 July 2024	25 July 2024
High Level Prototype	2 days	26 July 2024	27 July 2024
Coding	11 days	28 July 2024	7 August 2024
Functional Testing	1 day	8 August 2024	8 August 2024
Usability Testing	1 day	9 August 2024	9 August 2024
Time Box Summary	1 day	10 August 2024	10 August 2024
<b>Key Deliverables (Output)</b>			
<b>Design</b>			
<ul style="list-style-type: none"><li>• Use Case Diagram for Manage Booking Process</li><li>• Class Diagram for Manage Booking Process</li></ul>			
<b>Coding</b>			
<ul style="list-style-type: none"><li>• Manage Admin (CRUD)</li><li>• Manage Cleaner (CRUD)</li><li>• Mange Booking (CRUD)</li><li>• Mange Service (CRUD)</li><li>• Mange Payment (CRUD)</li></ul>			
<b>Testing</b>			
<ul style="list-style-type: none"><li>• Unit Test Document</li></ul>			

- Usability Test Document
- Test Cases & Test Scripts for Time-box 1

<b>Use Case Name</b>	Manage Booking Process
<b>Actor</b>	Administrator
<b>Flow of Event</b>	<p>Admin logs into the system.</p> <p>Admin navigates to the "Manage Services" page.</p> <p>Admin selects the option to add a new service.</p> <p>Admin fills out the service details and submits the form.</p> <p>The system saves the new service to the database.</p> <p>Admin navigates to the "Manage Bookings" page.</p> <p>Admin selects the option to create a new booking.</p> <p>Admin chooses a customer from the list.</p> <p>Admin selects a service for the booking.</p> <p>Admin fills in the booking details and submits the form.</p> <p>The system saves the new booking and generates a BookingID.</p> <p>Admin navigates to the "Manage Payments" page.</p> <p>Admin attaches a payment to the booking.</p> <p>Admin processes the payment.</p> <p>The system confirms the payment and updates the booking status to confirmed.</p> <p>Admin receives confirmation of the booking and payment.</p>

## **2. Time box 2: Manage Customer Booking Process Time box**

<b>Time box Name</b>		Manage Customer Booking Process Time-box	
<b>Start Date</b>		12 August 2024	
<b>End Date</b>		31 August 2024	
<b>Total Duration</b>		20 days	
Task	Duration	Start Date	End Date
Functional Requirement	1 day	12 August 2024	12 August 2024
Use Case Diagram	1 day	13 August 2024	13 August 2024
Class Design	1 day	13 August 2024	13 August 2024
Sequence Diagram	1 day	13 August 2024	13 August 2024
Low-Level Prototype	1 day	14 August 2024	14 August 2024
High Level Prototype	2 days	15 August 2024	16 August 2024
Coding	10 days	17 August 2024	26 August 2024
Functional Testing	2 days	27 August 2024	28 August 2024
Usability Testing	2 days	29 August 2024	30 August 2024
Time Box Summary	1 day	31 August 2024	31 August 2024
<b>Key Deliverables (Output)</b>			
<b><u>Design</u></b>			
<ul style="list-style-type: none"><li>• Use Case Diagram for Manage Customer Booking Process</li><li>• Class Diagram for Manage Customer Booking Process</li></ul>			
<b><u>Coding</u></b>			
<ul style="list-style-type: none"><li>• Manage Customer (CRUD)</li><li>• Record Booking (CRUD)</li><li>• Payment Process (CRUD)</li></ul>			
<b><u>Testing</u></b>			
<ul style="list-style-type: none"><li>• Unit Test Document</li><li>• Usability Test Document</li><li>• Test Cases &amp; Test Scripts for Time-box 2</li></ul>			

### **Use Case Description**

<b>Use Case Name</b>	Manage Customer Booking Process
<b>Actor</b>	Customer
<b>Flow of Event</b>	<p>Fill details in register form. New account is created.</p> <p>Fill the booking details in the booking form. New booking is recorded.</p> <p>Customer logs into the system.</p> <p>Customer navigates to the "Search Services" page.</p> <p>Customer views available services.</p> <p>Customer selects a service to book.</p> <p>Customer fills out the booking form with required details.</p> <p>Customer confirms the booking.</p> <p>Customer proceeds to the payment page.</p> <p>Customer selects a payment method and submits payment.</p> <p>The system processes the payment.</p> <p>The booking is confirmed once payment is processed.</p> <p>Customer navigates to the "View Booking History" page.</p> <p>Customer views their past bookings and booking details.</p>

### **3. Time box 3: Assign Cleaners Job Process Time box**

<b>Time box Name</b>		Assign Cleaners Job Process Time-box	
<b>Start Date</b>		2 September 2024	
<b>End Date</b>		18 September 2024	
<b>Total Duration</b>		17 days	
<b>Task</b>	<b>Duration</b>	<b>Start Date</b>	<b>End Date</b>
Functional Requirement	1 day	2 September 2024	2 September 2024
Use Case Diagram	1 day	3 September 2024	3 September 2024
Class Design	1 day	3 September 2024	3 September 2024
Sequence Diagram	1 day	4 September 2024	4 September 2024
Low-Level Prototype	1 day	5 September 2024	5 September 2024
High Level Prototype	2 days	6 September 2024	7 September 2024
Coding	8 days	8 September 2024	15 September 2024
Functional Testing	1 day	16 September 2024	16 September 2024
Usability Testing	1 day	17 September 2024	17 September 2024
Time Box Summary	1 day	18 September 2024	18 September 2024
<b>Key Deliverables (Output)</b>			
<b><u>Design</u></b>			
<ul style="list-style-type: none"><li>• Use Case Diagram for Assign Cleaners Job Process</li><li>• Class Diagram for Assign Cleaners Job Process</li></ul>			
<b><u>Coding</u></b>			
<ul style="list-style-type: none"><li>• Manage Cleaner Account (CRUD)</li><li>• Assign Jobs to Cleaners</li><li>• Manage Feedback (CRUD)</li></ul>			
<b><u>Testing</u></b>			
<ul style="list-style-type: none"><li>• Unit Test Document</li><li>• Usability Test Document</li><li>• Test Cases &amp; Test Scripts for Time-box 3</li></ul>			

### **Use Case Description**

<b>Use Case Name</b>	Manage Customer Booking Process
<b>Actor</b>	Customer, Admin, Cleaner
<b>Flow of Event</b>	<p>Fill details in Feedback form. New Feedback is created.</p> <p>Assign cleaners into bookings. Cleaners are now assigned to each booking.</p> <p>Admin logs into the system.</p> <p>Admin navigates to the "Assign Cleaners" page.</p> <p>Admin selects a booking from the list.</p> <p>Admin searches for available cleaners.</p> <p>Admin selects one or more cleaners to assign to the booking.</p> <p>The system updates the booking with the assigned cleaners.</p> <p>Cleaners log into the system.</p> <p>Cleaners navigate to the "View Assignments" page.</p> <p>Cleaners view their assigned bookings.</p> <p>Customer logs into the system after service completion.</p> <p>Customer navigates to the "Give Feedback" page.</p> <p>Customer selects the completed booking and provides feedback.</p> <p>The system saves the feedback in the database.</p>

## Section B: Detailed Class Definitions

### Timebox 1: Manage Booking Process Timebox

#### Detail Class Definitions

<b>Class Name</b>	Customer
<b>Attributes</b>	Customer ID, Customer Name, Phone No, Address, Email, Member Type
<b>Operation</b>	Register (), Cancel (), autoCalculatePrice(), ViewHistory()
<b>Description</b>	<< The <b>Customer</b> class is used to do register for customers who booked.>>

#### Detail Class Definitions

<b>Class Name</b>	Admin
<b>Attributes</b>	Admin ID, Username, Password, Role
<b>Operation</b>	login(), manageServices(), manageBookings(), processPayments()
<b>Description</b>	<< The <b>Admin</b> class represents the administrator responsible for managing the web application, including services, bookings, and payments.>>

#### Detail Class Definitions

<b>Class Name</b>	Service
<b>Attributes</b>	Service ID, Service Name, Description, Base Price
<b>Operation</b>	createService(), updateService(), deleteService(), viewServiceDetails()
<b>Description</b>	<< The <b>Service</b> class handles the services offered by the company. Admin can add, update, and delete services.>>

### **Detail Class Definitions**

<b>Class Name</b>	Booking
<b>Attributes</b>	Booking ID, Customer ID, Service ID, DateTime, StatusAddress, Email,
<b>Operation</b>	createBooking(), updateBooking(),viewBookingDetails()
<b>Description</b>	<< The <b>Booking</b> class manages customer bookings. It holds the reference to the customer and the service selected, along with the booking time.>>

### **Detail Class Definitions**

<b>Class Name</b>	Payment
<b>Attributes</b>	Payment ID, Booking ID, Amount, Payment Method, Payment Status
<b>Operation</b>	processPayment(), updatePaymentStatus(),viewPaymentDetails()
<b>Description</b>	<< The <b>Payment</b> class handles the payment transactions for each booking. Admin can process and update payment statuses.>>

## Timebox 2: Manage Customer Process Timebox

### Detail Class Definitions

<b>Class Name</b>	Customer
<b>Attributes</b>	Customer ID, Customer Name, Phone No, Address, Email, Member Type
<b>Operation</b>	Register (), Cancel (), autoCalculatePrice(), ViewHistory()
<b>Description</b>	<< The <b>Customer</b> class is used to do register for customers who booked.>>

### Detail Class Definitions

<b>Class Name</b>	Admin
<b>Attributes</b>	Admin ID, Username, Password, Role
<b>Operation</b>	login(), manageServices(), manageBookings(), processPayments()
<b>Description</b>	<< The <b>Admin</b> class represents the administrator responsible for managing the web application, including services, bookings, and payments.>>

### Detail Class Definitions

<b>Class Name</b>	Service
<b>Attributes</b>	Service ID, Service Name, Description, Base Price
<b>Operation</b>	createService(), updateService(), deleteService(), viewServiceDetails()
<b>Description</b>	<< The <b>Service</b> class handles the services offered by the company. Admin can add, update, and delete services.>>

### **Detail Class Definitions**

<b>Class Name</b>	Booking
<b>Attributes</b>	Booking ID, Customer ID, Service ID, DateTime, StatusAddress, Email,
<b>Operation</b>	createBooking(), updateBooking(),viewBookingDetails()
<b>Description</b>	<< The <b>Booking</b> class manages customer bookings. It holds the reference to the customer and the service selected, along with the booking time.>>

### **Detail Class Definitions**

<b>Class Name</b>	Payment
<b>Attributes</b>	Payment ID, Booking ID, Amount, Payment Method, Payment Status
<b>Operation</b>	processPayment(), updatePaymentStatus(),viewPaymentDetails()
<b>Description</b>	<< The <b>Payment</b> class handles the payment transactions for each booking. Admin can process and update payment statuses.>>

### Timebox 3: Assign Cleaner Jobs Timebox

#### Detail Class Definitions

<b>Class Name</b>	Customer
<b>Attributes</b>	Customer ID, Customer Name, Phone No, Address, Email, Member Type
<b>Operation</b>	Register (), Cancel (), autoCalculatePrice(), ViewHistory()
<b>Description</b>	<< The <b>Customer</b> class is used to do register for customers who booked.>>

#### Detail Class Definitions

<b>Class Name</b>	Admin
<b>Attributes</b>	Admin ID, Username, Password, Role
<b>Operation</b>	login(), manageServices(), manageBookings(), processPayments()
<b>Description</b>	<< The <b>Admin</b> class represents the administrator responsible for managing the web application, including services, bookings, and payments.>>

#### Detail Class Definitions

<b>Class Name</b>	Service
<b>Attributes</b>	Service ID, Service Name, Description, Base Price
<b>Operation</b>	createService(), updateService(), deleteService(), viewServiceDetails()
<b>Description</b>	<< The <b>Service</b> class handles the services offered by the company. Admin can add, update, and delete services.>>

### Detail Class Definitions

<b>Class Name</b>	Booking
<b>Attributes</b>	Booking ID, Customer ID, Service ID, DateTime, StatusAddress, Email,
<b>Operation</b>	createBooking(), updateBooking(),viewBookingDetails()
<b>Description</b>	<< The <b>Booking</b> class manages customer bookings. It holds the reference to the customer and the service selected, along with the booking time.>>

### Detail Class Definitions

<b>Class Name</b>	Cleaner
<b>Attributes</b>	Cleaner ID, Cleaner Name, Phone No,Position
<b>Operation</b>	viewAssignedBookings(), updateBookingStatus(),giveFeedback()
<b>Description</b>	<< The <b>Cleaner</b> class represents staff members assigned to bookings by the Admin. They can view and update their job status.>>

### Detail Class Definitions

<b>Class Name</b>	Feedback
<b>Attributes</b>	Feedback ID, Message, Type, Date, Time
<b>Operation</b>	submitFeedback(), viewFeedback()
<b>Description</b>	<< The <b>Feedback</b> class manages the reviews and feedback provided by customers after a service is completed.>>

## Section C: Coding

Form	Function	Purpose
Customer Registration	<b>register()</b>	To register a new customer by saving customer details (Customer ID, Name, Phone, etc.) into the database. When the Register button is clicked, the data is inserted.
Booking Form	<b>createBooking()</b>	To create a new booking by saving booking details (Service ID, DateTime, Customer ID, etc.) into the database. When Book is clicked, a new booking is created.
Service Management	<b>createService()</b>	To create a new service by saving service details (Service Name, Price, Duration, etc.) into the database. The Save Service button triggers the SQL insert.
Service Management	<b>updateService()</b>	To update existing service details in the database. When the Update button is clicked, it modifies the service record via SQL statements.
Service Management	<b>deleteService()</b>	To delete a service entry from the database. The Delete button triggers the SQL delete operation for the selected service.
Payment Form	<b>processPayment()</b>	To process the payment for a booking, saving payment details (Booking ID, Payment Method, Amount, etc.) into the database.

		When Pay Now is clicked, the data is saved.
Booking Form	<b>cancelBooking()</b>	To cancel a booking by changing the booking status in the database. The Cancel button triggers an update to the booking status.
Cleaner Assignment	<b>assignCleaner()</b>	To assign a cleaner to a booking, saving cleaner details (Cleaner ID, Booking ID, etc.) into the database. The Assign Cleaner button inserts the assignment.
Cleaner Job Update	<b>updateJobStatus()</b>	To update the status of a cleaner's assigned job in the database. When the Update Status button is clicked, the booking's job status is updated via SQL.
Feedback Submission	<b>submitFeedback()</b>	To submit customer feedback after a booking, saving feedback details (Rating, Comments, etc.) into the database. The Submit Feedback button saves the data.
Cleaner Feedback View	<b>viewFeedback()</b>	To retrieve and display feedback from the database for the cleaner's completed jobs. This is triggered when the View Feedback button is clicked.
Customer Booking History	<b>viewBookingHistory()</b>	To view past booking details by querying the database for a customer's booking history. Clicking

		View History retrieves the relevant records.
Admin Login	<b>login()</b>	To authenticate admin users by checking their username and password against the database. When Login is clicked, the credentials are verified.
Admin Job Management	<b>viewAssignedJobs()</b>	To view assigned jobs for cleaners by retrieving booking data from the database. When View Jobs is clicked, it queries and displays job assignments.
Customer Login	<b>login()</b>	To authenticate customer users by checking their credentials (username, password) in the database. When Login is clicked, SQL queries are used to verify the login.
Customer Update Profile	<b>updateProfile()</b>	To allow customers to update their profile details like Name, Phone Number, or Address in the database. When Update is clicked, the SQL UPDATE query is executed.
Booking Search	<b>searchBooking()</b>	To search for available services and dates based on customer inputs (e.g., Service, Date). When Search is clicked, it retrieves matching records from the database.
Price Calculation	<b>autoCalculatePrice()</b>	To calculate the total price for a booking automatically based on selected services and rooms. This

		function runs when a booking is being created, updating the price dynamically.
Booking Confirmation	<b>confirmBooking()</b>	To confirm a booking after payment has been made. When Confirm is clicked, the booking status is updated in the database to reflect confirmation.
Cleaner Registration	<b>registerCleaner()</b>	To register new cleaners by saving cleaner details (Cleaner ID, Name, Phone, Address, etc.) into the database. When the Register Cleaner button is clicked, a new cleaner is added.
Cleaner Availability	<b>checkAvailability()</b>	To check cleaner availability by querying the database for open schedules. This function is used by admins when assigning jobs to cleaners.
Job Assignment Overview	<b>viewCleanerJobs()</b>	To display all the jobs assigned to a cleaner, pulling data from the database and showing it in a cleaner's job schedule. This is triggered when View Jobs is clicked.
Admin Service Overview	<b>viewServiceDetails()</b>	To retrieve and display details of the available services (Service Name, Price, etc.) from the database. When View Services is clicked, the service list is shown.
Admin Manage Payments	<b>managePayments()</b>	To view and update payment records, querying the database for all

		completed or pending payments for bookings. Manage Payments button retrieves and updates payment details.
Booking Update Status	<b>updateBookingStatus()</b>	To change the booking status (e.g., from 'Pending' to 'Confirmed' or 'Completed'). When Update Status is clicked, the status is modified in the database.
Booking Detail View	<b>viewBookingDetails()</b>	To display detailed information about a specific booking, including the assigned cleaners, services, and customer details. View Details button triggers the retrieval.
Feedback Overview	<b>viewAllFeedback()</b>	To display a summary of all feedback for completed bookings. When View Feedback is clicked, the system queries the database to show customer feedback.

## **Section D: Test Scripts**

### **Module 1: Log In Authentication**

Test Script	Description	Date	Tester
1.1	Test Admin Email text box can be null or not	7- August- 2024	Pyae Sone Aung
1.2	Test Admin Password to be null or not	7- August- 2024	Pyae Sone Aung
1.3	Test if the same admin email exists	7- August- 2024	Pyae Sone Aung
1.4	Test the '@' in the E mail	7- August- 2024	Pyae Sone Aung
1.5	Tests if the Password and emails exists	7- August- 2024	Pyae Sone Aung
1.6	Test Register Button	7- August- 2024	Pyae Sone Aung

### **Module 2: Admin Registration Entry**

Test Script	Description	Date	Tester
2.1	Test Admin Username text box can be null or not	7- August- 2024	Pyae Sone Aung
2.2	Test Admin Email text box can be null or not	7- August- 2024	Pyae Sone Aung
2.3	Test Admin Password to be null or not	7- August- 2024	Pyae Sone Aung
2.4	Test Admin Retype Password to be null or not	7- August- 2024	Pyae Sone Aung
2.5	Test if the same admin email exists	7- August- 2024	Pyae Sone Aung
2.6	Test the '@' in the E mail	7- August- 2024	Pyae Sone Aung
2.7	Tests if the Password are the same	7- August- 2024	Pyae Sone Aung
2.8	Test Log In Button	7- August- 2024	Pyae Sone Aung

### **Module 3: New Booking Entry**

Test Script	Description	Date	Tester
3.1	Test Booking ID is automatically made or not	7- August- 2024	Pyae Sone Aung
3.2	Test Customer Name to be null or not	7- August- 2024	Pyae Sone Aung
3.3	Test Service Name to be null or not	7- August- 2024	Pyae Sone Aung
3.4	Test Booking Date to be null or not	7- August- 2024	Pyae Sone Aung
3.5	Test Booking Time to be null or not	7- August- 2024	Pyae Sone Aung
3.6	Test Cleaner Qty to be null or not	7- August- 2024	Pyae Sone Aung
3.7	Test Hour Qty to be null or not	7- August- 2024	Pyae Sone Aung
3.8	Test Booking Township to be null or not	7- August- 2024	Pyae Sone Aung
3.9	Test Booking Address to be null or not	7- August- 2024	Pyae Sone Aung
3.10	Test Boking Remarks to be null or not	7- August- 2024	Pyae Sone Aung
3.11	Test Booking Add Ons to be null or not	7- August- 2024	Pyae Sone Aung
3.12	Test Bedrooms to be null or not	7- August- 2024	Pyae Sone Aung
3.13	Test Add Button	7- August- 2024	Pyae Sone Aung
3.14	Test Cancel Button	7- August- 2024	Pyae Sone Aung

#### **Module 4: Update Booking Status**

Test Script	Description	Date	Tester
4.1	Test Booking Status to change or not	7- August- 2024	Pyae Sone Aung
4.2	Test Update Button	7- August- 2024	Pyae Sone Aung
4.3	Test Cancel Button	7- August- 2024	Pyae Sone Aung

#### **Module 5: New Service Entry**

Test Script	Description	Date	Tester
5.1	Test Service ID is automatically made or not	7- August- 2024	Pyae Sone Aung
5.2	Test Service Name to be null or not	7- August- 2024	Pyae Sone Aung
5.3	Test Service Price to be null or not	7- August- 2024	Pyae Sone Aung
5.4	Test if Price is Number or Not	7- August- 2024	Pyae Sone Aung
5.5	Test Description to be null or not	7- August- 2024	Pyae Sone Aung
5.6	Test Add File to be null or not	7- August- 2024	Pyae Sone Aung
5.7	Test Add Button	7- August- 2024	Pyae Sone Aung
5.8	Test Cancel Button	7- August- 2024	Pyae Sone Aung

### **Module 6: Update Service Entry**

Test Script	Description	Date	Tester
6.1	Test Service ID is can be modified or not	7- August- 2024	Pyae Sone Aung
6.2	Test Service Name to be null or not	7- August- 2024	Pyae Sone Aung
6.3	Test Service Price to be null or not	7- August- 2024	Pyae Sone Aung
6.4	Test if Price is Number or Not	7- August- 2024	Pyae Sone Aung
6.5	Test Description to be null or not	7- August- 2024	Pyae Sone Aung
6.6	Test Add File to be null or not	7- August- 2024	Pyae Sone Aung
6.7	Test Update Button	7- August- 2024	Pyae Sone Aung
6.8	Test Cancel Button	7- August- 2024	Pyae Sone Aung

### **Module 7: Update Payment Status**

Test Script	Description	Date	Tester
4.1	Test Payment Status to change or not	7- August- 2024	Pyae Sone Aung
4.2	Test Update Button	7- August- 2024	Pyae Sone Aung
4.3	Test Cancel Button	7- August- 2024	Pyae Sone Aung

### **Test Script (1)**

<b>Unit Test 1</b>		<b>Test Case:</b> Register by data entry Admins	<b>Designed by:</b> Pyae Sone Aung	
<b>Data Source:</b> Admin Table		<b>Objective:</b> To test the Register of data entry admins	<b>Tester:</b> Pyae Sone Aung	
<b>Test Case</b>	<b>Description</b>	<b>Test Procedure</b>	<b>Expected Result</b>	<b>Actual Results</b>
1.1	Test Admin text box	Login button is clicked. Admin Email is blanked.	Show 'Please fill out this field' message.	See Fig.1.1 & 1.2

Before Testing

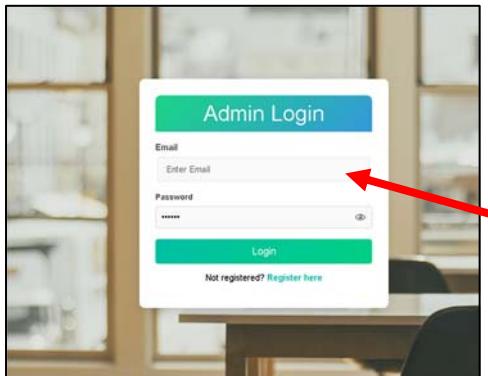


Fig.1.1

After Testing

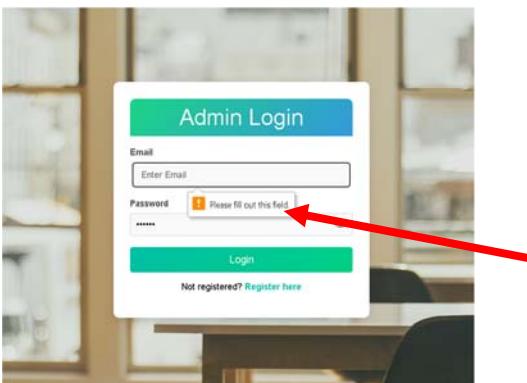


Fig.1.2

<b>Test Case</b>	<b>Description</b>	<b>Test Procedure</b>	<b>Expected Result</b>	<b>Actual Results</b>
1.2	Test Admin Password text box	Login button is clicked. Password is blanked.	Show 'Please fill out this field' message.	See Fig.1.2

Before Testing

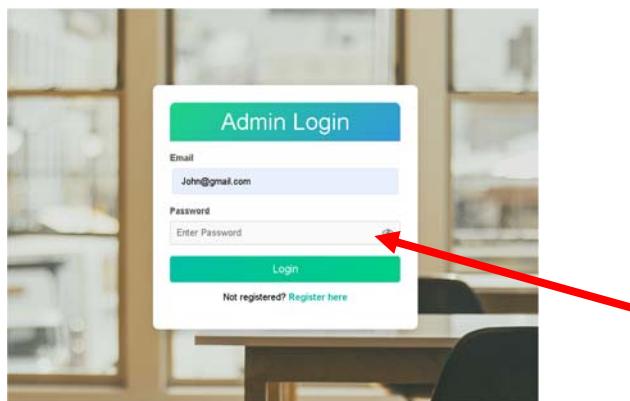


Fig.1.1

After Testing

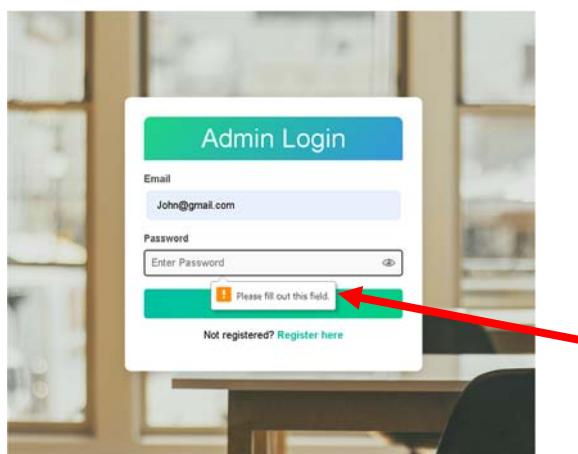


Fig.1.2

<b>Test Case</b>	<b>Description</b>	<b>Test Procedure</b>	<b>Expected Result</b>	<b>Actual Results</b>
1.3	Test Customer Phone no text box	'Register' button is clicked. Customer Name is blanked.	Show 'Please fill out this field' message.	See Fig.1.2

Before Testing

Customer Name: Enter Customer Name

Phone No: 11

Address: gg

Email: gg@gmail.com

Member Type: Not Member ▾

Register

Fig.1.1

After Testing

Customer Name: Enter Customer Name

Phone No: 11

Address: gg

Email: gg@gmail.com

Member Type: Not Member ▾

Register

Fig.1.2

### **Module 1: Log In Authentication**

Test Script	Description	Date	Tester
1.1	Test Customer Email text box can be null or not	1- September- 2024	Pyae Sone Aung
1.2	Test Customer Password to be null or not	1- September- 2024	Pyae Sone Aung
1.3	Test if the same email exists	1- September- 2024	Pyae Sone Aung
1.4	Test the '@' in the E mail	1- September- 2024	Pyae Sone Aung
1.5	Tests if the Password and emails exists	1- September- 2024	Pyae Sone Aung
1.6	Test Register Button	1- September- 2024	Pyae Sone Aung

### **Module 2: Admin Registration Entry**

Test Script	Description	Date	Tester
2.1	Test Customer Username text box can be null or not	1- September- 2024	Pyae Sone Aung
2.2	Test Customer Email text box can be null or not	1- September- 2024	Pyae Sone Aung
2.3	Test Customer Password to be null or not	1- September- 2024	Pyae Sone Aung
2.4	Test Customer Retype Password to be null or not	1- September- 2024	Pyae Sone Aung
2.5	Test if the same Customer email exists	1- September- 2024	Pyae Sone Aung
2.6	Test the '@' in the E mail	1- September- 2024	Pyae Sone Aung
2.7	Tests if the Password are the same	1- September- 2024	Pyae Sone Aung
2.8	Test if DOB date can be null	1- September- 2024	Pyae Sone Aung
2.9	Test Log In Button	1- September- 2024	Pyae Sone Aung

### **Module 3: Service Search Entry**

Test Script	Description	Date	Tester
3.1	Test Service Search Value can be null or no	2- September- 2024	Pyae Sone Aung
3.2	Test Service search with incorrect value	2- September- 2024	Pyae Sone Aung
3.3	Test Search Button	2- September- 2024	Pyae Sone Aung

#### **Module 4: Scheduling Data Entry**

Test Script	Description	Date	Tester
4.1	Test Date can be not selected or not	2- September- 2024	Pyae Sone Aung
4.2	Test Time radio button can be not selected or not	2- September- 2024	Pyae Sone Aung
4.3	Test Address can be null or not	2- September- 2024	Pyae Sone Aung
4.4	Test Remark can be null or not	2- September- 2024	Pyae Sone Aung
4.5	Test if township can be null or not	2- September- 2024	Pyae Sone Aung
4.6	Test Go to Checkout Button	2- September- 2024	Pyae Sone Aung

### **Module 5: Credit Card Payment Entry**

Test Script	Description	Date	Tester
5.1	Test Card number can be null or not	3- September- 2024	Pyae Sone Aung
5.2	Test Card holder text box can be null or not	3- September- 2024	Pyae Sone Aung
5.3	Test EXP month to be null or not	3- September- 2024	Pyae Sone Aung
5.4	Test EXP Year to be null or not	3- September- 2024	Pyae Sone Aung
5.5	Test CVV to be null or not	3- September- 2024	Pyae Sone Aung
5.6	Test Zip to be null or not	3- September- 2024	Pyae Sone Aung
5.7	Test if payment policy checkbox can be not ticked or not	3- September- 2024	Pyae Sone Aung
5.8	Test Download E-Receipt Button	3- September- 2024	Pyae Sone Aung
5.9	Test Proceed Button	3- September- 2024	Pyae Sone Aung

### **Module 6: Cash Payment Entry**

Test Script	Description	Date	Tester
6.1	Test if Cash policy terms checkbox can be not ticked or not	3- September- 2024	Pyae Sone Aung
6.2	Test if payment policy checkbox can be not ticked or not	3- September- 2024	Pyae Sone Aung
6.3	Test Download E-Receipt Button	3- September- 2024	Pyae Sone Aung
6.4	Test Proceed Button	3- September- 2024	Pyae Sone Aung

## **Module 7: KBZPay Payment Entry**

Test Script	Description	Date	Tester
7.1	Test Account Name Holder textbox can be null or not	3- September- 2024	Pyae Sone Aung
7.2	Test Account Phone Number can be null or not	3- September- 2024	Pyae Sone Aung
7.3	Test if payment policy checkbox can be not ticked or not	3- September- 2024	Pyae Sone Aung
7.4	Test Download E-Receipt Button	3- September- 2024	Pyae Sone Aung
7.5	Test Proceed Button	3- September- 2024	Pyae Sone Aung
7.6	Test if payment policy checkbox can be not ticked or not	3- September- 2024	Pyae Sone Aung
7.7	Test Download E-Receipt Button	3- September- 2024	Pyae Sone Aung

### **Test Script (1)**

<b>Unit Test 1</b>		<b>Test Case:</b> Register by data entry customers	<b>Designed by:</b> Pyae Sone Aung	
<b>Data Source:</b> Customer Table		<b>Objective:</b> To test the Register of data entry customers	<b>Tester:</b> Pyae Sone Aung	
<b>Test Case</b>	<b>Description</b>	<b>Test Procedure</b>	<b>Expected Result</b>	<b>Actual Results</b>
1.1	Test customer Name text box	Login button is clicked. Customer Email is blanked.	Show 'Please fill out this field' message.	See Fig.1.1 & 1.2

Before Testing

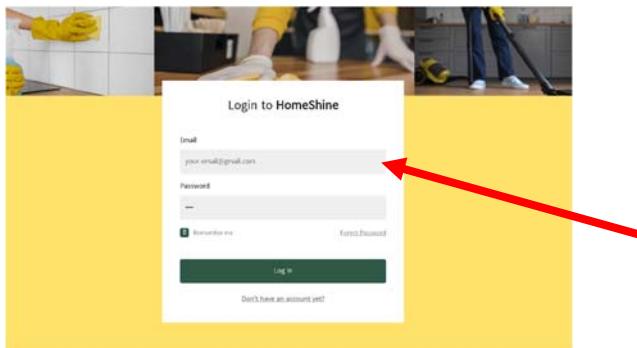


Fig.1.1

After Testing

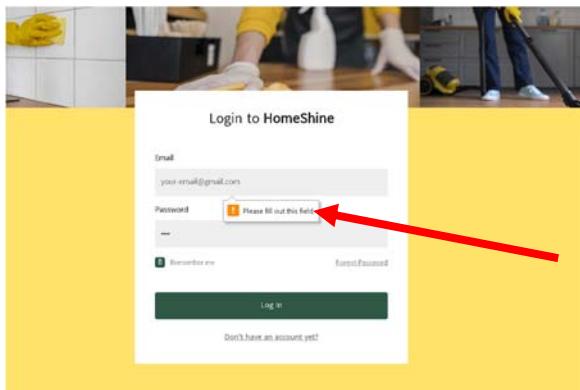


Fig.1.2

<b>Test Case</b>	<b>Description</b>	<b>Test Procedure</b>	<b>Expected Result</b>	<b>Actual Results</b>
1.2	Test Customer Password Textbox	Log button is clicked. Customer Password is blanked.	Show 'Please fill out this field' message.	See Fig.1.2

Before Testing

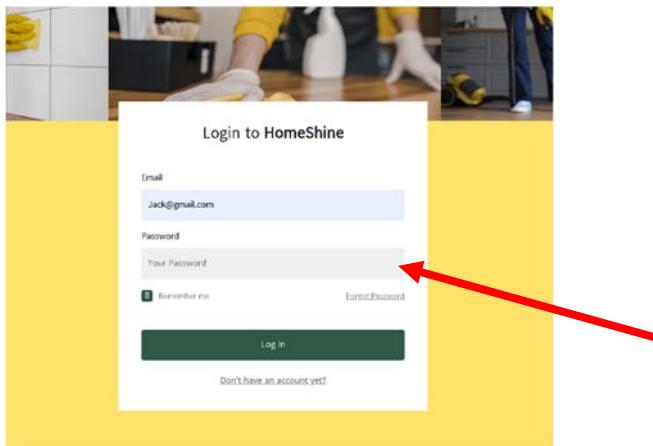


Fig.1.1

After Testing

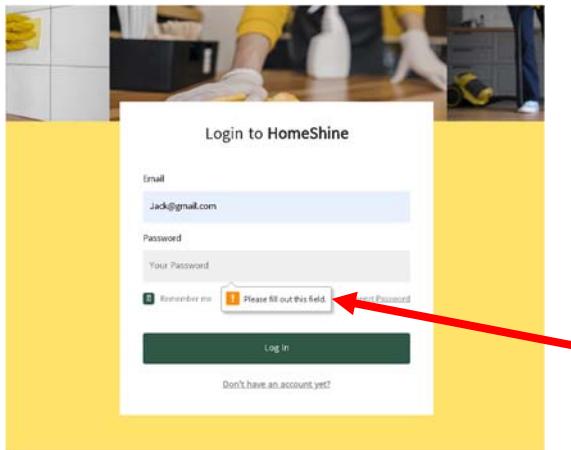


Fig.1.2

### **Module 1: Log In Authentication**

Test Script	Description	Date	Tester
1.1	Test Cleaner Email text box can be null or not	18- September- 2024	Pyae Sone Aung
1.2	Test Cleaner Password to be null or not	18- September- 2024	Pyae Sone Aung
1.3	Test if the same email exists	18- September- 2024	Pyae Sone Aung
1.4	Test the '@' in the E mail	18- September- 2024	Pyae Sone Aung
1.5	Tests if the Password and emails exists	18- September- 2024	Pyae Sone Aung
1.6	Test Register Button	18- September- 2024	Pyae Sone Aung

### **Module 2: Admin Registration Entry**

Test Script	Description	Date	Tester
2.1	Test Cleaner Username text box can be null or not	18- September- 2024	Pyae Sone Aung
2.2	Test Cleaner Email text box can be null or not	18- September- 2024	Pyae Sone Aung
2.3	Test Cleaner Password to be null or not	18- September- 2024	Pyae Sone Aung
2.4	Test Cleaner Retype Password to be null or not	18- September- 2024	Pyae Sone Aung
2.5	Test if the same Cleaner email exists	18- September- 2024	Pyae Sone Aung
2.6	Test the '@' in the E mail	18- September- 2024	Pyae Sone Aung
2.7	Tests if the Password are the same	18- September- 2024	Pyae Sone Aung
2.8	Test if DOB date can be null	18- September- 2024	Pyae Sone Aung
2.9	Test Log In Button	18- September- 2024	Pyae Sone Aung

### **Module 3: Change Availability Cleaner**

Test Script	Description	Date	Tester
3.1	Test “Change” status Button to see if cleaner status changed or not	18- September- 2024	Pyae Sone Aung

#### **Module 4: Feedback submission form**

Test Script	Description	Date	Tester
4.1	Test Email can be null or not	18- September- 2024	Pyae Sone Aung
4.2	Test Name can be null or not	18- September- 2024	Pyae Sone Aung
4.3	Test Type of Feedback radio button can be not selected or not	18- September- 2024	Pyae Sone Aung
4.4	Test Message can be null or not	2- September- 2024	Pyae Sone Aung
4.5	Test Submit Feedback Button	2- September- 2024	Pyae Sone Aung

### Test Script (1)

<b>Unit Test 1</b>		<b>Test Case:</b> Register by data entry cleaners	<b>Designed by:</b> Pyae Sone Aung	
<b>Data Source:</b> Customer Table		<b>Objective:</b> To test the Register of data entry Cleaners	<b>Tester:</b> Pyae Sone Aung	
<b>Test Case</b>	<b>Description</b>	<b>Test Procedure</b>	<b>Expected Result</b>	<b>Actual Results</b>
1.1	Test customer Name text box	Login button is clicked. Customer Email is blanked.	Show 'Please fill out this field' message.	See Fig.1.1 & 1.2

Before Testing

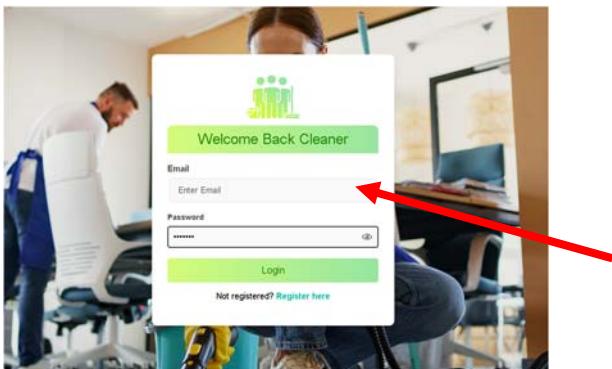


Fig.1.1

After Testing

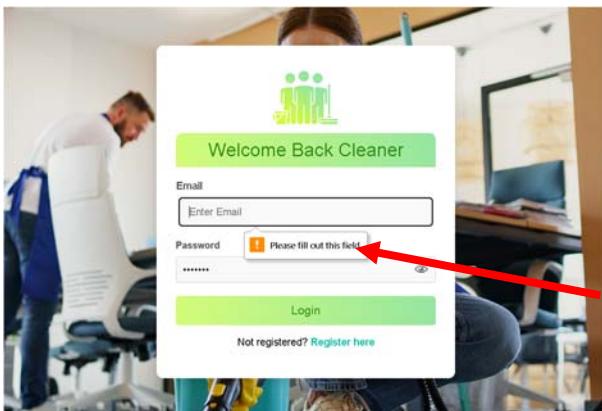


Fig.1.2

<b>Test Case</b>	<b>Description</b>	<b>Test Procedure</b>	<b>Expected Result</b>	<b>Actual Results</b>
1.2	Test Cleaner Password Textbox	Log button is clicked. Cleaner Password is blanked.	Show 'Please fill out this field' message.	See Fig.1.2

Before Testing

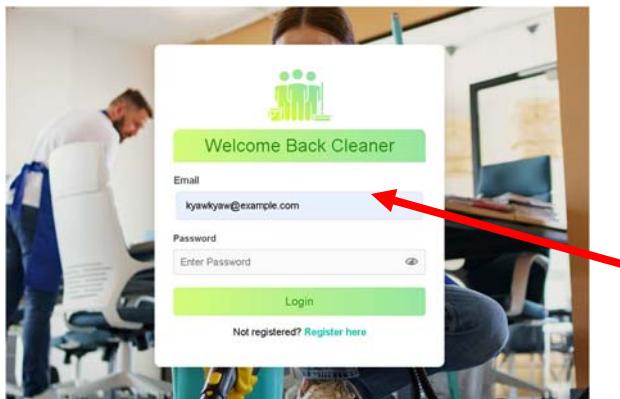


Fig.1.1

After Testing

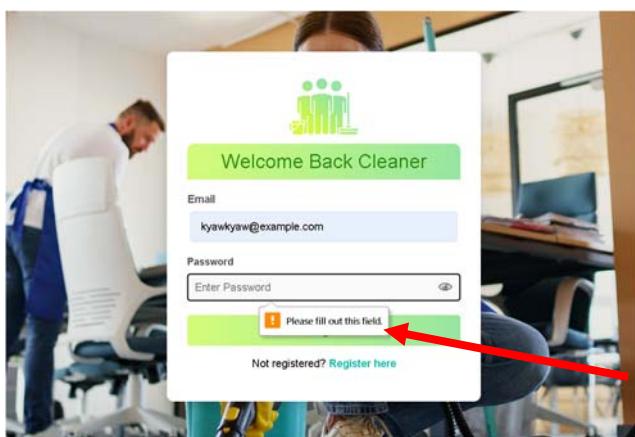


Fig.1.2

## **Section F: Interview Scripts**

The following test script shows the interview interaction between the developer and the manager of HomShine, Mr.Aung Kyaw. The interview was held on June 28, 2024 at 1:30 PM and the interview was held online via zoom meetings.

**Interviewer (Developer):** Good afternoon, Mr. Aung Kyaw. Thank you for joining us today. I appreciate you taking the time to discuss HomeShine's operations and how we can improve them with the new web-based system. To begin, could you provide an overview of how HomeShine is currently operating?

**Mr. Aung Kyaw (Manager):** Good afternoon! I'm happy to be here. HomeShine is a leading cleaning service provider in Myanmar, and we've been operating for about five years now. We provide cleaning services for homes, apartments, and offices, mainly in Yangon. Our team is composed of 30 cleaners, a few administrative staff, and myself as the manager. The current challenge is that we manage everything manually—bookings, scheduling, payments, and communication with customers and staff. We're ready for an upgrade, and that's why I'm excited about the potential of this new system.

**Interviewer:** That's great! Could you walk me through a typical day at HomeShine? How do you currently handle customer bookings, cleaner assignments, and payments?

**Mr. Aung Kyaw:** Sure. Our process starts with a customer either calling or messaging us to make a booking. They usually provide us with details like the service they need, the number of rooms, and their preferred date and time. Once we have that, we manually input everything into a spreadsheet and use that to manage cleaner assignments and availability. The challenge with this is that it's prone to human error. For example, sometimes we accidentally double-book a cleaner, or we have trouble adjusting the schedule when a cleaner becomes unavailable at the last minute. The payments are also handled manually—either the customers pay via bank transfer or cash, and we manually update our records. It's a lot to juggle.

**Interviewer:** That sounds like a complex and time-consuming process. How do you manage communication with your customers and cleaners? Are there any issues that frequently arise?

**Mr. Aung Kyaw:** Yes, communication is another challenge. For customers, we mostly communicate through phone calls or text messages, and there's no centralized way to keep track of conversations. We often find ourselves going back through chat histories or emails to

confirm details. As for our cleaners, we have a group chat, but even that can get disorganized when we're dealing with multiple bookings at once. Miscommunications between cleaners and customers happen sometimes—like cleaners going to the wrong address or customers being unclear about the service. It can be frustrating for both sides, and it's something we definitely want to improve.

**Interviewer:** It sounds like streamlining these communications would have a big impact. When you mentioned double bookings and payment tracking issues, are those the biggest pain points you're experiencing?

**Mr. Aung Kyaw:** Yes, those are major pain points. For example, with double bookings, the cleaners sometimes have to rush between jobs, which affects the quality of their work. Payment tracking is also a headache. We're managing everything with spreadsheets, and it's easy to lose track of who has paid and who hasn't, especially when we're dealing with multiple payment methods. We have cash payments, bank transfers, and some digital wallets like KBZPay, so consolidating all of that in one place has been difficult.

**Interviewer:** I see. So, the goal here is to create a system that can automate bookings, manage cleaner schedules, and centralize payment tracking. Could you tell me more about what features you'd like to see in this new system? Let's start with the booking process.

**Mr. Aung Kyaw:** Definitely. For bookings, we want something user-friendly that allows our customers to choose their preferred service, date, and time from an online calendar. It should automatically calculate the price based on the service and the number of rooms. Customers should also be able to track their appointment status in real-time, like whether the cleaner is on their way, the estimated arrival time, or if the job is complete.

**Interviewer:** That sounds like a great feature. What about for your staff? How do you envision the system helping your team with scheduling and job assignments?

**Mr. Aung Kyaw:** We need a system that automatically matches cleaners to jobs based on availability. Right now, we spend a lot of time manually checking schedules. If the system can automatically assign jobs to available cleaners and notify them of their assignments, that would save us a lot of time and effort. Ideally, cleaners would be able to log in and see their daily schedule with details like the customer's address, service requested, and any special notes. This would reduce miscommunication and help the cleaners stay organized.

**Interviewer:** That makes sense. What about payments? You mentioned earlier that payment tracking is currently a bit disorganized. How would you like the new system to handle payments?

**Mr. Aung Kyaw:** I think a central payment system that supports multiple payment methods is essential. Customers should be able to pay directly on the platform using credit cards, KBZPay, AYA Pay, Wave Pay, or other methods we support. It would be great if we could automatically track payment statuses and generate invoices. That way, we could eliminate manual tracking and reduce errors. We've had issues with delayed payments in the past because we didn't realize someone hadn't paid on time, and this caused delays in service.

**Interviewer:** I see. So, the platform would need to handle online payments and provide automated updates for both customers and your staff. What about feedback? How do you currently handle customer feedback, and how would you like the system to manage that?

**Mr. Aung Kyaw:** Right now, feedback is mostly informal—customers will tell us how the service went during follow-up calls, but we don't have a formal system for it. It would be great if the new platform could allow customers to leave feedback after their cleaning service is completed. This would give us insights into how well we're doing and where we can improve. We could also use it to track cleaner performance and provide more targeted training if necessary.

**Interviewer:** That sounds valuable. You've mentioned improving the user experience for both customers and staff—how important is it that the interface is simple and easy to use?

**Mr. Aung Kyaw:** It's critical. Many of our customers aren't particularly tech-savvy, so the interface has to be straightforward. It should be easy to book services without any confusion. For our staff, especially the cleaners, they're not used to using complex systems, so we want the cleaner dashboard to be as simple as possible. Just a clear schedule, job details, and notifications—that's it.

**Interviewer:** We'll definitely make sure the system is intuitive and user-friendly. Before we wrap up, I'd like to discuss the anticipated benefits. You've touched on how the system could streamline operations, but could you elaborate on what specific improvements you expect?

**Mr. Aung Kyaw:** Of course. First, we expect a huge reduction in errors—no more double bookings or forgotten payments. It should also save us time, especially for our admin staff, who are currently overwhelmed with managing schedules, payments, and follow-ups. For the cleaners, it should make their job easier, as they'll have clear schedules and instructions. Ultimately, this will lead to a better experience for our customers. If everything goes smoothly

on our end, customers will get faster, more reliable service. I also believe the system will make it easier for us to scale as the business grows, which is one of our long-term goals.

**Interviewer:** That's a great point—having a scalable system is important as the company expands. Thank you so much for your insights, Mr. Aung Kyaw. This has been extremely helpful in shaping our approach to the project. Is there anything else you'd like to add before we finish?

**Mr. Aung Kyaw:** No, I think we've covered everything. I'm looking forward to seeing how the system develops. It's going to be a game-changer for HomeShine.

**Interviewer:** Absolutely. We'll keep you updated throughout the development process to make sure everything is aligned with your expectations. Thanks again for your time, and we'll be in touch soon.

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