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Daster Khowan

Bachelor of Science in Computer Science

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Certificate

We accept the work contained in the report titled “Daster Khowan”, written by Mr. Muhammad Hurrairah and Mr. Sufian Ahmed as a confirmation to the required standard for the partial fulfillment of the degree of Bachelor of Science in Computer Science.

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Abstract

Daster Khowan is a web-based application aimed at reducing food waste and combating hunger in society. The project's main service is to collect leftover food from hotels and restaurants and deliver it to those in need, including slum sites. The application has three interfaces: admin, hotel staff, and rider.

The admin interface enables the administrator to register new hotels and restaurants by providing their details such as the name, address, contact information, and login credentials. The admin can also register new riders by providing their information such as their name, contact number, and other necessary details. Additionally, the admin interface enables the creation of slum sites, specifying the areas where food donations are to be delivered.

The hotel staff interface allows the staff to create batches of leftover food from their establishments. The batches include details such as the type of food, quantity, and expiry date. Once a batch is created, it is available for riders to pick up and deliver to the slum sites.

The rider interface enables the riders to select a batch and the location for delivery. The rider can also view the details of the batch, including the food type, quantity, and expiry date. After picking up the batch, the rider delivers it to the slum site and provides proof of delivery.

To ensure transparency and accountability, the application keeps records of all donations. The system maintains a log of all transactions, including the donor's name, type and quantity of food donated, the recipient's name, and the delivery time. These records can be accessed by the admin for monitoring and analysis purposes.

In conclusion, Daster Khowan is a socially responsible application that tackles the issue of food waste and hunger by providing a platform for restaurants to donate their leftover food to those in need. The system's transparent and accountable approach ensures that all donations are recorded and tracked, providing a reliable and efficient service to society.

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*“We think someone else, someone smarter than us,
someone more capable, someone with more resources will solve that problem.
But there isn’t anyone else.”*

Regina Dugan

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Acronyms and Abbreviations

DSA	Data Structure and Algorithms
OOP	Object Oriented Programming
PF	Programming Fundamentals
SE	Software Engineering
SQL	Structured Query Language
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICODE	Unique, Universal, and Uniform Character enCoding
XML	Extensible Markup Language

Chapter 1

Introduction

1.1 Project Background/Overview

In Pakistan, many restaurants and hotels waste their leftover food. The leftover food either expires because it is not taken care of or it is thrown away into the garbage can. However, many people sleep on an empty stomach. Due to increasing inflation in Pakistan, many lower-class families are facing this problem. On one side a large quantity of food is gone waste and on the other side, these people cannot afford a 3 times meal in a day. Our project is a web-based dashboard that will provide a platform for hotel and restaurant owners to donate this leftover food to these needy people who are located in different parts of the city. Hotel owners will have to register themselves on this website and then they will update how much leftover is available and the riders who are also registered with the website can see that updated feed will then pick up the food and deliver the left-over food to the different selected parts of the city. There will also an admin section where only admins can log in and keep track of the riders to make sure that the food is delivered to the exact location. Admins will also verify from the riders that the food is delivered on the exact location with the help of a video or audio proof.



Figure 1.1: Food Wastage

1.2 Problem Description

Our project is based on a dashboard that will provide access to admins, hotel owners, and riders. Hotel owners can donate their leftover food to these needy people who are located in different parts of the city. Multiple owners have to register themselves on the web to access the dashboard. They will pack the food for delivery at a fixed time. Hotel owners can contact the riders for delivery of the food using the website. Riders will be able to locate the most requested areas in the city for the food and then they can deliver these packages to those areas within a specific time range or else food should be disposed of. Food and nutrition security is critical for economic development due to the role of nutrition in healthy growth and human capital development. Slum residents, already grossly affected by chronic poverty, are highly vulnerable to different forms of shocks, including those arising from political instability. This project targets those epidemics-affected or inflation-affected people in a city who cannot afford three times meals in a day. This project will allow hotel owners to give their leftover food to these poor people. So instead of disposing of this food, they will be able to feed this to those in need. This will reduce the quantity of food that goes to waste and thus free food will be given to the people who really deserved it.

1.3 Project Objectives

Our aim is to design a web dashboard that will help hotel owners to provide leftover food to needy and deserving people in the different parts of the city. This will prevent a large quantity of leftover food to go unwasted.

1.4 Project Scope

The scope of this project is to develop a web-based dashboard with a friendly GUI and powerful backend that can store daily deliveries. It will provide a platform for restaurant and hotel owners that can easily donate their food to people in need instead of wasting it and reducing the percentage of food wastage in Pakistan. Admins would be able to keep track of the deliveries and the quantity of food given in a day.

1.5 Solution Application Areas

- **Government:** The Daster Khowan application can be a useful tool for the government. The government can collaborate with the Daster Khowan team to expand the services to cover more areas and reach a larger audience, particularly in areas with a

higher concentration of low-income households. This would help the government in fulfilling its responsibility of providing basic necessities to the underprivileged.

- **Non-Governmental Organization (NGO's):** Daster Khowan, with its primary service of delivering leftover food from hotels and restaurants to those in need, could be highly beneficial for NGOs working towards eliminating food waste and alleviating hunger. NGOs can use this application to connect with hotels and restaurants in their area, allowing them to collect leftover food and distribute it to those in need through slum sites or other local organizations.
- **Welfare:** The Daster Khowan application can be a great asset for welfare organizations as it can help them to efficiently distribute food to those in need. With the help of this application, welfare organizations can easily connect with hotels and restaurants that have leftover food and collect it for distribution to the needy. The application can also help in identifying areas where food scarcity is prevalent and where assistance is required.

1.6 Tools and Technology

- Material UI
- Java Script
- Next JS
- Flutter
- Node JS
- Mongo DB
- Figma
- Visual Studio Code

1.7 Summary

This chapter includes a detailed background of the project and also a detailed background of the problem being solved here. This chapter tells us how project will be working and how it will be used by different users.

Chapter 2

Literature Review

For the most part, the focus of this chapter will be on surveys conducted by previous authors in countries that are similar to the one under consideration. In this chapter, the theoretical and practical viewpoints of previous studies in existing donation websites will be comprehensively treated.

2.1 Why Daster Khowan is useful?

This application is useful for several reasons. Firstly, it helps to reduce food waste by enabling hotels and restaurants to donate their leftover food to those in need, thereby addressing the issue of food insecurity. Secondly, it provides an easy and efficient way for NGOs and welfare organizations to locate and collect surplus food, saving them time and resources. Thirdly, it promotes community engagement and encourages people to come together to address a social issue, fostering a sense of empathy and social responsibility. Additionally, the application has the potential to create employment opportunities for riders who are responsible for delivering the food to the designated locations. Overall, this application serves as a platform that brings together hotels and restaurants, welfare organizations, and people in need to work towards a common goal of reducing food waste and ensuring that surplus food reaches those who require assistance.

2.2 Existing Systems

2.2.1 Al-Khidmat Foundation:



Alkhidmat [1] Foundation Pakistan is a non-political, non-governmental, and non-profit organization dedicated to serving humanity, particularly vulnerable individuals and orphans, without any form of discrimination. The organization aims to enhance their health, education, financial sustainability, livelihood, shelter, access to clean water, mosques, disaster relief, and other aspects of life. Alkhidmat Foundation Pakistan also focuses on the welfare of its employees by mobilizing resources and establishing partnerships with NGOs and other public and private organizations. The volunteers of the organization are content with their contributions and participation in various beneficial programs, and they do everything necessary to achieve the goal of assisting others with honesty and sincerity.

2.2.2 Shifa Foundations:



Established in 1991, Shifa [2] Foundation is a non-governmental and non-profit national organization dedicated to providing assistance to under-privileged areas of Pakistan in terms of healthcare, nutrition and food supply, water, sanitation and hygiene, disaster risk reduction, mental health,

psychosocial support, and relief assistance to victims of disasters. The foundation has served over 12 million needy individuals. To recognize the humanitarian services and acknowledge the genuine contributions of donors and supporters, Shifa Foundation held a large event at the Shifa International Hospital.

2.2.3 Insaniyat Foundation Pakistan:

Insaniyat Foundation Pakistan (IFP) is a non-political and non-profit organization established to bring about positive change in society. The core agenda of IFP is to achieve the best results during disasters and peace-time projects, including health, blood bank, awareness programs, free medical camps, education, and capacity building. The foundation was conceived in 2014, and its launch ceremony was held on November 27, 2015, at Victoria Hospital Bahawalpur. The ceremony was attended by all members of the organization, media institutes, and people from all walks of life.

2.2.4 Sharerizq:



Rizq [3] is a social exchange that relies on people power to sustain human life and help individuals reach their full potential. One of the primary challenges to human dignity is a lack of access to a stable, affordable, and nutritious food supply. When people are hungry, they cannot focus on their growth and progress. Rizq works to combat food insecurity, food wastage, and hunger to protect the right to good food for all.

2.2.5 Pennyappeal:



Penny Appeal [4] is a charitable organization established in 2009 with the aim of providing poverty relief in Asia, the Middle East, and Africa. The organization offers solutions to water scarcity, mass feedings, orphan care, emergency food, and medical aid. Over the years, Penny Appeal has expanded its work and teams, allowing them to launch new campaigns and operate in more crisis-ridden countries. The organization's approach to charity is simple and impactful, making charitable giving affordable and rewarding, enabling everyone to contribute to helping the poor and needy with even small donations. Penny Appeal's projects are carefully constructed to be accessible, effective, and a blend of emergency support, short-term relief, and longer-term sustainable interventions. This approach enables the organization to save lives immediately, improve situations in the coming days and weeks, and transform communities for years to come, providing people in desperate situations with the support they need.

2.2.6 SKT Welfare Pakistan:



SKT Welfare [5] is a humanitarian organization that aims to improve the lives of disadvantaged individuals regardless of their race, religion, or gender. For over a decade, the organization has provided both immediate aid and sustainable relief to millions of people around the world. Their projects include emergency relief, healthcare, education, orphan care, and

seasonal aid such as winter emergency response and Qurbani donations. They work with those who have been impacted by conflict, poverty, and natural disasters. SKT Welfare envisions a world where everyone is cared for, thrives, and is free from extreme poverty, and their work is guided by an unshakeable faith and a strong desire to follow in the footsteps of the Prophet (saw).

2.2.7 Edhi Foundation:



The Edhi Foundation [6] is the largest organizational set-up in Pakistan, with a mission to help others live a life free of hardships and difficulties. Their catchphrase is "Live and Help Live," which means extending every possible assistance to those in need.

The Foundation stands out for its exemplary services, including providing free shroud and burial services to unclaimed dead bodies, shelter for the disabled and destitute, orphans and abandoned children, and free hospitals and dispensaries in neglected areas. They also provide rehabilitation services for drug addicts and support for the handicapped, including wheelchairs and crutches, family planning counseling, and maternity services.

2.2.8 Bykea



Our services aim to provide safe, reliable, and affordable transportation solutions for people, parcels, and payments. We offer various modes of transportation, ranging from bikes and rickshaws to cars, at the lowest fares available in the town. Our top priority is ensuring that our customers have a great experience with us.

Bykea [7] can be easily booked through a smartphone or feature phone. Although booking through a smartphone is more cost-effective, we also offer other methods of booking to cater to the millions of people who have yet to switch to smartphones. Our local call centers help us engage with the masses and introduce them to the technological revolution in the transportation industry.

2.2.9 Uber:



Uber is the go-getters. Uber [8] is the kind of people who are relentless about our mission to help people go anywhere and get anything and earn their way. Movement is what Uber powers. It's our lifeblood. It runs through our veins. It's what gets us out of bed each morning. It pushes us to constantly reimagine how we can move better. For you. For all the places you want to go. For all the things you want to get. For all the ways you want to earn. Across the entire world. In real time. At the incredible speed of now. Uber is a tech company that connects the physical and digital worlds to help make movement happen at the tap of a button. Because Uber believes in a world where movement should be accessible. So you can move and earn safely. In a way that's sustainable for our planet. And regardless of your gender, race, religion, abilities, or sexual orientation, Uber champions your right to move and earn freely and without fear. Of course, Uber hasn't

always gotten it right. But Uber is not afraid of failure, because it makes us better, wiser, and stronger.

2.2.10 Careem



Careem [9] is a Super App that caters to the daily needs of people in the Middle East region. We were the first to introduce ride-hailing services in the region and have since expanded to provide over 12 daily services through our unified smartphone app. Our journey began in Dubai in July 2012, and we now operate in more than 80 cities across 10 countries. As the region's first tech unicorn, we have generated over two million income-generating opportunities for people in our region over the last decade.

2.3 Summary

Online donation web apps rate increased in the past decade. As people are more getting in touch with technology so they are using this as an advantage for donating online instead of physical distributions. Our project is also based on the same idea that instead of wasting food hotels should donate it to the needy people instead of throwing it away.

As IT technology has developed a lot many doors to opportunities are opening up. The traditional ways of doing things are changing every day. We are providing them a best platform with the help of modern technology that will keep them interact with each other they can easily give away this food to a rider who is close to their hotel and he can deliver it to the closest slum site. In this way rider will earn points and the food wastage problem of the hotel can also be solved.

Chapter 3

Requirement Specifications

This chapter explains requirement specifications and specify functional and non-functional requirements of the system. It also includes overview and scope of the system, its requirement specification and use cases.

3.1 Existing System

There are several web dashboards and apps proposed by several organizations in Pakistan that aim to deliver leftover food from hotels and restaurants to those in need, including slum sites. All of them have a mobile app that allows users to request food donations and track their progress. The focus should be on donating food to those who are in need and may not have the ability to make a request for food donations. In Pakistan, the literacy rate is very low and very few people know how to use a smartphone. Therefore, we need a system where food is delivered directly to their doorsteps without the need for users to request donations. Such a system could be designed to be inclusive and accessible to all, regardless of their level of literacy or technology access. It could also help to address other challenges, such as transportation barriers or limited access to food storage facilities.

3.2 Proposed System

The proposed system is a web-based dashboard that will provide a platform for hotel and restaurant owners to donate this leftover food to these needy people who are located in different parts of the city. Admin will have to find hotels and riders and register them. Hotels will have a dashboard where they can update how much leftover food they have. Rider will have a mobile app where he can see the batches posted by all the hotels. They will select a batch and a slum location provided by admin. Rider will then pickup the batch from hotel and deliver it to the slum location. Hotel and Admin will get the detailed report of rider's delivery of the batch to slum site.

3.3 Scenario

You are designing a leftover food donation system. This system consists of three interfaces. All of them working to achieve similar goal that is to deliver leftover food from a restaurant to slum location. Admin must registers new hotels and riders. Admin must create slum locations where food is to be delivered. Admin must receive the verification of every delivery. Hotel staff must create batches of leftover food. Hotel staff has to pack the food and mention the expiration time. Hotel staff must provide the OTP to rider he arrived to pick the batch. Hotel staff must receive the verification of the delivery. A rider must create a delivery by choosing a batch and slum location. A rider must arrive at hotel location to receive the batch and verify the receiving of package. A rider must deliver the batch to the slum location and provide the verification of the delivery.

3.4 Requirement Specifications

3.3.1 Functional Requirements:

A function is nothing more than the inputs, behavior, and outputs of a software system. It might be a computation, data manipulation, business process, user interaction, or any other unique feature that determines what function a system is likely to accomplish. This section outlines the system's requirements. There are a variety of functional modules that are implemented and discussed below:

Req 1: Registration

Input: Admin will register new hotels and riders through his dashboard he will provide user ids and passwords.

Output: Hotel staff and riders will use this id to access their dashboard and mobile app respectively.

Description: Hotel staff and rider can login to their accounts and perform their activities.

Req 2: Create batches

Input: Hotel Staff will be able to create new batches of leftover food. This batch will have amount of food per person, description of batch and expiry date/time of the batch.

Output: Rider can select a batch and a slum location to create a delivery.

Description: This batch will be visible to riders and admin, rider can select it and go to the hotel and pick it.

Req 3: Create slum location

Input: Admin will add slum locations. Slum location will include area and location, maximum number of deliveries and number of deliveries done so far.

Output: Rider can select a slum location and deliver a batch.

Description: Slum location will be visible to rider so he can deliver batches to the slum location.

Req 4: Create Delivery

Input: Rider will select an batch and slum location to create a delivery.

Output: Hotel will receive an OTP, rider profile and slum location.

Description: This delivery is visible to admin and hotel staff. After the creation of delivery rider can go to hotel to pick up the batch.

Req 5: Receive Batch

Input: Rider will go to hotel and prove his identity and ask for OTP.

Output: Rider will enter this OTP in his app and receive the batch.

Description: After picking up the batch rider can deliver it to the slum location.

Req 6: Verification of Delivery

Input: Rider will add the name and CINC of recipient.

Output: This name and CNIC will be mentioned in report.

Description: A report will be visible to admin and hotel for the verification of delivery.

3.3.2 Non Functional Requirements:

Non Functional Requirements includes:

Req 1: Security

The app must protect sensitive information, such as personal information of hotel staff and riders, and ensure that only authorized users can access it.

Req 2: Scalability

The app should be able to handle a large number of users and transactions.

Req 3: Speed and Efficiency

The app should be able to perform tasks quickly and efficiently.

Req 4: Customizability

The app should be customized to meet the specific needs of different organizations and users.

Req 5: Reliability

The app should be available and functioning correctly at all times.

Req 6: User-friendliness

The app should be easy to use and navigate for all types of users.

Req 7: Compatibility

The app should be compatible with any device and browser.

Req 8: Real-time updates

The app should provide real-time updates on food pickups and deliveries.

3.5 Use Cases

3.5.1 Create Slumsite Use Case

Admin will create a slum site by providing area, city, max deliveries this data will be saved in the database. This will create a Slumsite that will be shown on riders mobile app.

Use-Case Name	Create Slumsite Use-Case
Use-Case ID	UC-01
Use-Case Priority	High
Scenario	Create Slumsite
Primary Actors	Admin
Secondary Actors	Hotel Staff, Rider
Triggering Event	Admin wants batches to be delivered at a slum location to rider.
Expected Outputs	Slumsite created successfully
Description	Create a slum site so rider can deliver batches to slum location
Pre-conditions	Admin may or may not create a slum location
Post-conditions	Rider need a slum location to deliver batch
Basic flow of events	Admin will create slum sites rider will deliver batches to slum site,
Alternative flow	Slumsite does not exist.
Response	Rider receives a slum site to deliver batches.

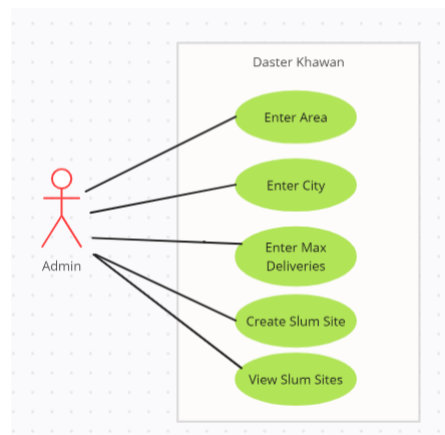


Figure 3.1: Use case diagram for creating a slumsite

3.5.2 Create Batch Use Case

Hotel Staff creates batch by providing amount per person, description and expiry date. Hotel staff can also view, edit and delete the batch.

Use-Case Name	Create Batch Use-Case
Use-Case ID	UC-01
Use-Case Priority	High
Scenario	Create Batch
Primary Actors	Hotel Staff
Secondary Actors	Admin, Rider
Triggering Event	Hotel has some leftover food.
Expected Outputs	Batch created successfully
Description	Create a batch so rider can pick it and deliver it to slum location
Pre-conditions	Hotel Staff may or may not create a batch
Post-conditions	Rider need a batch to deliver.
Basic flow of events	Hotel Staff will create batch and rider will deliver batches to slum site.
Alternative flow	Batch does not exist.
Response	Riders receives a batch on his app.

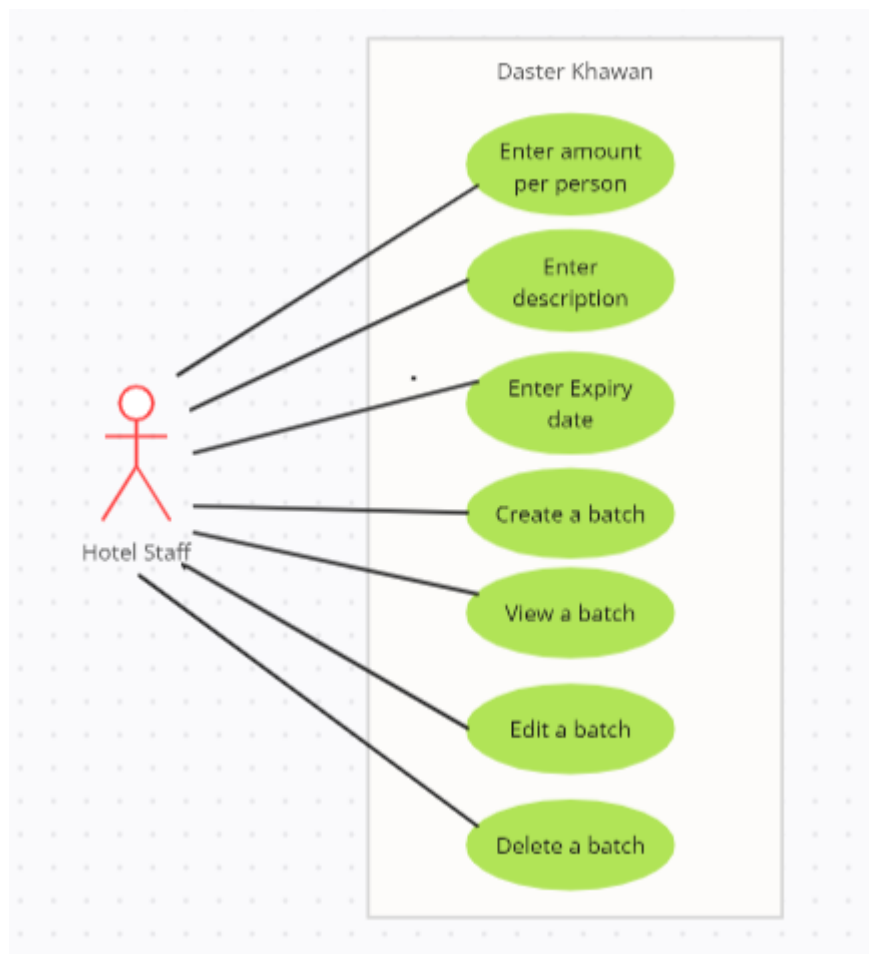


Figure 3.2: Use case diagram for creating a batch

3.5.3 Create Delivery Use Case

Rider will create delivery by selecting a batch and a slum location. This will take him to verify page where he can enter OTP to receive the batch.

Use-Case Name	Create Delivery Use-Case
Use-Case ID	UC-01
Use-Case Priority	High
Scenario	Create Delivery
Primary Actors	Rider
Secondary Actors	Admin, Hotel Staff
Triggering Event	Rider wants to deliver a batch to a slum site
Expected Outputs	Delivery created successfully
Description	Create a delivery so rider has assigned himself to a batch and slum location
Pre-conditions	Rider may or may not create a delivery
Post-conditions	Rider need to assign themselves to a batch and slum location
Basic flow of events	Rider will create batch and slum site so rider can pick up and deliver it.
Alternative flow	Delivery does not exist.
Response	Rider assigned to a batch and hotel receives an OTP

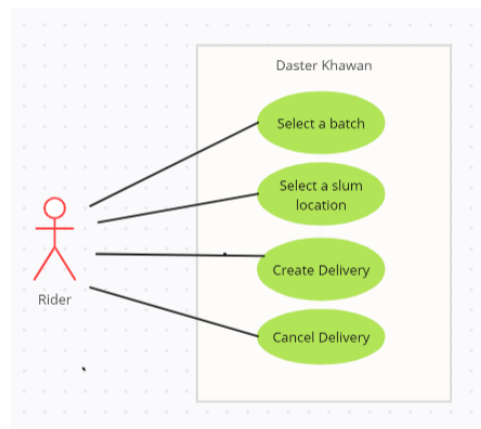


Figure 3.3: Use case diagram for creating a delivery

3.5.4 Login Use case

Admin will login to system using username and password. Data of admin is saved in database. Now Admin can login with credentials that are saved into database.

Use-Case Name	Login Use-Case
Use-Case ID	UC-01
Use-Case Priority	High
Scenario	Login Admin
Primary Actors	Admin
Secondary Actors	Rider, Hotel Staff
Triggering Event	Admin wants to login to the dashboard
Expected Outputs	Admin successfully login
Description	Login to the application through required information.
Pre-conditions	Admin may or may not login to system
Post-conditions	Admin needs to fill the credentials to login to the system.
Basic flow of events	Admin will login to the system by providing required credentials such email and password. The data is saved into the database.
Alternative flow	Admin does not exist.
Response	Admin is directed to the system

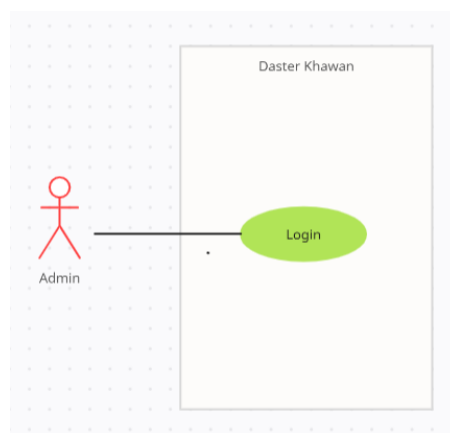


Figure 3.4: Use case diagram for admin login

3.6 Summary

The following chapter includes scenario of how the mobile app and web app will be working in real time. It also includes Functional and Non Functional requirements of the web and mobile app. It has a detailed overview of Admin, Hotel Staff and Rider. This chapter also include Use case diagram clearly identifying thr actors and tasks in the app.

Chapter 4

Design

Systems design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements.

4.1 System Architecture

The system architecture depicts the operational functioning of the system. It encompasses the entire structure of the system and the manner in which its diverse components are arranged and linked. It establishes the broad-level design of the system and elucidates how the various components collaborate and coordinate to achieve the system's objectives. The user can engage with the system through its user interface. Additionally, a security mechanism is in place to safeguard sensitive financial information from unauthorized access. The system architecture for the Daster Khowan is outlined below:

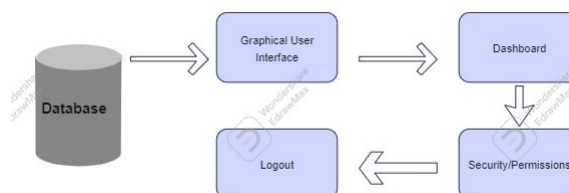


Figure 4.1: System Architecture for Daster Khowan

4.2 Design Constraints

Regardless of whether the user is an admin, hotel staff or a rider, the application's design is simple and intuitive. All users will like its user-friendliness and interactivity. The following are some of the limitations of our application.

- Android versions higher than 4.1 (API 16).
- Requires connection to the internet.

4.3 Design Methodology

We are using Prototype Data Model for our project. A prototype model refers to an initial version of a product or system that serves to evaluate and test its design before completion. It is a crucial tool in product development as it enables designers to detect and rectify flaws and errors in the design before producing the final product. A prototype model can take physical or digital forms, such as 3D-printed objects or software prototypes, respectively. Utilizing a prototype model has numerous benefits, including early detection of design flaws, enhanced communication, improved collaboration, cost-effectiveness, faster time to market, and minimized risk. By enabling designers to evaluate and improve the design quickly, a prototype model can help develop a high-quality final product that caters to the market and user needs.

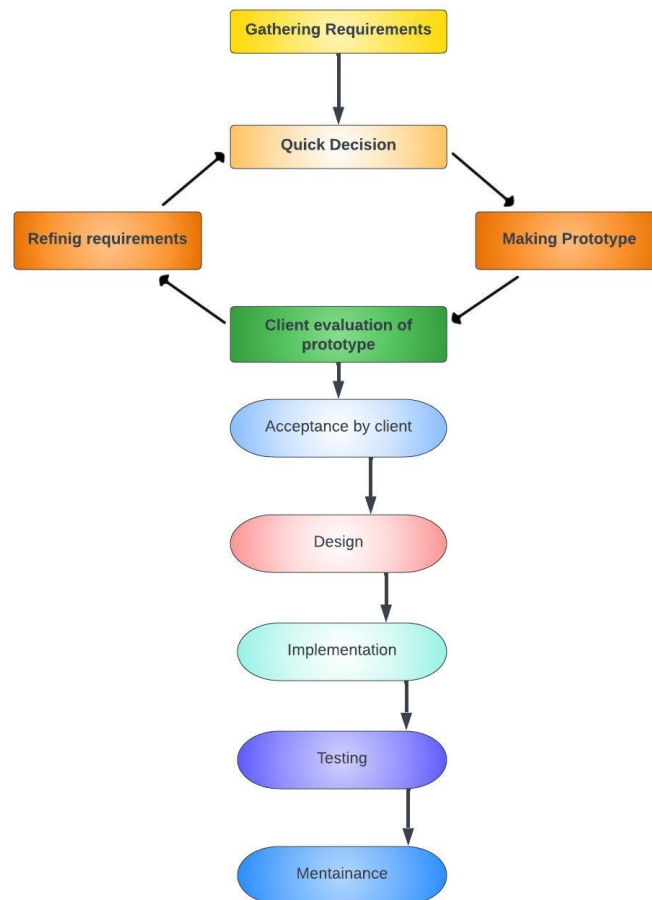


Figure 4.2: Prototype Data Model

4.4 High Level Design

The use case for the system provides the user with a full view of the system as well as how the actors would interact with one another and with the system. The explanation for each use case is then provided below the system use case for the administrator and the user, assisting the user in understanding who the actors are and providing the description for each use case, as well as the pre- and post-conditions that must be met once the use case is implemented in the software.

4.4.1 Userflow Diagrams:

1. **Admin** (Figure 4.3) depicts an administrator's use scenario in which admin has access to the application. Admin can Register Hotel, Register Rider and Create Slumsites.

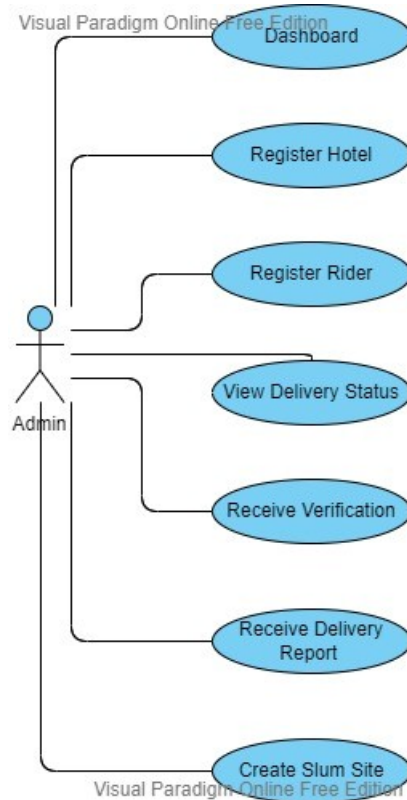


Figure 4.3: Admin Figure

2. **Hotel staff** (Figure 4.4) depicts a hotel staff's use scenario in which hotel staff has access to the application. Hotel Staff can create new batches and view batches.

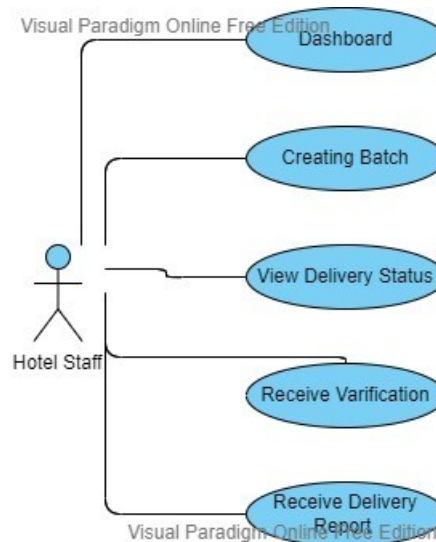


Figure 4.4: Hotel Staff Figure

3. **Rider figure** (Figure 4.5) depicts a Rider's use scenario in which rider has access to the application. Rider can Create Delivery by selecting pending batches and selecting slumsites.

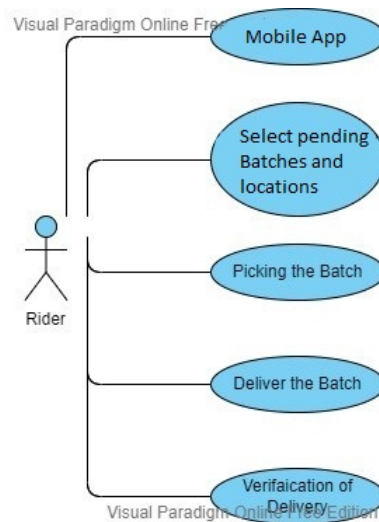


Figure 4.5: Rider Figure

4.4.2 Dataflow Diagram

In this section, we present the data flow diagram for our system, which illustrates the flow of data within the system. The following subsections describe the different components of the system and their associated data flow diagrams.

4.4.2.1 Admin

The data flow diagram for the admin component is shown in Figure 4.6. This figure illustrates the flow of data between different processes and database, and any interaction that admin has with the application.

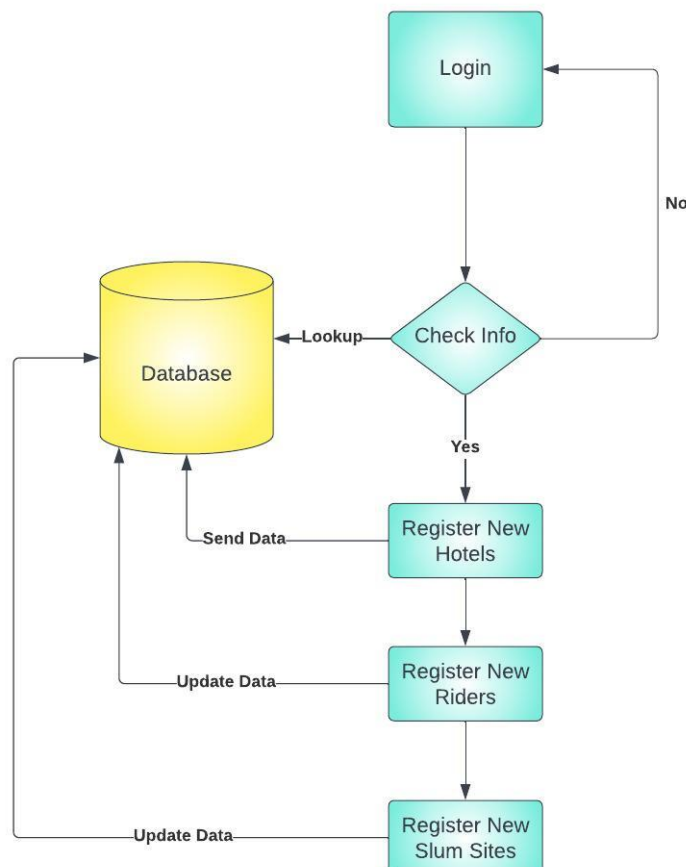


Figure 4.6: Data flow diagram for admin component

4.4.2.2 Hotel Staff

The data flow diagram for the hotel staff component is shown in Figure 4.7. This figure illustrates the flow of data between different processes and database, and any other interaction that hotel staff has with application.

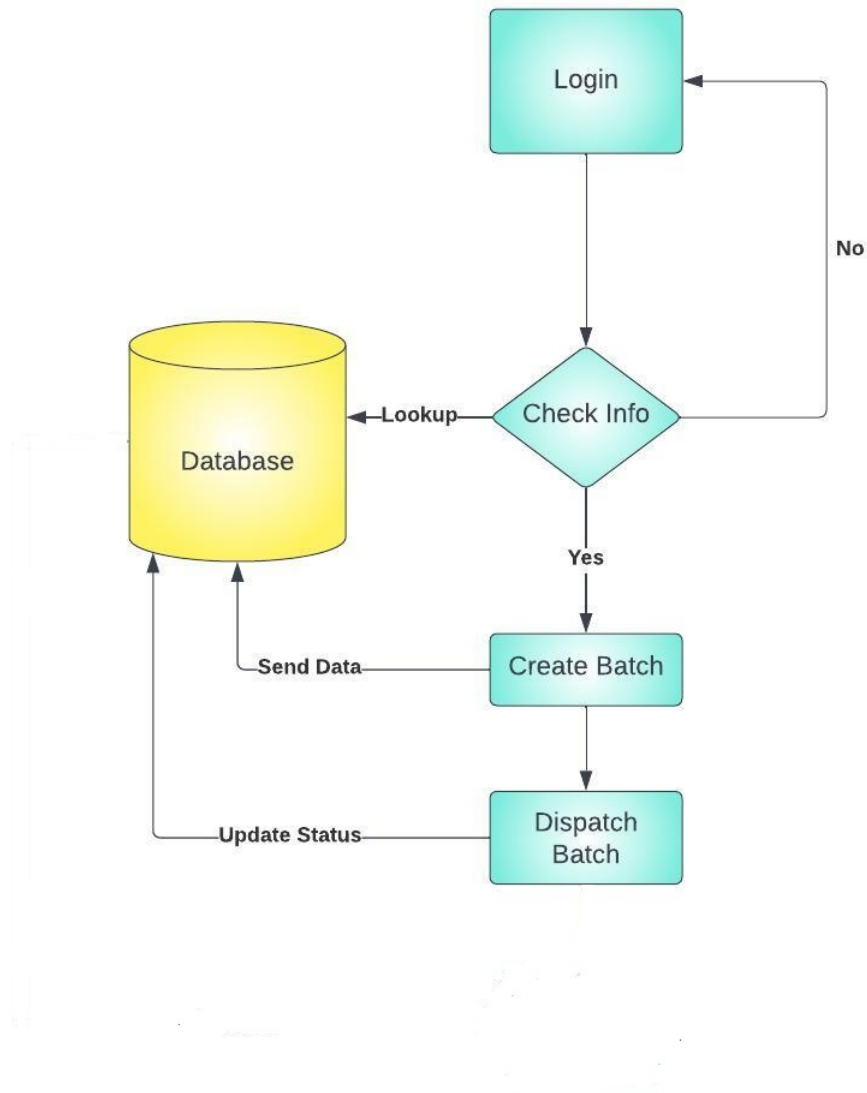


Figure 4.7: Data flow diagram for hotel staff component

4.4.2.3 Rider

The data flow diagram for the rider component is shown in Figure 4.8. This figure illustrates the flow of data between different processes and database, and any other interaction that rider has with application.

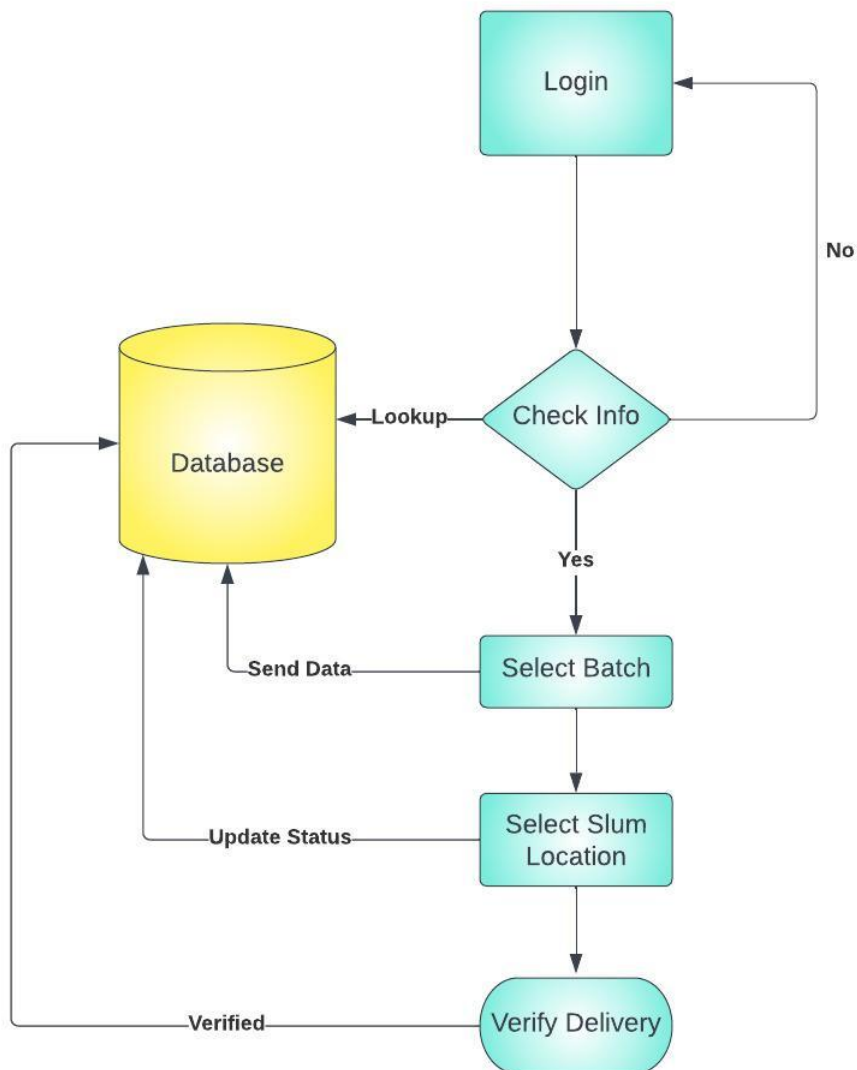


Figure 4.8: Data flow diagram for hotel staff component

4.5 Low Level Design

4.5.1 Activity Diagram:

4.5.1.1 Admin

The activity diagram for the admin component is shown in Figure 4.9. The admin interface involves three main actions: registering new hotels, registering new riders, and creating slum sites. The admin can enter the details of new hotels and riders, including their usernames, passwords, and other required information. Additionally, they can create slum sites where the leftover food will be delivered, ensuring that the food reaches those in need.

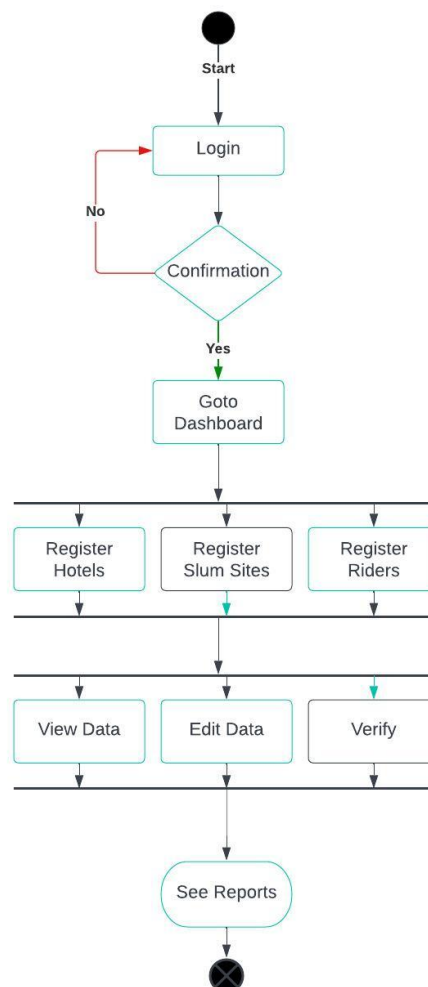


Figure 4.9: Activity diagram for admin component

4.5.1.2 Hotel Staff

The activity diagram for the hotel staff component is shown in Figure 4.10. The activity diagram for the hotel staff interface begins with the creation of a new batch of leftover food. The staff member will then specify the quantity, type of food, and its expiry date. Once the batch is created, the staff member can view all previously created batches, update the status of the batches, and delete any unnecessary records. Overall, the activity diagram for the hotel staff interface provides a clear and efficient way to manage leftover food batches.

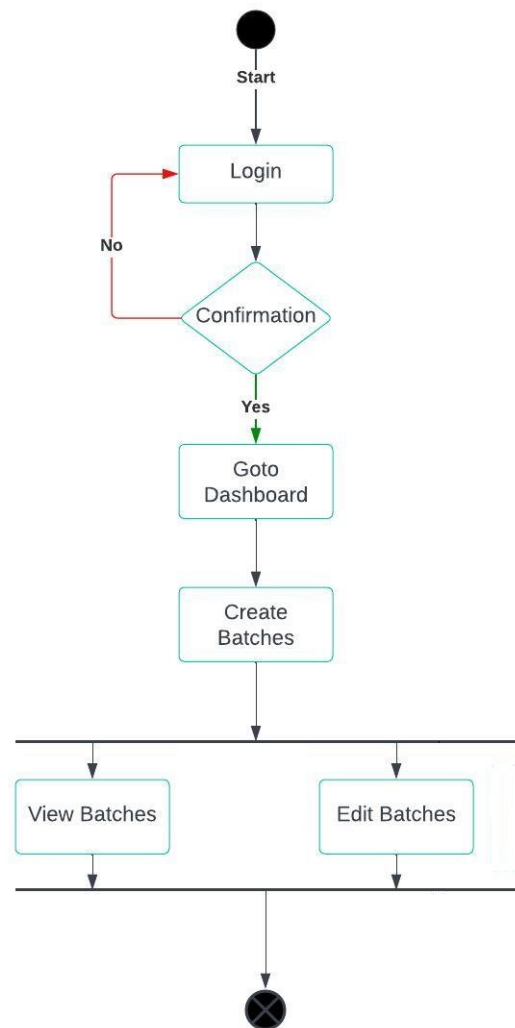


Figure 4.10: Activity diagram for hotel staff component

4.5.1.3 Rider

The activity diagram for the rider component is shown in Figure 4.11. The rider includes the following three steps. First, the rider logs into the application and views available batches for delivery. Second, the rider selects a batch and specifies the location for delivery. Third, the rider picks up the batch from the hotel and delivers it to the specified slum location, updating the status of the delivery in the application.

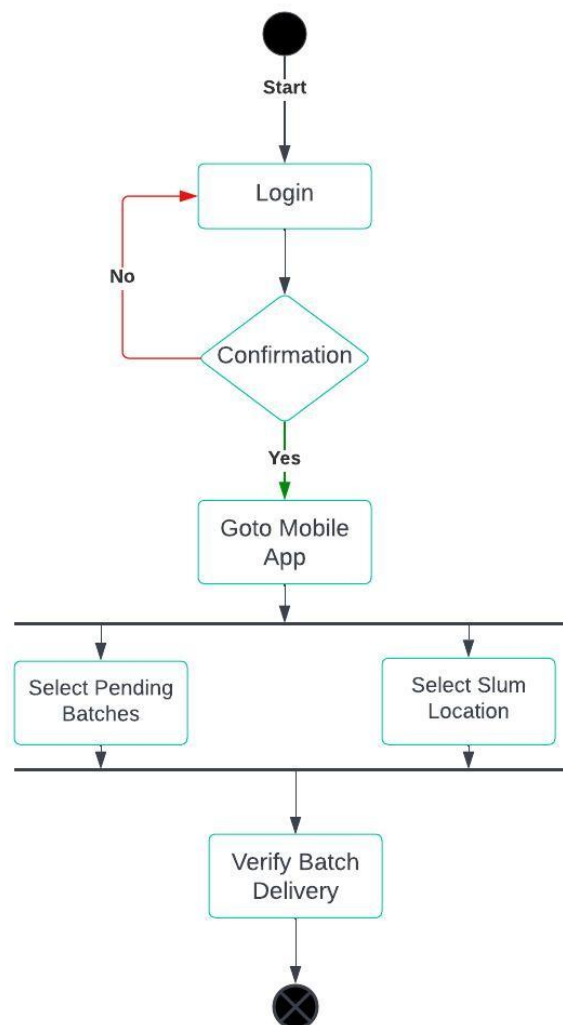


Figure 4.11: Activity diagram for rider component

4.5.2 Sequence Diagrams

In this section, we present the sequence diagrams for our system:

4.5.2.1 Login Sequence Diagram

The sequence diagram for the login process is shown in Figure 4.12. The sequence diagram for login in our application shows the interaction between the user and the system during the login process. The user first enters their username and password, which is then sent to the system for authentication. If the entered credentials are correct, the system sends a success message and allows the user to access their account. If the credentials are incorrect, the system sends an error message and prompts the user to enter valid credentials.

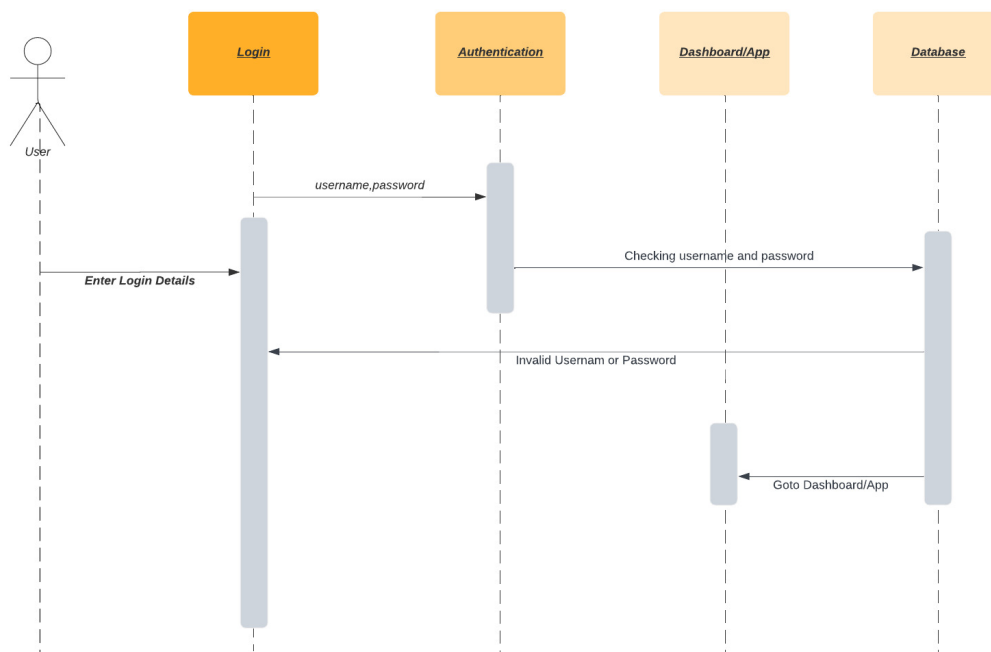


Figure 4.12: Sequence diagram for login process

4.5.2.2 Admin Sequence Diagram

The sequence diagram for the admin component is shown in Figure 4.13. The admin logs in to the application with their credentials, after which they can register a new hotel by providing the necessary details such as username, password, and location. The admin can also register a new rider by providing the required information such as their name, phone number, and address. Once the registration process is completed, the admin can create a slum site by specifying the location and other details.

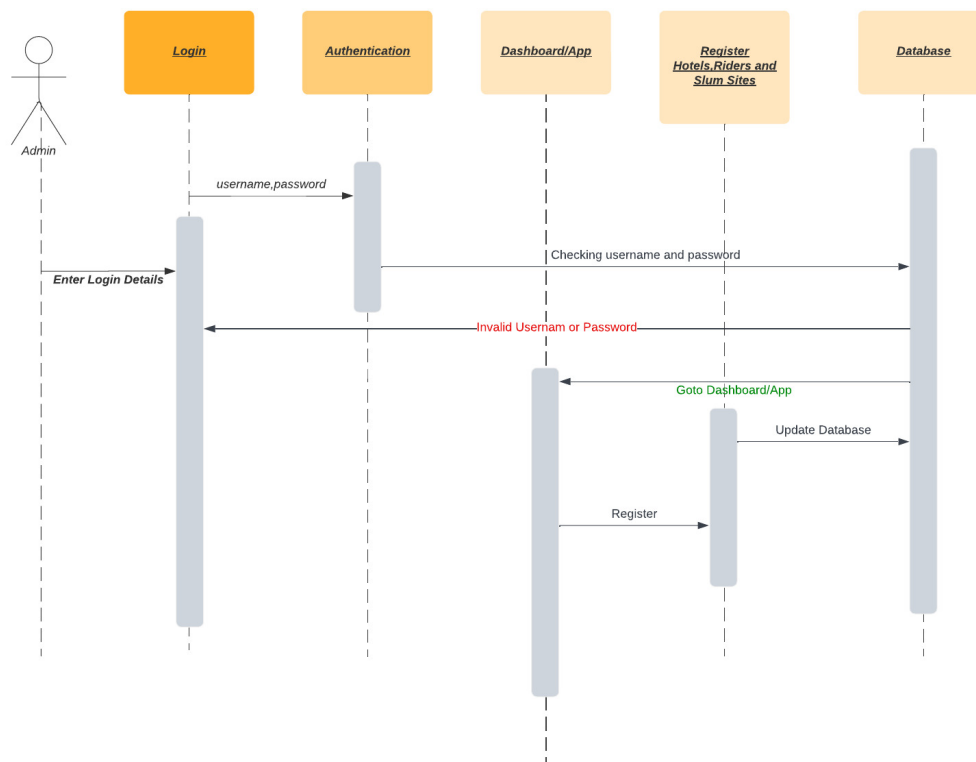


Figure 4.13: Sequence diagram for admin component

4.5.2.3 Hotel Staff Sequence Diagram

The sequence diagram for the hotel staff component is shown in Figure 4.14. This sequence diagram for hotel staff shows the steps involved in creating a new batch of leftover food. Firstly, the staff logs in to the application using their username and password. Then, they select the option to create a new batch and enter the details such as the type and quantity of food leftover. Finally, they submit the details and the batch is added to the system for the riders to view and select for delivery.

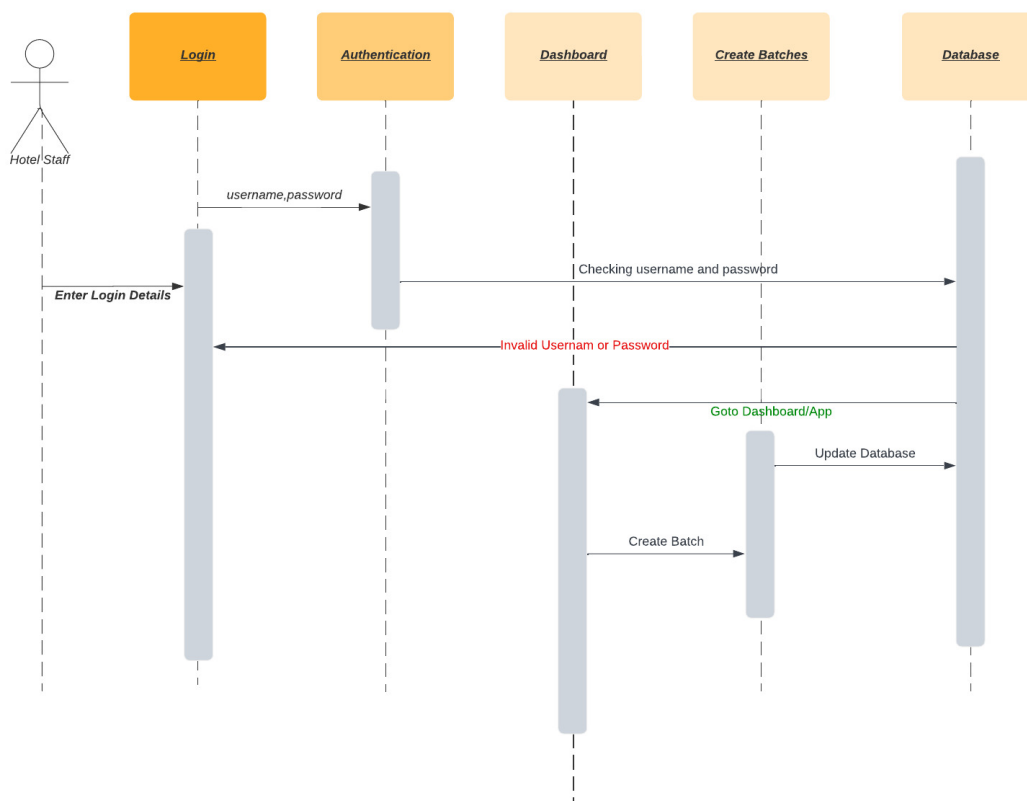


Figure 4.14: Sequence diagram for hotel staff component

4.5.2.4 Rider Sequence Diagram

The sequence diagram for the rider component is shown in Figure 4.15. This sequence diagram for rider depicts the process of selecting a batch and a delivery location, collecting the batch, and delivering it to the slum site. Initially, the rider logs in to the application using their credentials, then selects a batch and a delivery location. Once the batch is collected from the hotel, the rider updates the status of the delivery and marks it as delivered after reaching the slum site.

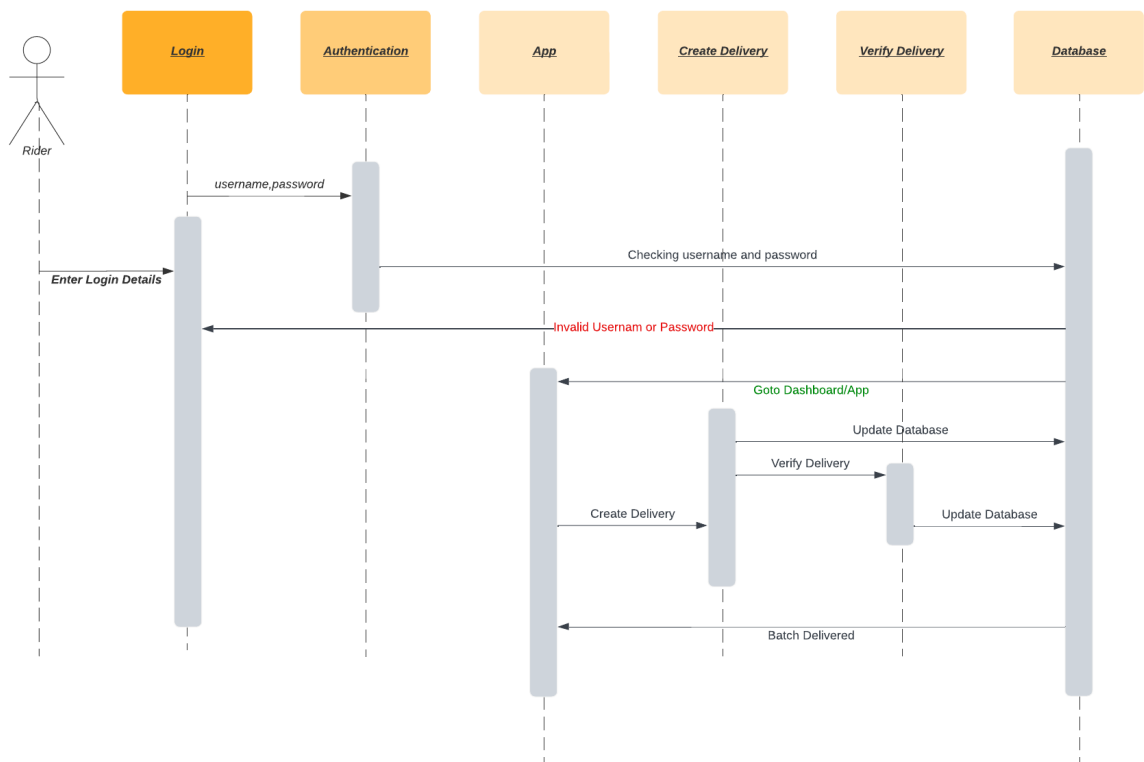


Figure 4.15: Sequence diagram for rider component

4.6 Database Design

Our Project uses MongoDB for its database due to its user-friendly interface and efficient performance. MongoDB is a reliable database management system with excellent scalability and flexibility. The database serves a crucial role in organizing, storing, and retrieving all donation-related information. Here are some of the critical functions of the database within our system:

- **Information Storage:** The database stores all donation-related information in a structured and organized manner.
- **Information Retrieval:** Our system can access the database to retrieve necessary data, such as donor details or donation history, for generating reports or displaying data to the user.
- **Data Analysis:** The database enables us to perform data analysis to generate reports and calculate donation statistics based on the stored information.
- **Backup and Recovery:** The database is equipped with backup and recovery mechanisms to ensure that all data is safe in case of any unexpected events.
- **Data Integrity:** The database enforces data constraints and validates the data to ensure its accuracy and reliability.
- **Data Security:** Our database is equipped with security mechanisms such as encryption and user authentication to protect all sensitive donation information.
- **Data Integration:** Our database integrates with other systems such as inventory management and accounting systems to ensure consistent and accurate data.

- **Scalability:** The database is designed to handle an increasing number of transactions and data as our system expands, ensuring that we can handle more donations with ease.

4.6.1 Entity Relationship Diagram

An ER (Entity-Relationship) diagram represents the relationships between entities in a database. For our Daster Khowan project, the ER diagram would include entities such as hotelstaff, riders, slum sites, batches, delivery and proofs.

admins has following attributes that are fname of type String, lname of type String, username of type String, password of type String and id of type ObjectId. Admin Id is used in three other tables i.e hotelstaffs, riders and slumsites.

hotelstaffs has following attributes i.e id of type ObjectId, hotelName of type String, location of type String, phone of type Int, openingTime of type String, ClosingTime of type String, username of type String, adminid of type ObjectId (foreign key of admin), password of type String. Hotel Id is used in batches and delivery.

riders have following attributes i.e id of type ObjectId, riderName of type String, CNIC of type Int, phone of type Int, bikeRegNumber of type String, lisenNumber of type String, lisenExpiry of type Date, Status of type String, deliveryCount of type Int, username of type String, adminid of type ObjectId (foreign key of admins) and password of type String. Riders Id is used in delivery.

slumsites have following attributes id of type ObjectId, city of type String, area of type String, maxDeliveries of type Int, total Deliveries of type Int, adminid of type ObjectId (foreign key of admins).

batches have following attributes i.e id of ObjectId, amount of type Int, description of type String expirationDateTime of type Int, timeStamp of type Int, Status of type String, and hotelStaffTd of type ObjectId (foreign

key of hotelstoffs).

delivery have following attributes i.e id of ObjectId, batchId of type ObjectId (foreign key of batches), hotelId of type ObjectId (foreign key of hotelstoffs), riderId of type ObjectId (foreign key of riders), OTP of type Int, timeStamp of type Int, Status of type String. Id of delivery will be used in proofs.

proofs have following attributes i.e id of ObjectId, deliveryId of type ObjectId (foreign key of delivery), name of type String and cnic of type Int.

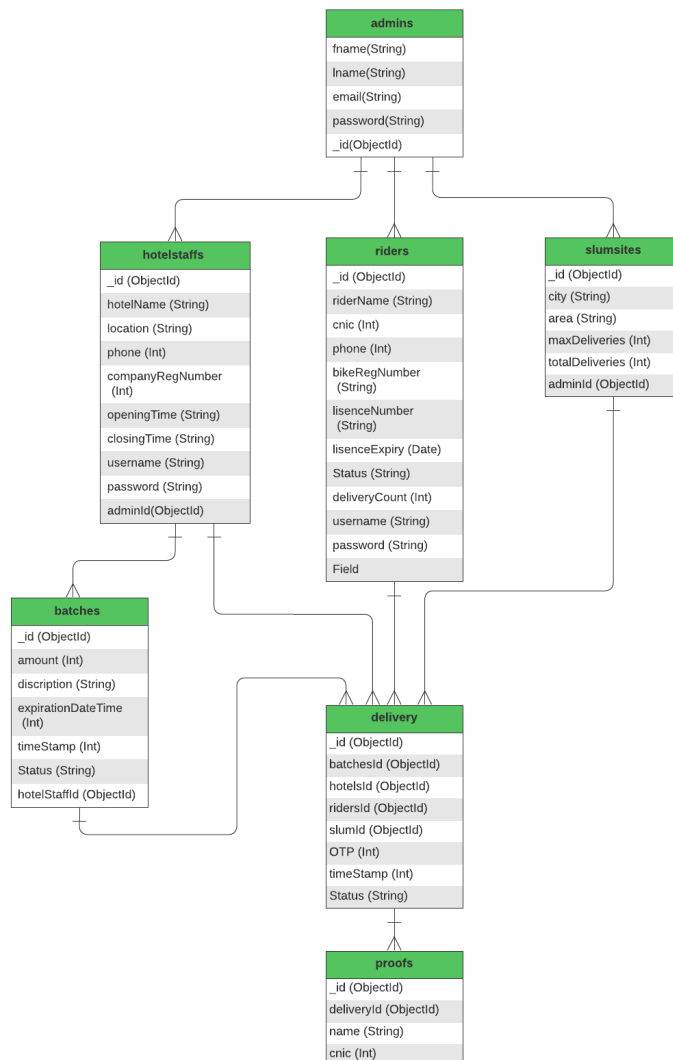
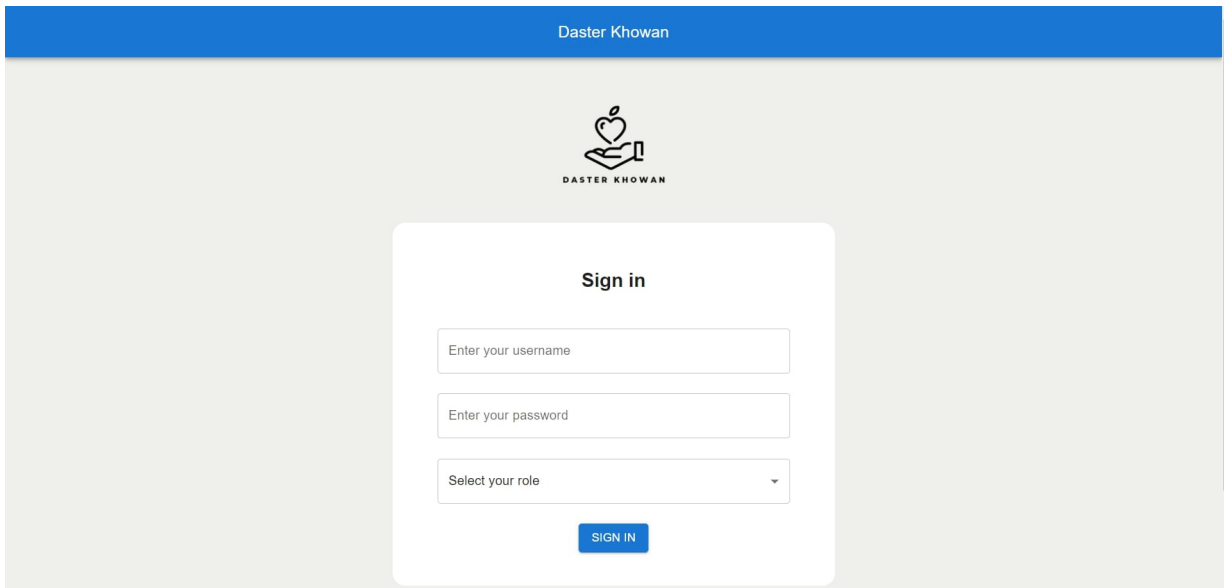


Figure 4.16: ER Diagram

4.7 GUI Design

GUI was one of our main and important objective in the development process. It was very important to keep it simple and easy to use as we are targeting the daily audience. Our web and mobile app interface is easy to learn and use.

This is the **Login Page** of Web Dashboard for Admin and Hotel Staff. Admin and Hotel Staff can select their role by clicking the drop down box and Login to their dashboards.



The screenshot displays the login interface for Daster Khowan. At the top, a blue navigation bar contains the text "Daster Khowan". Below this, the company logo is centered, featuring a stylized hand holding an apple above the text "DASTER KHOWAN". The primary focus is a white "Sign in" form. This form includes three input fields: "Enter your username", "Enter your password", and "Select your role" (a dropdown menu). A blue "SIGN IN" button is positioned at the bottom of the form.

Figure 4.17: Web Login Page

This is the **Admin Profile Modal**. This Modal button is placed on the top left corner of app bar. Admin can change password through this modal.

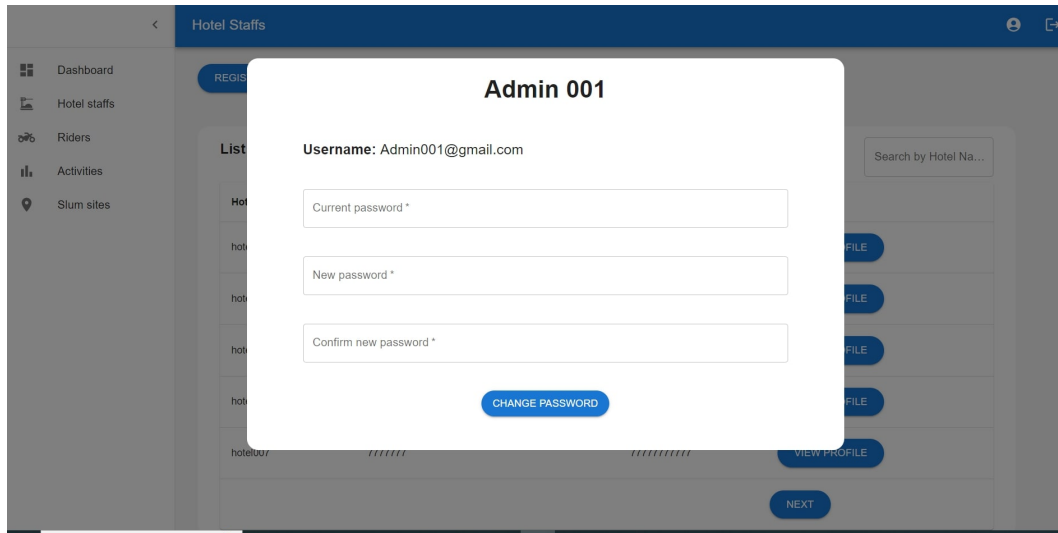


Figure 4.18: Admin Profile

This is the **Hotel Staff Page** in Admin Dashboard. Admin can register new hotel here. Admin can view list of registered hotels.

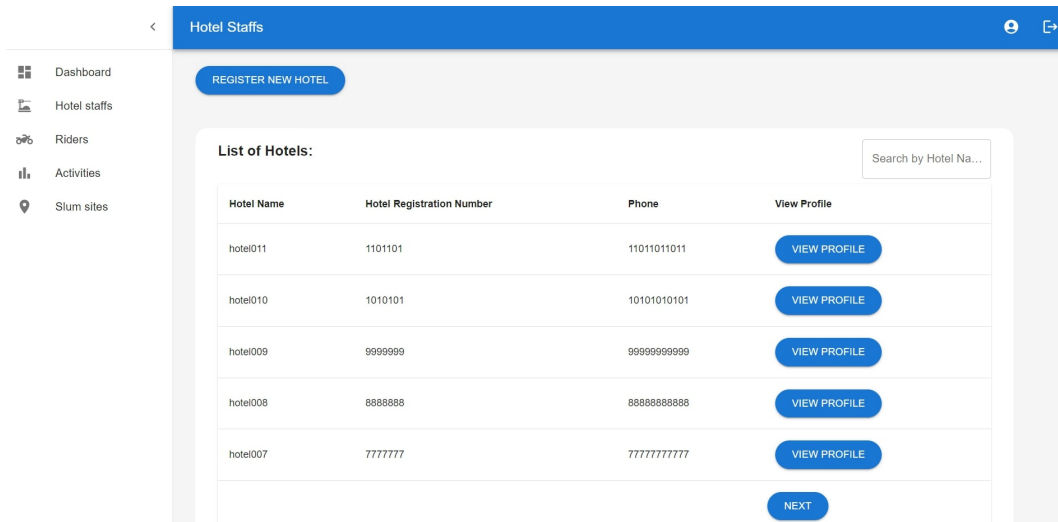
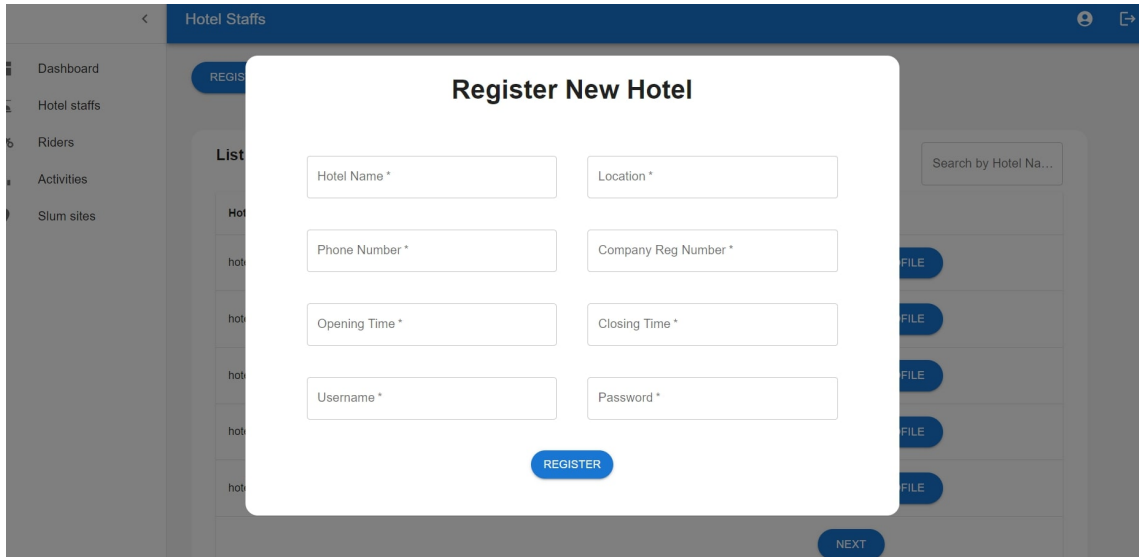


Figure 4.19: Hotel Staff Page

This is **Register New Hotel** modal in Admin Dashboard. This Modal is opened when admin clicks on Register New Hotel button in Hotel Staff Page. Admin can register new hotels here.



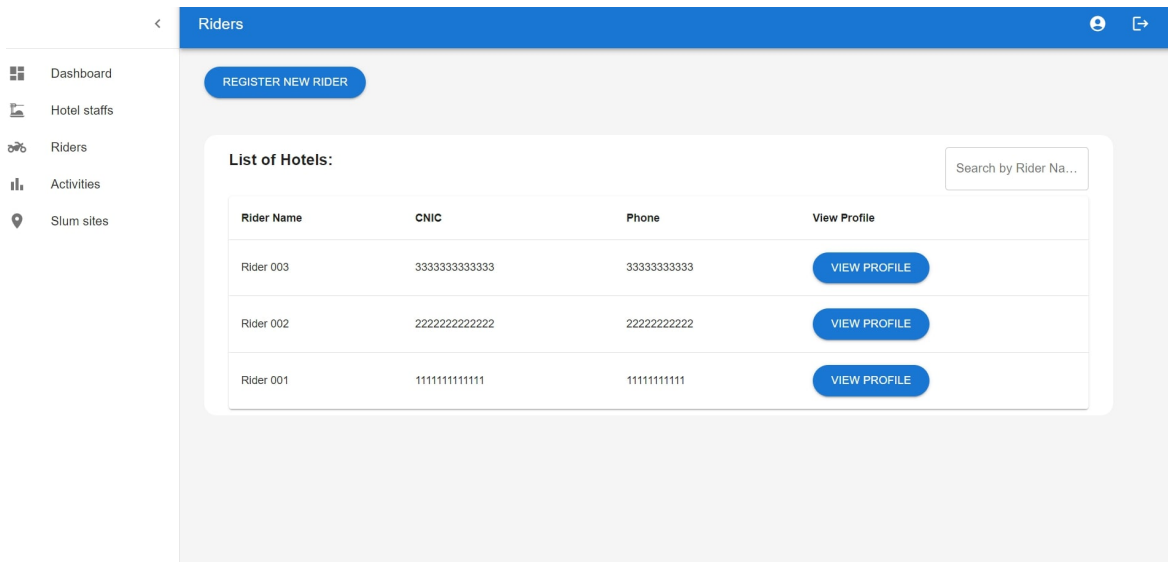
The screenshot shows a modal window titled "Register New Hotel" overlaid on a blurred background of the "Hotel Staffs" page. The modal contains the following fields:

- Hotel Name *
- Location *
- Phone Number *
- Company Reg Number *
- Opening Time *
- Closing Time *
- Username *
- Password *

A blue "REGISTER" button is located at the bottom center of the modal. The background page shows a sidebar with "Hotel Staffs" selected and a "List" table with columns for "Hotel Name", "Phone Number", "Opening Time", "Closing Time", "Username", and "Password".

Figure 4.20: Register New Hotel

This is the **Rider Page** in Admin Dashboard. Admin can register new rider here. Admin can view list of registered riders.



The screenshot shows the "Riders" page in the Admin Dashboard. The page has a blue header with "Riders" and a "REGISTER NEW RIDER" button. Below the header is a "List of Riders" section with a search bar and a table of registered riders.

Rider Name	CNIC	Phone	View Profile
Rider 003	3333333333333	33333333333	VIEW PROFILE
Rider 002	2222222222222	22222222222	VIEW PROFILE
Rider 001	1111111111111	11111111111	VIEW PROFILE

Figure 4.21: Admin Rider Page

This is **Register New Rider** modal in Admin Dashboard. This Modal is opened when admin clicks on Register New Rider button in Rider Page. Admin can register new riders here.

The 'Register New Rider' modal contains the following fields:

- Rider Name *
- CNIC *
- Phone Number *
- Bike Reg Number *
- Lisence Number *
- Lisence Expiry * (mm/dd/yyyy)
- Username *
- Password *

A blue 'REGISTER' button is located at the bottom center of the modal.

Figure 4.22: Register New Rider

This is **Activities Page** in Admin dashboard. Admin will get record of batches created by hotel staff here. Admin will get record of assigned batches accepted by riders here. Admin will get delivery record along with full report here.

The 'Activities' page displays the following data:

Batches:

Amount per person	Discription	Expiry	Hotel	View Profile
3	sandwiches	5-5-2023	Ralish Bakers	PROFILE
2	sabzi roti	6-5-2023	Madina Cafe	PROFILE
3	chicken roti	4-5-2023	Madina Cafe	PROFILE

Assigned Batches:

Amount per person	Discription	Expiry	Hotel	View Profile	Rider	View Profile	Slumsite	Status
2	daal roti	5-5-2023	Ralish Bakers	PROFILE	Rider 001	PROFILE	secter h8	Received

Figure 4.23: Activites Page

This is the **Slum Sites Page** in Admin Dashboard. Admin can add new slumsites here. Admin can view list of registered slumsites.

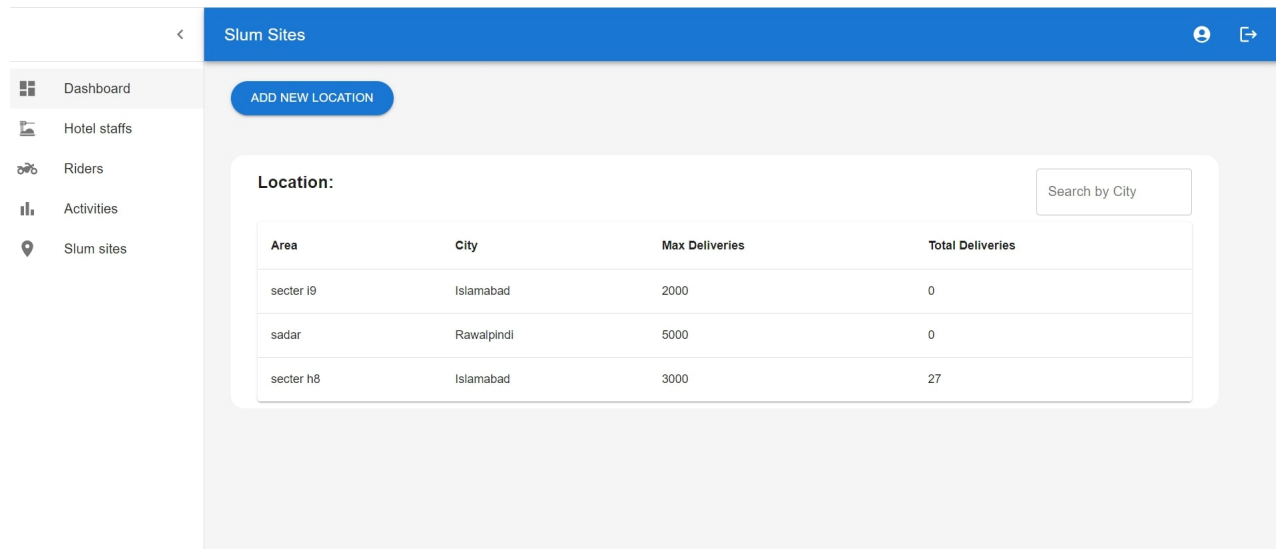


Figure 4.24: Admin Slum Site Page

This is **Add New Location** modal in Admin Dashboard. This Modal is opened when admin clicks on Add New Location button in Slum Sites Page. Admin can add new locations here.

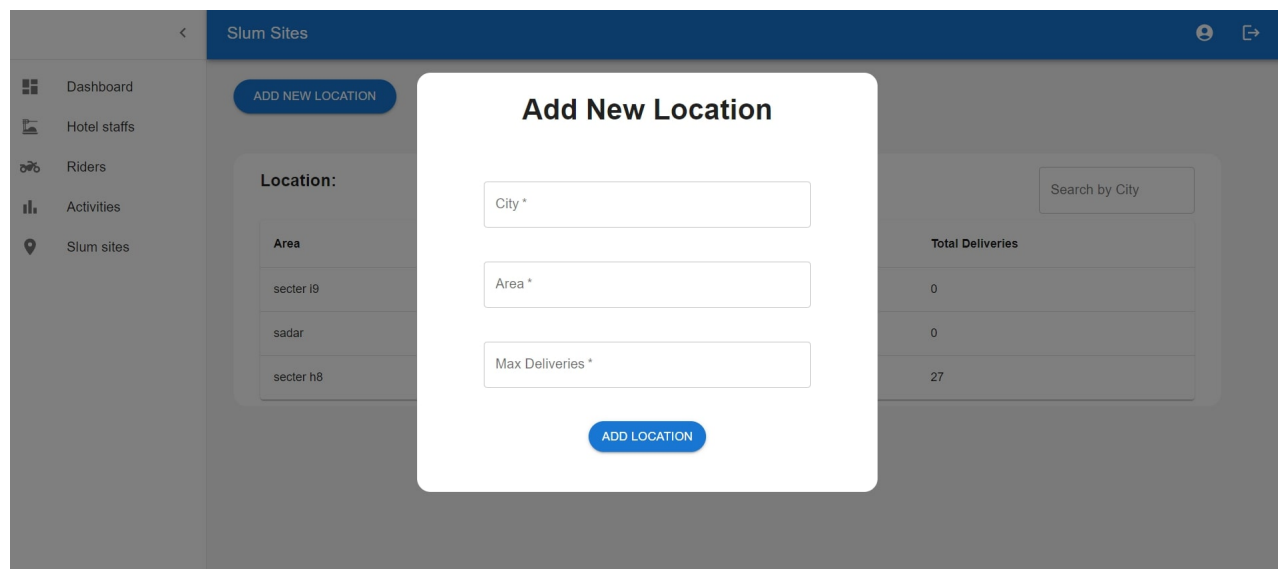
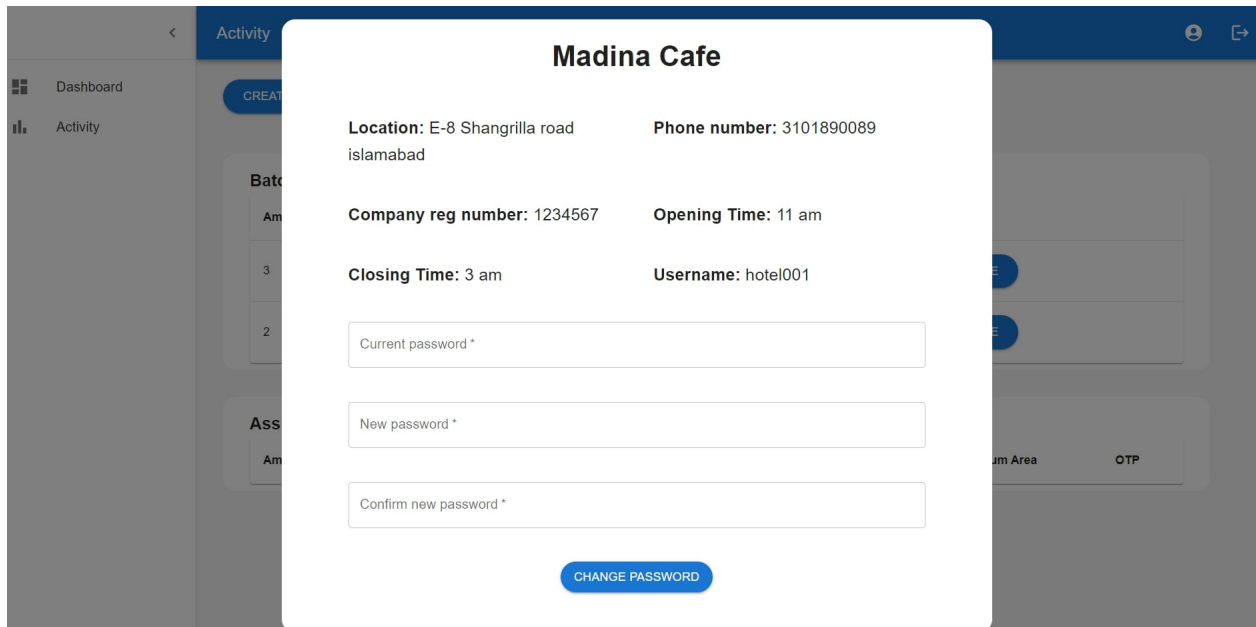


Figure 4.25: Add New Location

This is **Staff Profile Modal** in Hotel Staff dashboard. This Modal button is placed on the top left corner of app bar. Hotel Staff can change password through this modal.



The image shows a modal window titled "Madina Cafe" overlaid on a dashboard. The modal contains the following information:

- Location:** E-8 Shangrilla road islamabad
- Phone number:** 3101890089
- Company reg number:** 1234567
- Opening Time:** 11 am
- Closing Time:** 3 am
- Username:** hotel001

Below the information, there are three input fields for password change:

- Current password *
- New password *
- Confirm new password *

A blue button labeled "CHANGE PASSWORD" is located at the bottom of the modal.

Figure 4.26: Staff Profile

This is **Activity Page** in Hotel dashboard. Hotel Staff will get record of batches created by them here. Hotel Staff will get record of assigned batches accepted by riders here. Hotel Staff can create more batch here.

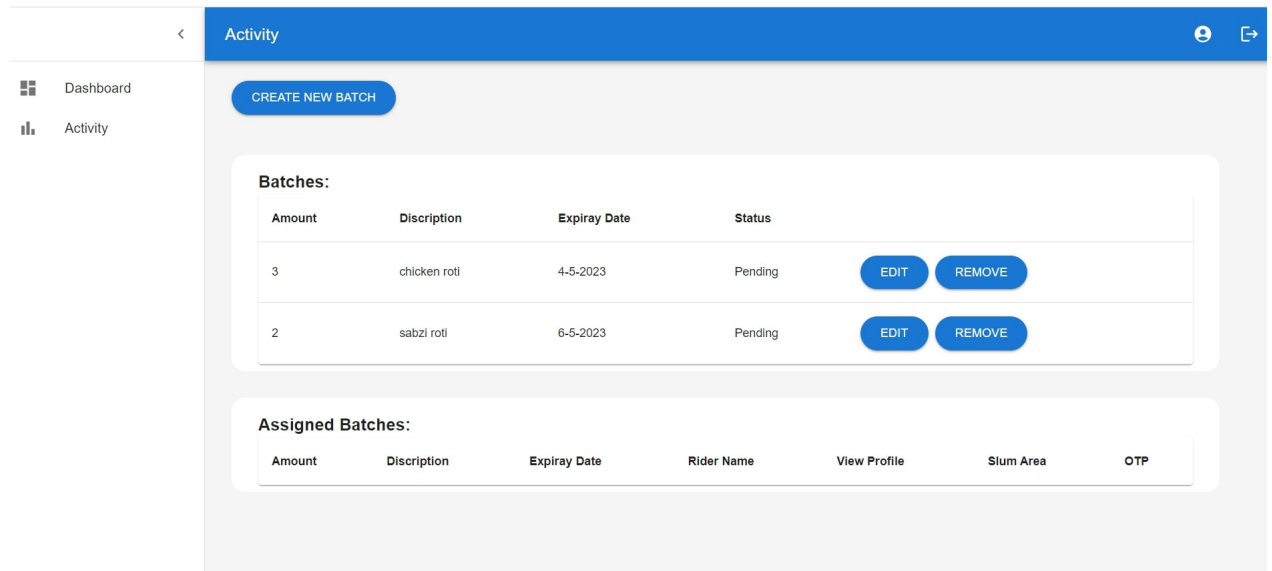


Figure 4.27: Staff Activiity

This is **Create New Batch** modal in Hotel Staff Dashboard. This Modal is opened when hotel staff clicks on Create New Batch button in Activity Page. Hotel Staff can create new batches here.

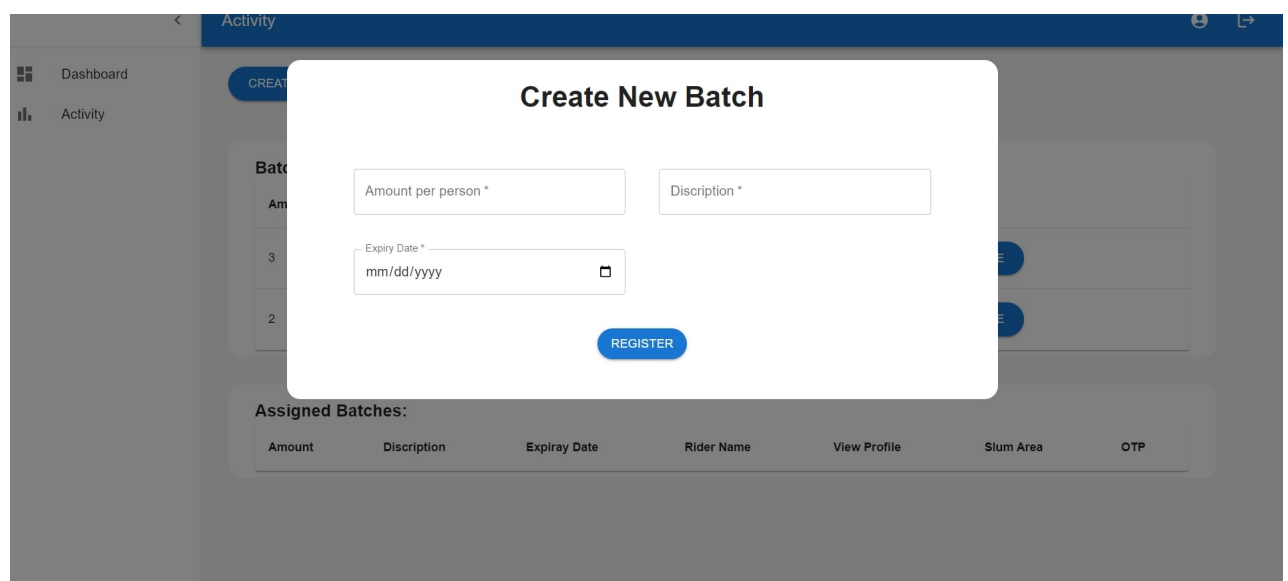


Figure 4.28: Create New Batch

This is **Track The Batch** Page for Admin and Hotel Staff Dashboard. This page lets you track the activity of the rider whether he has delivered the batch or not. This is done by entering the Batch Id into the text field.

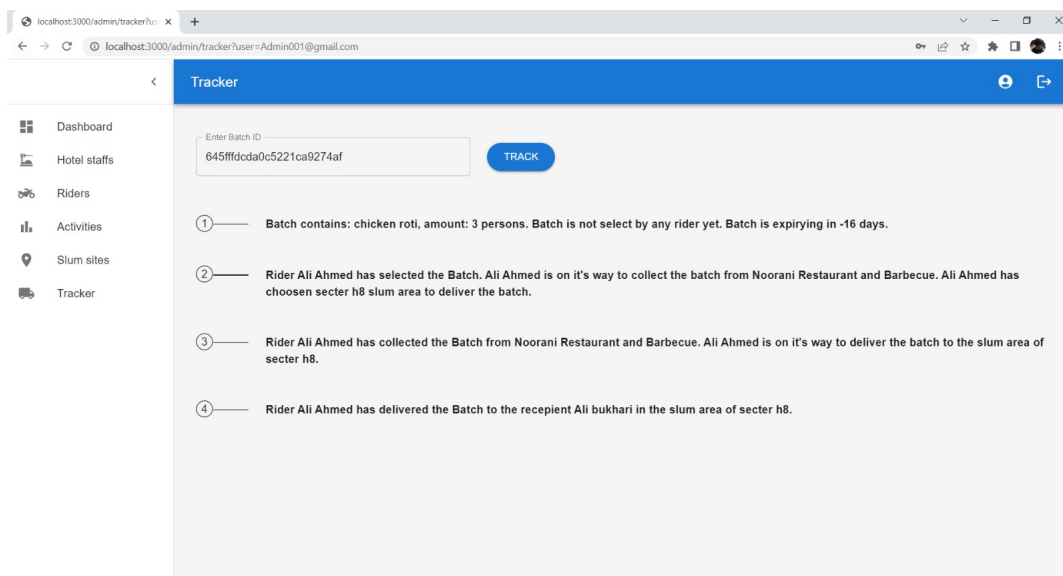


Figure 4.29: Track A Batch

This is the **Login Page** for Rider mobile app. Rider can Login to his/her account by entering his/her credentials. Credentials will be verified before rider is logged in.

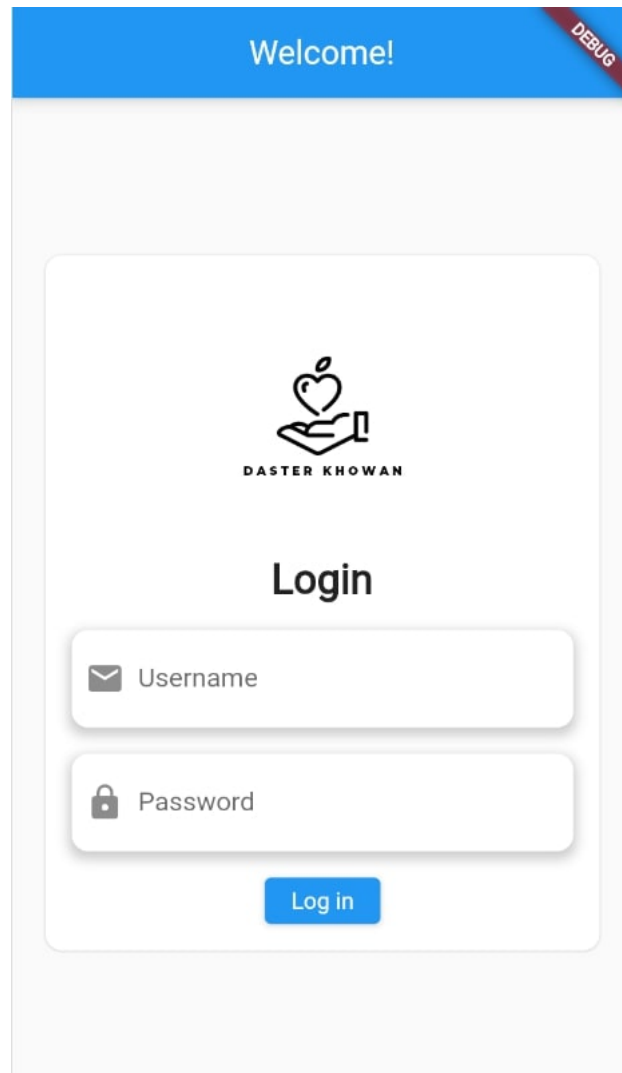


Figure 4.30: Mobile App Login

This is **Home Page** for Rider Mobile App. Rider will get list of all pending batches here. Rider can select a batch by selecting any batch here. After clicking on Select Batch Rider can goto next page.

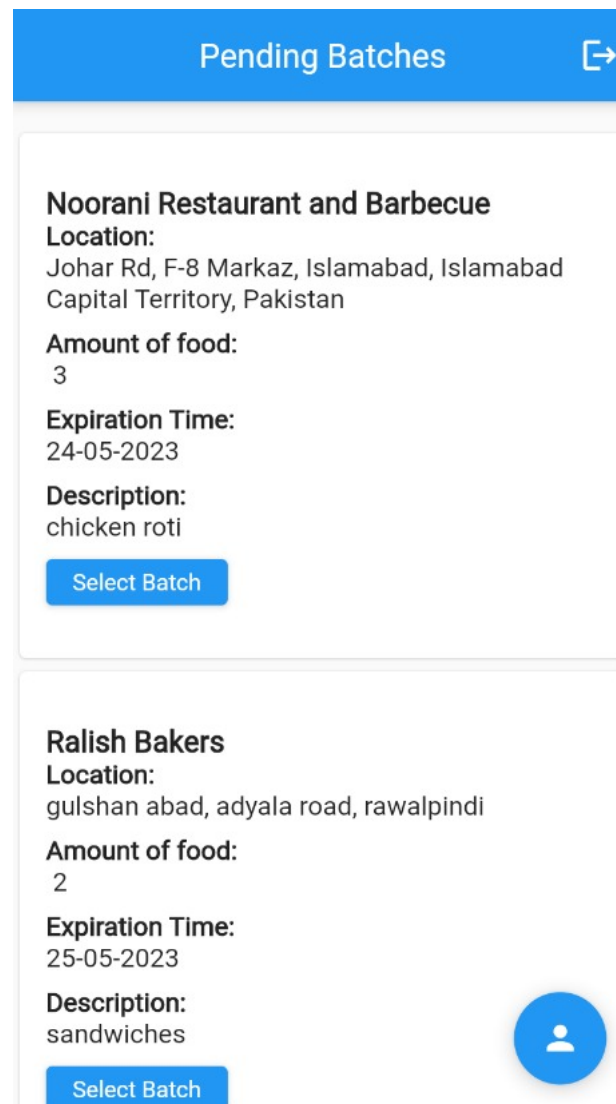


Figure 4.31: Pending Batches

This is **Location Page** for Rider Mobile App. After selecting the batch rider will land on Select Location page. Rider can select location by clicking the Select Location button.

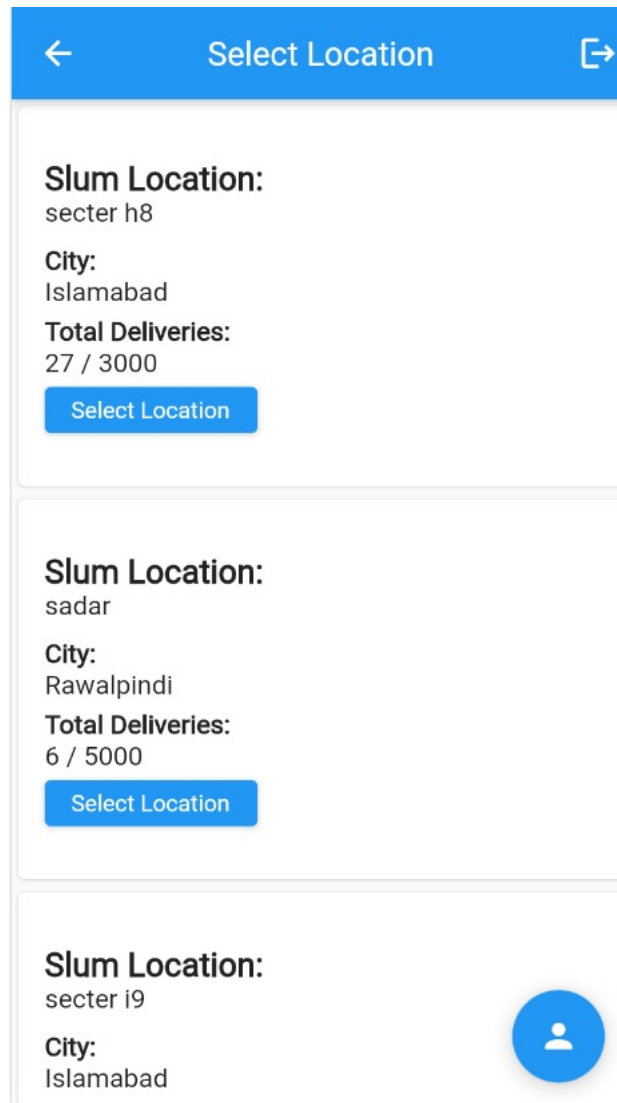
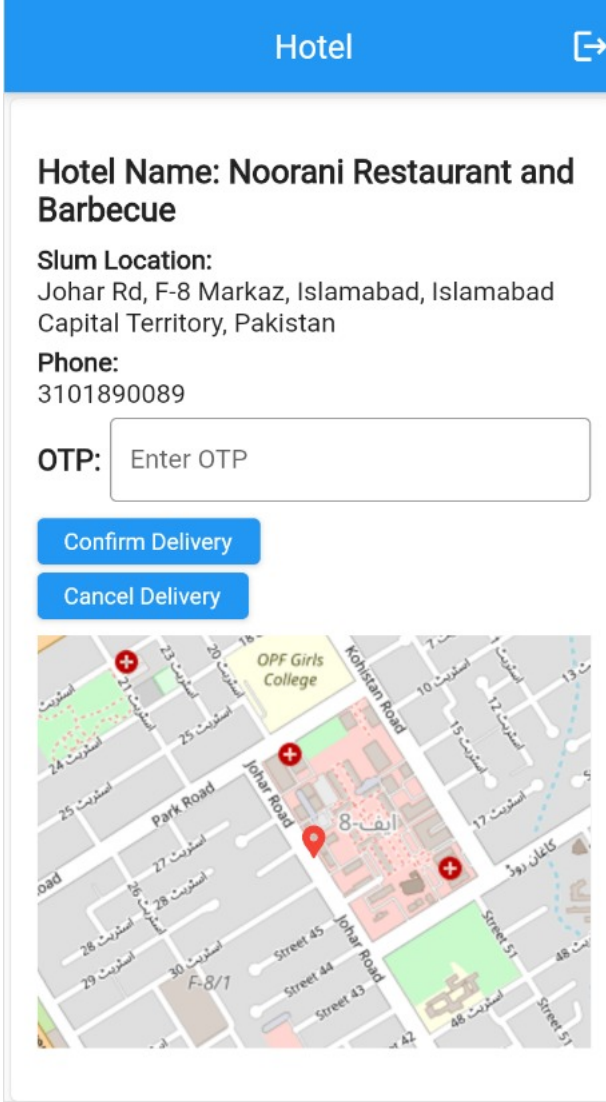


Figure 4.32: Select Location

This is **Pick Up Page** for Rider. Rider will enter the OTP given by hotel staff here. System will know that rider received the batch. Rider can cancel delivery by clicking Cancel Delivery button.



Hotel

Hotel Name: Noorani Restaurant and Barbecue

Slum Location:
Johar Rd, F-8 Markaz, Islamabad, Islamabad Capital Territory, Pakistan

Phone:
3101890089

OTP:

Confirm Delivery

Cancel Delivery

OPF Girls College

F-8/1

Figure 4.33: Enter OTP

This is **Verify Page** for Rider Mobile App. After delivering the batch to slum location. Rider will verify the delivery by entering name and CNIC of recipient.

Verify Page ↗

Slum Location: secter h8, Islamabad

Name of Recipient:

Enter Recipient CNIC:

0/13

Verify Delivery

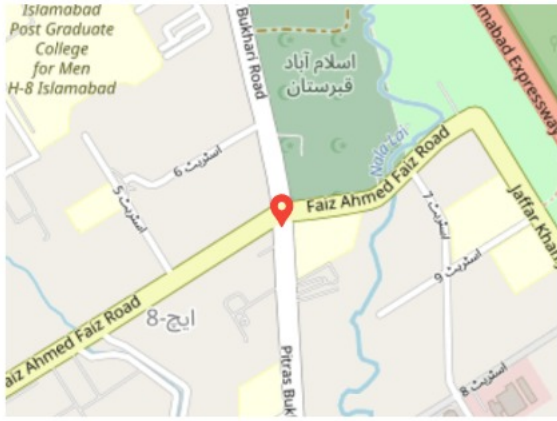


Figure 4.34: Verify Delivery

4.8 Summary

In this chapter we have discussed System Architecture, which Design Methodology we have used, Design Constraints and High Level Design such as userflow diagrams and dataflow diagrams. This chapter also include Low Level Design such as Sequence Diagrams and Activity Diagrams. Further this chapter includes Database we used and its features. This chapter also contains an in depth front end of the mobile and web app.

Chapter 5

System Implementation

Implementation is the process of moving an idea from concept to reality. The System implementation is a realization of a technical specification or algorithm as a program, software component, or other computer system through programming and deployment.

5.1 System Architecture

This project is going to run on different web browsers and mobile phones. Any user having internet connection would be able to use this service. This web and mobile app is easy to use and fast. Moreover this app provides security and reliability.

5.2 Tools and Technology Used

Our project is made from following tools and technology.

- Material UI
- Java Script
- Next JS
- Flutter

- Node JS
- Mongo DB
- Figma
- Visual Studio Code

5.2.1 Material UI

Material UI [10] is an open-source library of React components that follows the Material Design guidelines from Google. This library provides a set of UI elements that are pre-designed and can be used easily to create responsive and visually pleasing web applications. Material UI includes components such as buttons, text fields, sliders, icons, and more, which are designed to work together seamlessly and with consistent styles.

5.2.2 Java Script

JavaScript is a popular high-level programming language that is primarily used to create interactive and dynamic web content. Along with HTML and CSS, it is considered one of the three fundamental technologies used to create web content. JavaScript is mainly a client-side scripting language, which means that it executes in a web browser and can communicate with HTML and CSS to produce interactive and dynamic effects on web pages.

5.2.3 Next JS

Next.js is an open-source framework used for building server-side rendered (SSR) and statically generated (SSG) React applications. This framework is built on top of React and Node.js and offers a range of features and optimizations that help developers build high-performance, scalable, and SEO-friendly web applications. Next.js simplifies the process of creating complex React applications by providing a variety of out-of-the-box features

like automatic code splitting, server-side rendering, static site generation, optimized image loading, and more.

5.2.4 Flutter

Flutter [11] is an open-source mobile app development framework that is available for free and created by Google. It enables developers to create natively compiled apps for various platforms such as mobile, web, and desktop from a single codebase. Flutter uses the object-oriented and class-based Dart programming language to create high-performance and responsive user interfaces.

5.2.5 Node JS

Node.js [12] is an open-source, cross-platform, back-end JavaScript runtime environment that enables developers to build fast and scalable network applications. It is built on top of Google's V8 JavaScript engine and uses an event-driven, non-blocking I/O model that makes it highly efficient and lightweight.

5.2.6 Mongo DB

MongoDB [13] is a popular open-source, NoSQL database that uses a document-oriented data model to store and retrieve data. MongoDB provides a range of tools and features like sharding, replication, and automatic failover, which allow developers to build highly available and fault-tolerant systems.

5.2.7 Figma

Figma is an open source platform which is used to design front end of your app. It helps us to get an idea of how we are going to implement our project. It has many tools which helps a designer to bring their idea to reality.

5.2.8 Visual Studio Code

Visual Studio Code is an IDE provided by Microsoft to develop, test and maintain software and mobile apps. It has many built-in extensions which help developers to work and code in a friendly environment.

5.3 Development Environment/Languages Used

To create a Daster khowan project using mongodb, next.js, fullter and Node.js, follow these steps:

- **Install Node.js:** Start by installing Node.js on your machine. This system comes equipped with the Node Package Manager (npm), which makes managing project dependencies simple.
- **Install mongodb and mongodb compass and Setting Up a Local host Server.**
- **Establish the Next.js Frame-work:** Utilize create-next-app or your preferred method to build a Next.js application, designing and implementing user interface components like forms and tables as required by your Daster Khowan system.
- **Install mongodb in your next app and create api's. Connect the Front-End to the Back-End:** Use Fetch command to call api.
- **Make a Node.js Server:** Create a new Node.js project and set up a server using Express.js; this will manage routing and middleware services for your application.
- **Establish the Flutter Front-end to create mobile application:** designing and implementing user interface components like forms and tables as required by your mobile app.

- Establish the Flutter Front-end to create mobile application: designing and implementing user interface components like forms and tables as required by your mobile app.
- Connect the Front-End to the Back-End: Use HTTP library between flutter application and Node.js server in order to retrieve and modify data stored in mongodb databases.

5.4 Summary

In this chapter, we have presented the tools and technologies utilized in the development of our project. We have provided detailed explanations regarding the working and usage of these tools and technologies. Additionally, we have discussed the configuration and setup of the development environment used for the project, highlighting the steps and considerations necessary to ensure a smooth and efficient workflow.

Chapter 6

System Testing and Evaluation

6.1 Graphical User Interface Testing

In GUI Testing we determine how easy is the interaction between user and computer or mobile screen. It involves testing of GUI buttons, menus, fonts and other elements on the screen. In our web and mobile app we have made it very simple for any kind of user to use these applications without any complexions. The buttons, icons and elements are clearly visible on screen.

6.1.1 Web Sign In:

The Login Page of our Web Page is working fine with no errors. Buttons and text fields were clearly visible and responsive.

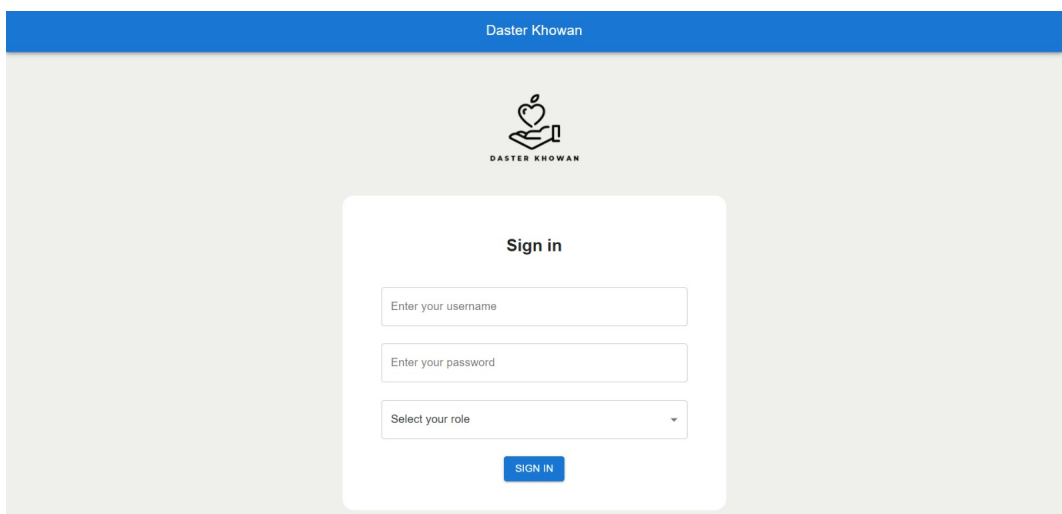


Figure 6.1: Web Sign In Screen

6.1.2 Register Hotel:

The Register Hotel Page of our Web Page is working fine with no errors. Buttons and text fields were clearly visible and responsive.

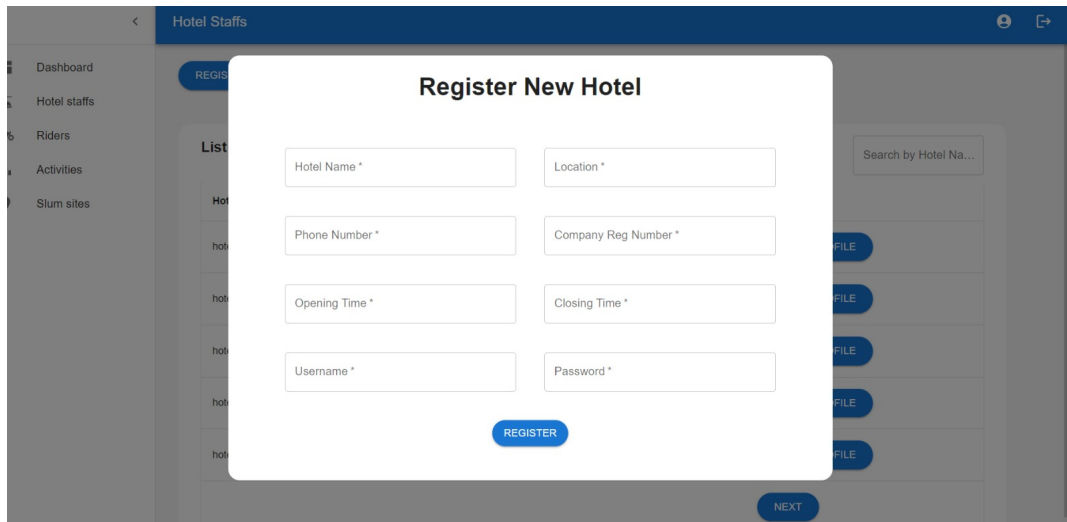
The image shows a web application interface with a dark blue header and sidebar. The main content area is titled 'Hotel Staffs'. A white modal window titled 'Register New Hotel' is centered on the screen. The modal contains eight text input fields arranged in two columns: 'Hotel Name *', 'Location *', 'Phone Number *', 'Company Reg Number *', 'Opening Time *', 'Closing Time *', 'Username *', and 'Password *'. Below the fields is a blue 'REGISTER' button. In the background, a list of hotel entries is visible, each with a 'FILE' button. A search bar with the placeholder 'Search by Hotel Na...' is also present.

Figure 6.2: Web Sign In Screen

6.2 Usability testing

Usability testing involves assessing the ease of use and user-friendliness of a design, using a group of individuals who represent the target audience. The process usually involves observing users as they attempt to complete tasks and can be employed across a range of designs. Usability testing should follow specific guidelines, such as ensuring that the application is straightforward to comprehend and use, and that each button's purpose and function is clear to the user. Our both apps have a simple and easy-to-understand interface, which makes user interaction easy and makes the app more effective. Users were able to comprehend the functions of buttons and how to accomplish tasks in the application, and they could easily customize objects according to their preferences. Additionally, the user interface is designed to provide a pleasant experience, with a simple color scheme chosen for the website.

6.2.1 Visibility

We have used modest and visible color scheme in our web and mobile app. Buttons, icons and other elements such as search bars, text fields and modals are clearly visible.

6.2.2 Reliability

Reliability is an important aspect of usability testing that refers to the ability of a system or application to consistently perform as expected and deliver accurate results. In other words, a reliable system or application should work properly every time it is used, without crashing or producing errors. Our app is reliable and consistent. The flow of instructions and commands are predictable and not complex.

6.2.3 Effectiveness

Effectiveness is a crucial aspect of usability testing that assesses the extent to which a system or application can accomplish its intended goals with accuracy and completeness. During usability testing, the effectiveness of a system or application is measured by setting up specific tasks or scenarios and then evaluating the success rate with which users can complete them. The evaluation is typically based on metrics such as error rates, task completion rates, and user satisfaction ratings. Our web and mobile apps have performed the assigned and expected tasks successfully without crashing or making errors.

6.2.4 Efficiency

Efficiency is an important factor in usability testing as it enables users to complete tasks efficiently, without any unnecessary efforts or delays. This means that the system or application should be designed in a way that users do not have to waste time searching for information, navigating confusing

menus, or encountering unnecessary roadblocks. During usability testing, efficiency can be measured by timing the completion of tasks and evaluating the number of clicks, steps, or actions required to complete them. Our both apps are fast and they perform tasks quickly.

6.2.5 Target Size

Target size is a crucial factor that refers to the recommended size of clickable elements in a design. These clickable elements may include buttons, icons, or links that need to be easily clickable by the users. The size of these elements should be large enough for users to click easily without occupying too much screen space. It's essential to consider target size for users with motor impairments or those who use touchscreens to navigate, ensuring they can interact with the design without difficulty.

6.3 Compatibility Testing

Compatibility testing is a form of usability testing that aims to verify if a product or software application operates correctly across multiple platforms, devices, and web browsers. Its primary objective is to assess whether the product can perform its intended functions seamlessly in various environments, such as different operating systems, screen resolutions, browsers, and devices.

6.4 Functionality Testing

Functionality testing is a type of software testing that evaluates whether a product or application conforms to its intended design and functional requirements. The purpose of this testing is to verify that all features and functionalities of the product perform as expected and meet the user's needs.

6.4.1 Unit Testing

Unit testing is a software testing technique that aims to test individual components, modules, or units of a software application in isolation from the rest of the system. The primary goal of unit testing is to verify whether each unit of the software performs as expected and conforms to its design specifications. Our project has passed all unit tests and worked fine.

6.4.2 System Testing

In this type of testing system is ran through different tests to make sure that system is running fine and it has no bugs and it is error free. We ran some tests through system to make sure that system is running fine.

6.4.3 Software Performance Test

During performance testing, software testers simulate the workload that the software may experience in real-world scenarios, such as heavy user traffic or high transaction volumes. They collect performance metrics and analyze the results to identify any performance issues or bottlenecks that may affect the software's performance and scalability. Our goal was to put workload on our app in order to test its potential and efficiency.

6.5 Security Testing

Security testing is an essential part of software development that evaluates a software application's ability to protect data and maintain the confidentiality, integrity, and availability of the system. It encompasses various techniques, such as vulnerability scanning, penetration testing, and security auditing. In our app user needs to be registered before logging in to the app. If they are not registered a message will be shown that user not found or does not exist.

6.6 Test Cases

6.6.1 Log In Test Case

This test case aims to verify the login functionality of the Daster Khowan application. The test case will ensure that a registered user can successfully login into the application using valid credentials. The test case will verify the correctness of the login process, including the validation of the user's entered data, session management, and error handling in case of invalid credentials. The test case will also ensure that the user is directed to the appropriate interface after successful login, according to their user type (admin, hotel staff, or rider).

Test Case Id	TC01
Name	Login
Description	Test the login system of users.
Requirement	Internet connection.
Initial Condition	The login page is opened. User knows his/her username and password
Step no.	Step Description
1	Goto login page.
2	Data Enter username and password.
3	Click the login button.
Step no.	Task and Expected Result
1	If username and password matches.(Status=Pass)
2	If username and password does not match then show error with error status.(Status=Pass)
3	Password is not visible.(Status=Pass)

Table 6.1: Login Test Case

6.6.2 Dashboard Test Case

The purpose of this test case is to ensure that the dashboard displays the required information for the logged-in user. Upon successful login, the user should be redirected to the dashboard page, which should display relevant information such as the number of new delivery requests, the number of pending delivery requests, and the number of completed delivery requests. The dashboard should also provide links to other sections of the application, including the list of slum sites and the list of hotels registered with the

application. The test case should verify that all the information is displayed correctly on the dashboard page and that the links to other sections are working as expected.

Test Case Id	TC02
Name	Dashboard
Description	Test the Dashboard of users that are Logged In.
Requirement	Internet Connection and User Logged In
Step no.	Task and Expected Result
1	Correct Dashboard opened successfully (Status=Pass)
2	Sidebar of Dashboard is shown. (Status=Pass)
3	All buttons work and redirect to correct pages. (Status=Pass)
4	All buttons possesses correct effects (hover, etc) for accessibility. (Status=Pass)

Table 6.2: Dashboard Test Case

6.6.3 Slumsite Page Test Case

The Slum Site Page test case aims to ensure that the admin is able to add and view slum sites successfully through the admin interface. The test case will include verifying that the admin is able to access the Slum Site Page, add a new slum site by entering its name, address and other relevant details, and view the list of existing slum sites. The test case will also verify that the slum site details are saved and displayed correctly in the database and on the admin interface. This test case will ensure that the Slum Site Page is functioning correctly and will enable the admin to manage and deliver food to slum sites efficiently.

Test Case Id	TC03
Name	Slumsite Page Test Case
Description	Test the new Slumsite
Requirement	Internet Connection and Admin Logged In
Step no.	Task and Expected Result
1	All Slum Page opened successfully. (Status=Pass)
2	All buttons work and redirect to correct pages. (Status=Pass)
3	All Slum records are shown successfully. (Status=Pass)
4	New Slumsite created and shown in the record successfully. (Status=Pass)

Table 6.3: Slumsite Page Test Case

6.6.4 Activity Page Test Case

The Activity Page Test Case for the Hotel Staff interface of Daster Khowan application is designed to ensure the smooth functioning of the activity page. This test case will verify that the hotel staff can create batches of leftover food, view the record of previously created batches and view the record of batches that are selected by riders and created by him. The test will ensure that the created batch is added to the system and the record is updated accordingly. It will also verify that the hotel staff can view the details of batches created by him, such as the number of portions in the batch, the time and date of creation, and the name of the restaurant. The test case will also ensure that the hotel staff can view the record of batches selected by the riders, including the name of the rider, the time and date of delivery, and the location of the slum site. By verifying the functionality of the activity page, this test case ensures that the hotel staff can effectively manage the creation and delivery of leftover food batches.

Test Case Id	TC04
Name	Activity Page Test Case
Description	Test the new Slumsite
Requirement	Internet Connection and Hotel Staff Logged In
Step no.	Task and Expected Result
1	All Activity Page opened successfully. (Status=Pass)
2	All buttons work and redirect to correct pages. (Status=Pass)
3	All Batches and Assigned Batches records are shown successfully. (Status=Pass)
4	New Batch created and shown in the record successfully. (Status=Pass)

Table 6.4: Activity Test Case

6.6.5 Create Delivery Test Case

The Create Delivery Test Case verifies if the rider can successfully create a delivery by selecting a batch and selecting the slum location. This test case ensures that the rider can effectively communicate with the app and the app is able to receive and process the information entered by the rider. The test case should also verify that the delivery created is properly recorded in the

database and the relevant information is displayed to the rider for delivery confirmation.

Test Case Id	TC05
Name	Create Delivery Test Case
Description	Test the new delivery.
Requirement	Internet Connection and Rider Logged In
Step no.	Task and Expected Result
1	All Rider Home Page opened successfully. (Status=Pass)
2	All buttons work and redirect to correct pages. (Status=Pass)
3	All Pending Batches and Slumsites are shown successfully. (Status=Pass)
4	New Delivery created successfully. (Status=Pass)

Table 6.5: Create Delivery Test Case

6.6.6 Register New Hotel Test Case

The Register New Hotel Test Case verifies if the admin can successfully register a new hotel by providing the required details. This test case ensures that the registration process functions correctly and the hotel information is properly saved.

Test Case Id	TC06
Name	Register New Hotel Test Case
Description	Test the registration of a new hotel.
Requirement	Internet Connection and Admin Logged In
Step no.	Task and Expected Result
1	Open the Admin Interface. Verify that it loads successfully. (Status=Pass)
2	Enter valid hotel details for registration. (Status=Pass)
3	Submit the registration form. Verify that the hotel is successfully registered. (Status=Pass)

Table 6.6: Register New Hotel Test Case

6.6.7 Verify Delivery Test Case

The Verify Delivery Test Case verifies if the rider can successfully verify the delivery of a batch to the slum location by entering the recipient's name and CNIC. This test case ensures that the verification process functions correctly and the delivery is properly recorded and confirmed.

Test Case Id	TC07
Name	Verify Delivery Test Case
Description	Test the verification of batch delivery.
Requirement	Internet Connection and Rider Logged In
Step no.	Task and Expected Result
1	Open the Verify Delivery page in the Rider mobile app. (Status=Pass)
2	Enter the recipient's name and CNIC. (Status=Pass)
3	Submit the verification form. Verify that the delivery is successfully verified. (Status=Pass)

Table 6.7: Verify Delivery Test Case

6.6.8 Pick Up Batch Test Case

The Pick Up Batch Test Case verifies if the rider can successfully pick up a batch by entering the OTP provided by the hotel staff. This test case ensures that the pick-up process functions correctly and the system accurately records that the rider has received the batch. Additionally, the test case verifies that the rider can cancel the delivery if needed by clicking the Cancel Delivery button.

Test Case Id	TC08
Name	Pick Up Batch Test Case
Description	Test the pick-up of a batch by entering OTP.
Requirement	Internet Connection and Rider Logged In
Step no.	Task and Expected Result
1	Open the Pick Up Page in the Rider app. Verify that it loads successfully. (Status=Pass)
2	Enter the OTP provided by the hotel staff. (Status=Pass)
3	Submit the OTP. Verify that the batch pick-up is successful. (Status=Pass)
4	Click on the Cancel Delivery button.(Status=Pass)

Table 6.8: Pick Up Batch Test Case

6.6.9 Staff Profile Modal Test Case

The Staff Profile Modal Test Case verifies if the Hotel Staff can successfully access the Staff Profile Modal by clicking on the button placed on the top left corner of the app bar. This test case ensures that the modal opens correctly and the Hotel Staff can change their password through this modal.

Test Case Id	TC09
Name	Staff Profile Modal Test Case
Description	Test the functionality of the Staff Profile Modal.
Requirement	Internet Connection and Hotel Staff Logged In
Step no.	Task and Expected Result
1	Open the Hotel Staff dashboard. Verify that the app bar is displayed. (Status=Pass)
2	Click on the button placed on the top. Verify that the Staff Profile Modal opens. (Status=Pass)
3	Change the password. Verify that the password is successfully updated. (Status=Pass)

Table 6.9: Staff Profile Modal Test Case

6.6.10 Admin Profile Modal Test Case

The Admin Profile Modal Test Case verifies if the admin can successfully access the Admin Profile Modal by clicking on the button placed on the top left corner of the app bar. This test case ensures that the modal opens correctly and the admin can change their password through this modal.

Test Case Id	TC10
Name	Admin Profile Modal Test Case
Description	Test the functionality of the Admin Profile Modal.
Requirement	Internet Connection and Admin Logged In
Step no.	Task and Expected Result
1	Open the Admin dashboard. Verify that the app bar is displayed. (Status=Pass)
2	Click on the button. Verify that the Admin Profile Modal opens. (Status=Pass)
3	Change the password. Verify that the password is successfully updated. (Status=Pass)

Table 6.10: Admin Profile Modal Test Case

6.7 Summary

In this chapter we have written a detailed view of our web and mobile app testing. We have tested and ran our web and mobile app through different processes such as Usability Testing, Compatibility Testing, Functionality testing and Security Testing to make sure that system is working perfectly and giving the expected results. This chapter also includes test cases table which can be used to determine the efficiency of this app.

Chapter 7

Conclusions

Daster Khowan primary aim is to deliver leftover food from hotels and restaurants to those in need, including slum sites. Daster Khowan offers a user friendly interface to help its users to interact easily. Our aim is to reduce the food wastage and donate that food to someone in need.

7.1 Future Improvements

The initial version of our application is a prototype that can be implemented in one city to deliver leftover food hotels and restaurants to slum sites. Our applications offers limited functionality but in time we plan on improving and adding more features and functionalities as given below:

7.1.1 Multiple Cities

Our application is currently in the prototype stage and is designed to be implemented in a single city. However, our ultimate goal is to expand its usage to multiple cities across the country. We believe that this concept has the potential to positively impact communities nationwide and are working towards achieving this goal. As we continue to develop and refine our prototype, we are also exploring ways to scale the application for

use in other cities, taking into consideration factors such as infrastructure, regulations, and user needs.

7.1.2 Food Donation Request

Our current focus is on delivering excess food from hotels to residents of slum areas, and we have been successful in making a positive impact on the lives of those in need. Moving forward, we aim to expand our efforts by creating a platform where individuals can request food donations. Our goal is to provide a simple yet effective means for people to access the resources they require to alleviate hunger, thereby fostering a more equitable society. By leveraging technology to facilitate food donations, we hope to make a meaningful impact on the lives of those who are struggling with food insecurity. We believe that our approach has the potential to create a positive ripple effect in communities, promoting a culture of giving and empowering those in need to take an active role in seeking assistance.

7.1.3 Multi Language Support

As we seek to expand our reach and connect with a global audience, we recognize the importance of catering to diverse linguistic needs. That's why we are committed to providing multi-language support for our application in the future, enabling users to access our services in the language of their choice. By making our platform more accessible and inclusive, we hope to foster a stronger sense of community and make a positive impact on the lives of people around the world. We believe that empowering users to interact with our application in their preferred language will improve the user experience and increase engagement, ultimately driving greater success and impact for our mission. We are constantly exploring new ways to improve our services, and we are excited to pursue this goal of providing multi-language support as we continue to grow and evolve.

7.2 Summary

In this chapter we have concluded the basic aim and objective of our project and its working and impact in society. We have also discussed the further improvements we want to see in our project such as diversity in languages and expanding the food donation from one city to multiple cities.

Appendix A

User Manual

Daster Khowan is a web-based application aimed at reducing food waste and combating hunger in society. The application allows hotels and restaurants to donate leftover food, which is then delivered to those in need, including slum sites. This user manual provides instructions on how to use the application effectively.

A.1 Introduction

Daster Khowan is designed to provide a user-friendly interface for hotels, restaurant staff, and riders to interact with the application and perform their respective tasks. By following the instructions provided in this user manual, users can make the most of the application's features and contribute to the noble cause of reducing food waste and combating hunger.

A.2 Getting Started

To access the Daster Khowan application, follow these steps:

1. Open your preferred web browser.
2. Enter the application's URL (e.g., www.dasterkhowan.com) in the address bar.
3. Press Enter to load the application.

A.3 User Roles

Daster Khowan supports three user roles:

- **Admin:** Responsible for managing hotels, riders, and slum sites.
- **Hotel Staff:** Handles the creation of batches of leftover food from hotels and restaurants.
- **Rider:** Picks up the batches and delivers them to the slum sites.

A.4 Login

To access the application, users need to log in with their credentials. Follow these steps to log in:

1. Launch the Daster Khowan application.
2. On the login page, enter your username and password.
3. Click the "Login" button.

A.5 Admin Interface

The admin interface provides additional functionalities for managing hotels, riders, and slum sites. Here are some key features:

- **Registering Hotels and Restaurants:** The admin can register new hotels and restaurants by providing their details such as name, address, contact information, and login credentials.
- **Registering Riders:** The admin can register new riders by providing their information, such as name, contact number, and other necessary details.
- **Creating Slum Sites:** The admin can create slum sites by specifying the areas where food donations are to be delivered.

- **Monitoring and Analysis:** The admin can access records of all donations and transactions, including donor information, food details, recipient information, and delivery time.

A.6 Hotel Staff Interface

The hotel staff interface allows hotel staff members to create batches of leftover food. Here are the steps to create a batch:

1. Log in with your hotel staff credentials.
2. Navigate to the batch creation page.
3. Fill in the details of the batch, including the type of food, quantity, and expiry date.
4. Submit the batch creation form.

A.7 Rider Interface

The rider interface enables the riders to pick up and deliver the batches to the slum sites. Here's how to use the rider interface:

1. Log in with your rider credentials.
2. View the available batches for delivery.
3. Select a batch and the slum site for delivery.
4. Verify the details of the batch, including the food type, quantity, and expiry date.
5. After picking up the batch, deliver it to the designated slum site.
6. Provide proof of delivery, if required.

A.8 Changing Password

Both admin and hotel staff members have the option to change their passwords. To change the password, follow these steps:

1. Click on the profile button located in the top left corner of the app bar.
2. Select the "Change Password" option.
3. Enter your current password and the new password.
4. Confirm the new password.
5. Click the "Save" or "Update" button to save the changes.

Remember to keep your login credentials secure and log out after using the application to ensure the privacy and security of your account.

A.9 Conclusion

Congratulations! You have successfully learned how to use the Daster Khowan application. By utilizing the various features and functionalities, you can actively participate in reducing food waste and contributing to the welfare of the community. For any further assistance or technical support, please refer to the application's help section or contact our customer support.

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