Project Report On

Hunger Help

Submitted in partial fulfillment for the award of

Post Graduate Diploma in Advanced Computing

from

C-DAC ACTS (Pune)

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Introduction

Abstract :

To developed mobile application which reduces the amount of food wastage produced in the functions, restaurants and in the mess. The application features the donation of food collection of food and direct contact with the nearby NGOs. For Donation of Food following needs to be provided such as food details, location of where excess food is available, type and also the quantity of food available. Immediate Alerts to nearby NGOs, orphanage, volunteers to collect them. According to the recent survey, 1.3 billion tons of food are wasted each year and only one third of the food is consumed. This application reduces the amount of wastage of food. It also enables the direct contact with the NGOs and volunteers with details of the availability of the food.

Introduction :

In countries like India 795 million, out of the world population of 7.6 billion people, don't have enough food to lead a healthy or they are undernourished. That is approximately one out of nine people on earth. The reasons can be; firstly, that there is a shortfall in the food produced worldwide or second, there is massive food wastage phenomenon occurring. Looking further into these reasons, today the world is yielding one and half times more for an individual, roughly that is enough to feed close to 10 billion people. Despite this massive number, people across the globe don't have sufficient food, to conclude we can say that the food produced for the consumption of people is being intentionally or unintentionally wasted. Food waste is an ethical issue of global scale. According to the Food and Agriculture Organization (FAO) of the United Nations, roughly one-third of all the food produced worldwide each year, for human consumptions is either lost or wasted.

A short survey was undertaken by asking relatives, friends, close friends, neighbors, and a couple of more people about their experience of donating food. By doing so, it was found that earlier, almost a decade back, there was an issue in donating food as there were no food banks and NGOs. But then, there came platforms like food banks. Overcoming the limitations of the Food Banks, finding an opportunity to make a start-up, there came in a model: a food web management system.

Every piece of food wasted is an opportunity lost to improve world hunger and global food security. To define food waste, it means food supplies (grains, vegetables, poultry, & meat) or drinks which was predetermined to feed people now lies in landfills as garbage despite it being fit for human consumption. The food thrown is either spoiled or expired chiefly due to economic behavior, poor stock management and neglect. This is happening is developed, developing and underdeveloped countries with each's contribution higher than the other.

Tech-Stack used :--

- Java
- Spring Framework
- Spring Boot
- Spring Data JPA
- Hibernate
- MySQL
- Spring Security (JWT)

Software/Hardware Requirement

Server:

Processor: Intel Core i5 or equivalent AMD processor.

RAM: Minimum 8 GB RAM.

Storage: SSD storage for improved performance.

Network: Ethernet or Wi-Fi connectivity.

Operating System: Windows preferred for server deployment.

Client Devices:

Processor: Dual-core processor or higher.

RAM: Minimum 4GB RAM.

Storage: Sufficient storage for caching and local data.

Network: Ethernet or Wi-Fi connectivity.

Browser: Compatible with latest versions of popular browsers like Google Chrome, Mozilla Firefox, and Safari.

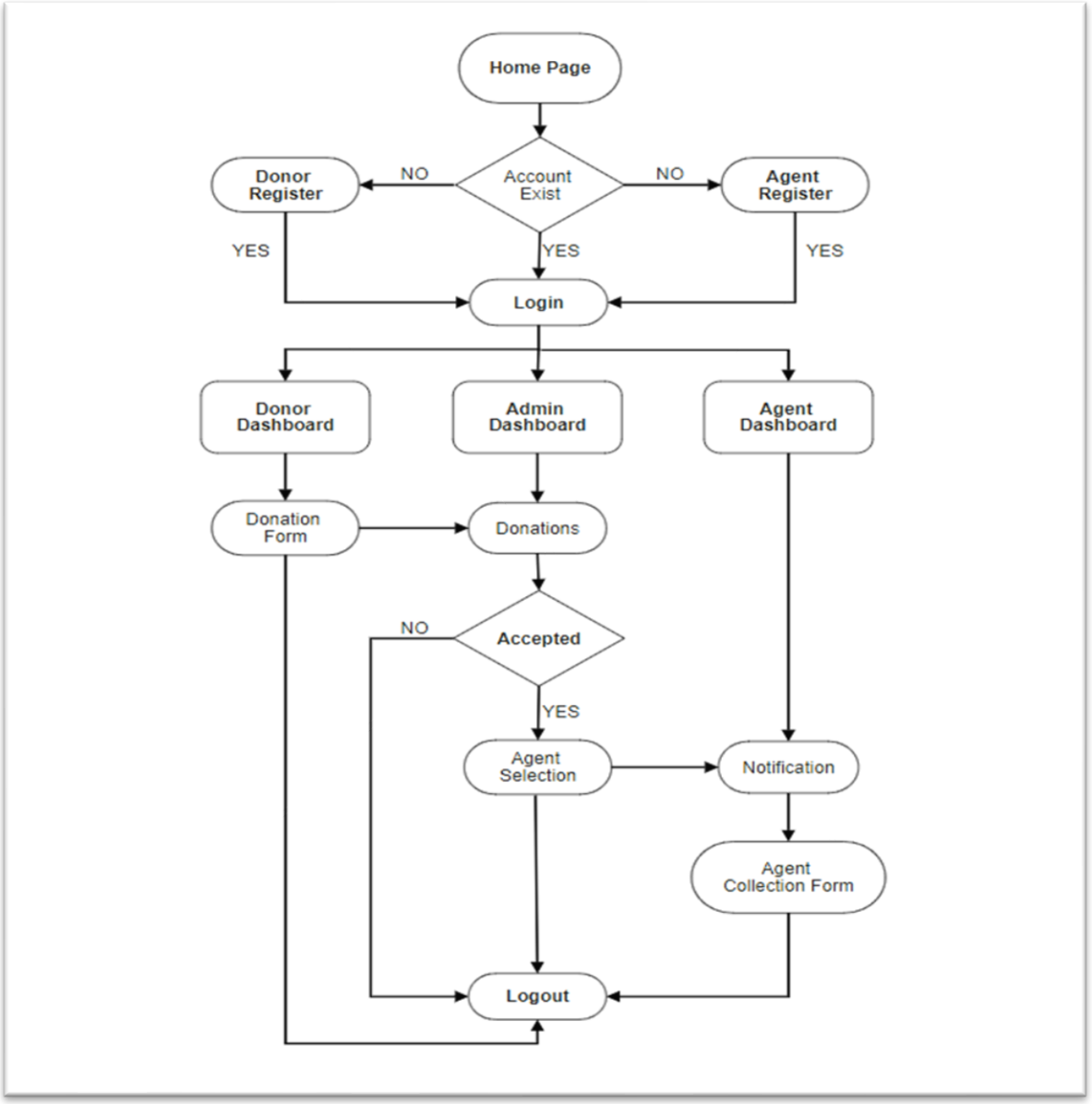
Tools and Technologies

Technology Stack for Hunger Help

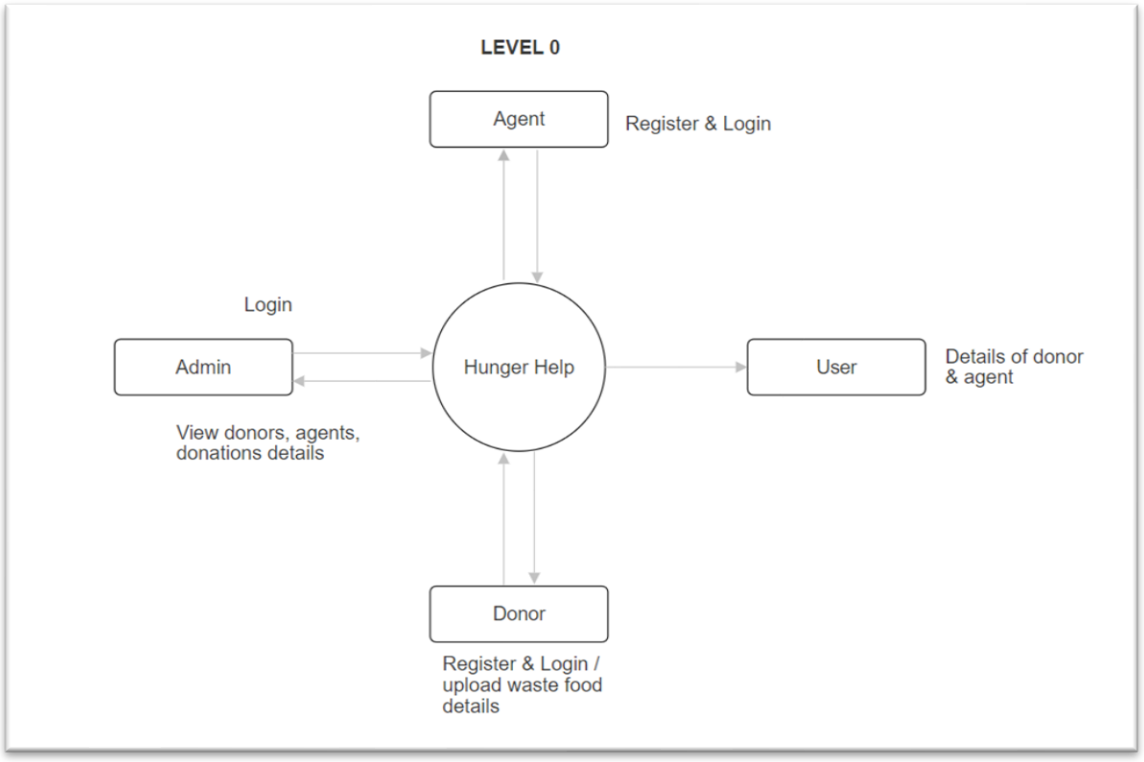
1. **Spring Boot:** Utilized to develop the backend of the application, providing a robust framework for building Java-based web applications with ease. It ensures smooth integration with various components and manages application configurations.
2. **Spring Data JPA:** Implemented for data access, allowing seamless interaction with the MySQL Aiven cloud database to store and retrieve critical data efficiently. It simplifies database operations and provides a high-level abstraction for persistence management.
3. **RESTful Web Services:** Facilitates communication between the frontend and backend components of the Hunger Help application. Adhering to the principles of Representational State Transfer (REST), these services provide a standardized, stateless approach for building web services, ensuring efficient data exchange.
4. **Spring Web:** Handles web requests and responses, manages controllers, and serves static resources to the frontend. It ensures seamless interaction between the user's browser and the server.
5. **MySQL Database:** Chosen as the relational database management system for storing user data, food resources, donation information, and other critical application data.
6. **JWT (JSON Web Tokens):** Implemented for secure user authentication and authorization. JWT ensures that only authenticated users can access certain features and functionalities within the Hunger Help application.
7. **CSS:** Utilized for structuring and styling the frontend components. CSS (with utility-first classes) enables rapid prototyping and customization of the user interface.
8. **Git:** Implemented as a version control system to track changes in the source code, enabling collaboration among developers and facilitating code management and deployment workflows.

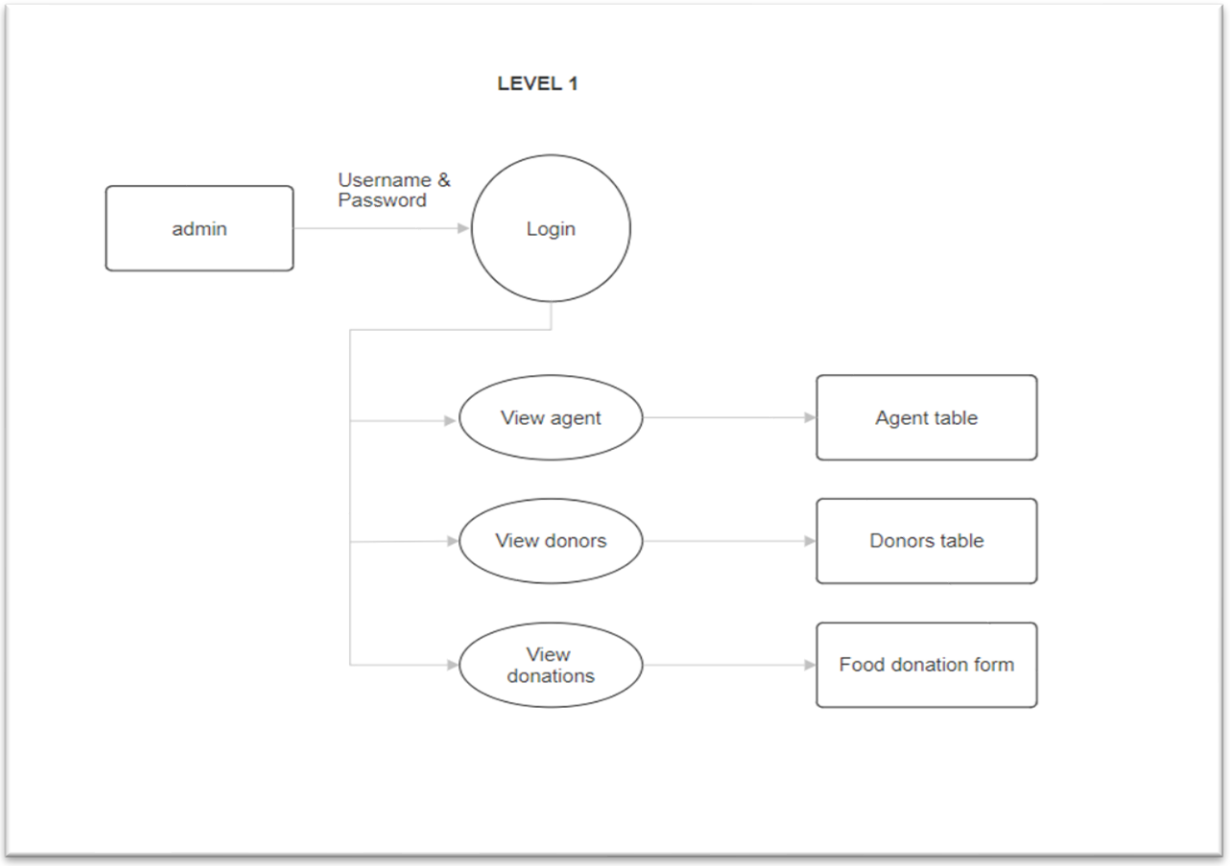
Project Diagrams

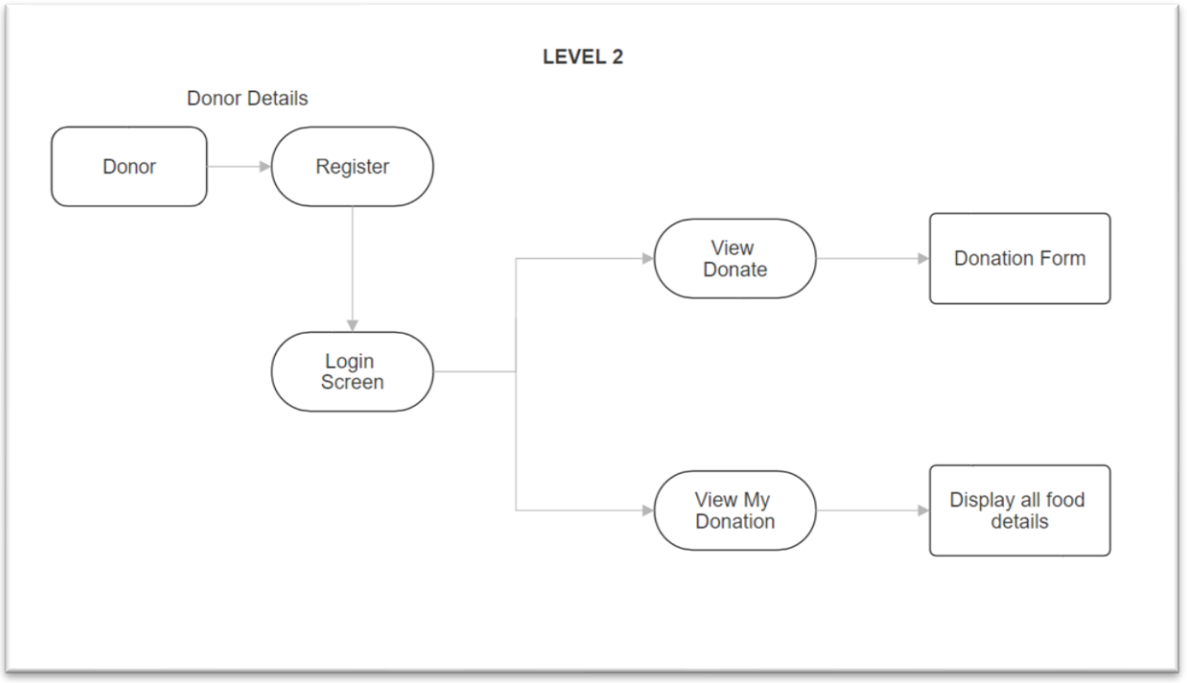
1) Flowchart

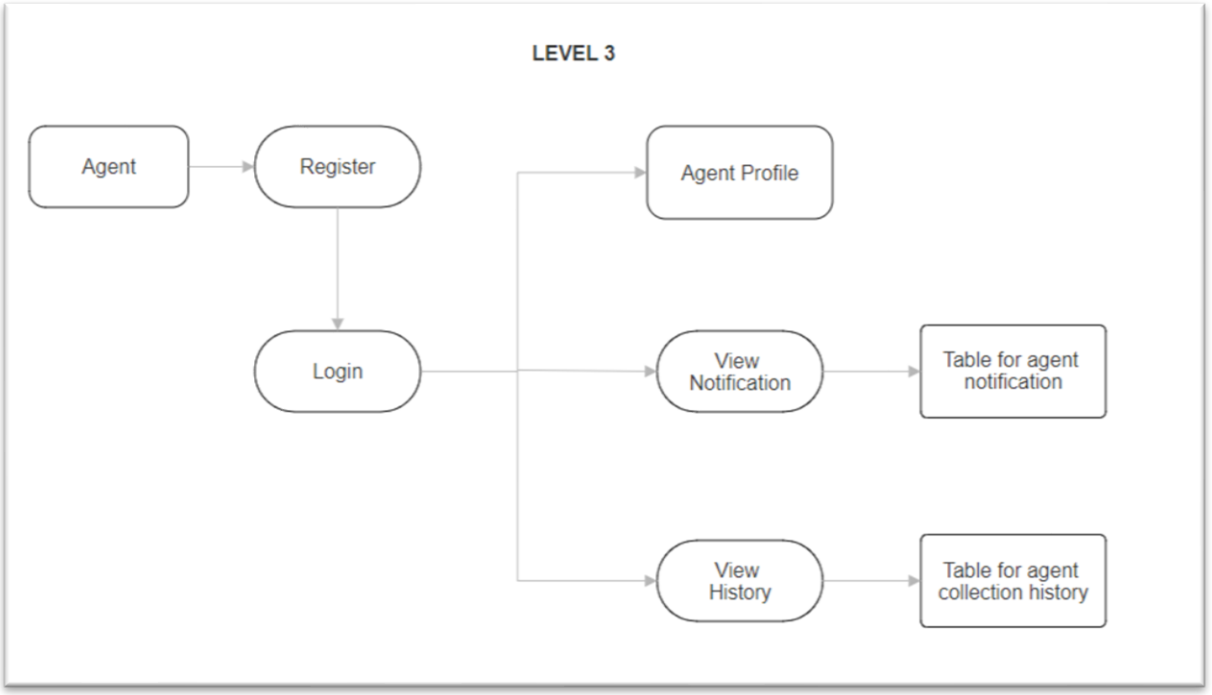


2) DFD (Data Flow Diagram)

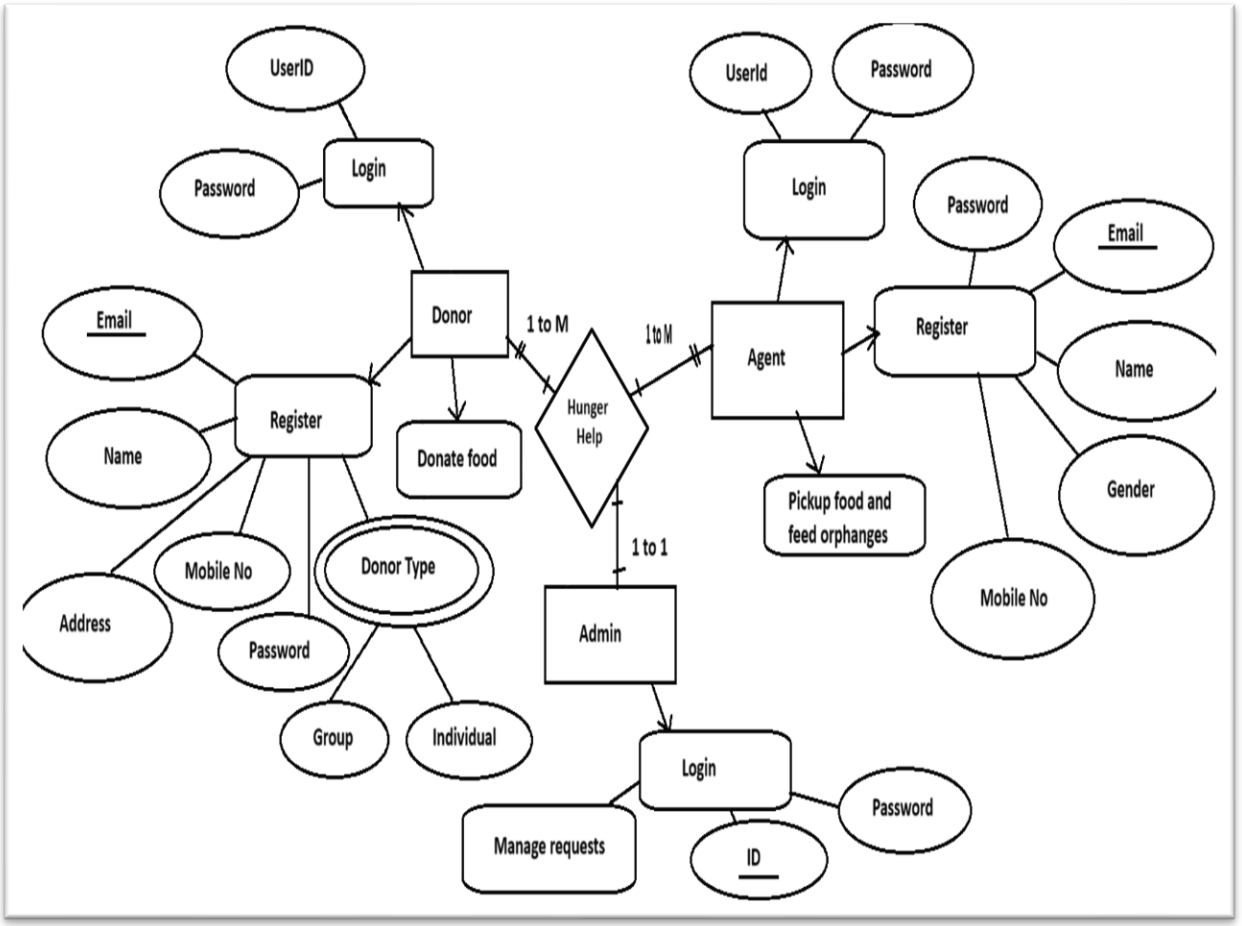




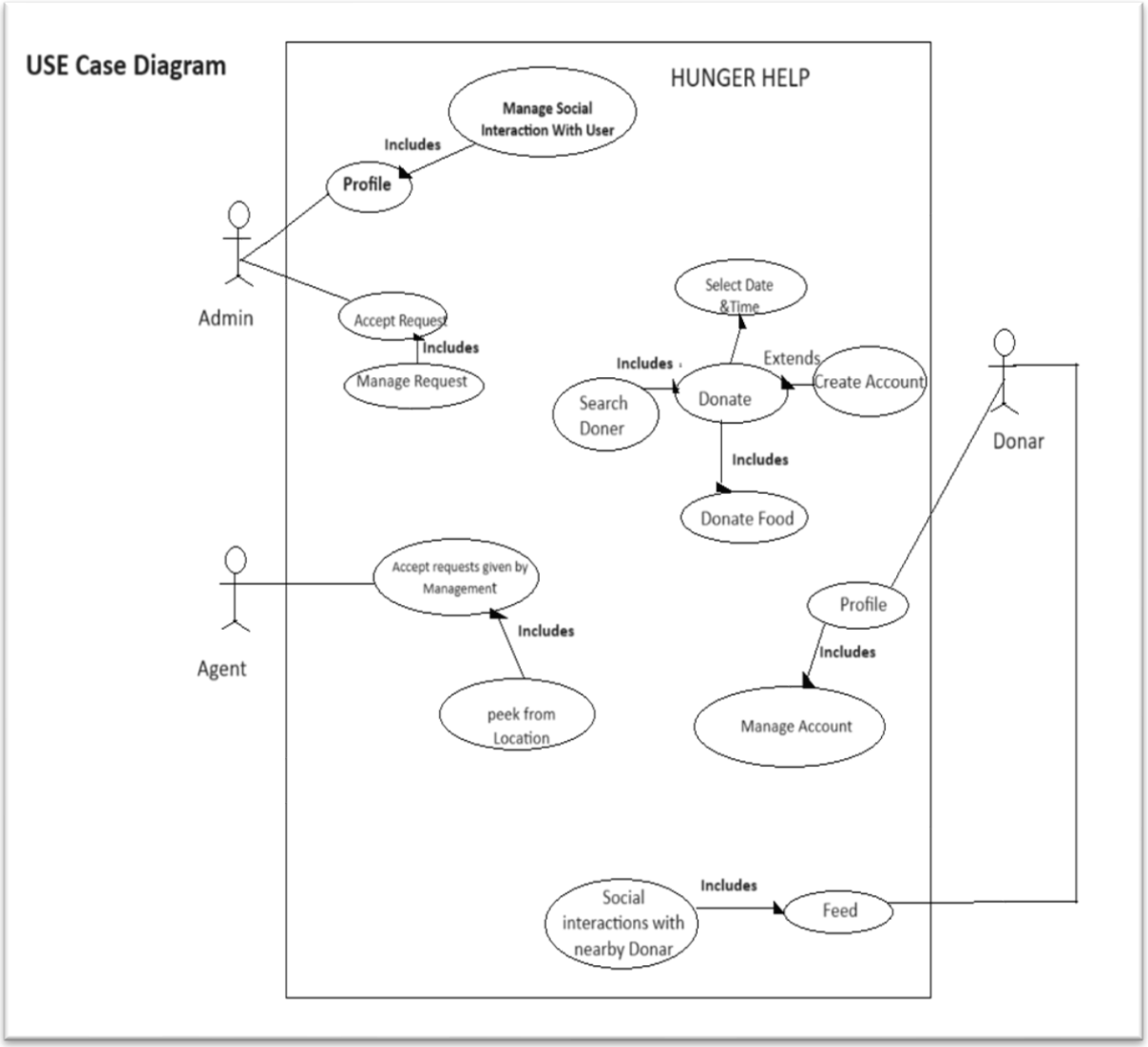

LEVEL 2
Donor Details
Donor
Register
Login Screen
View Donate
Donation Form
View My Donation
Display all food details


LEVEL 3
Agent
Register
Login
Agent Profile
View Notification
Table for agent notification
View History
Table for agent collection history

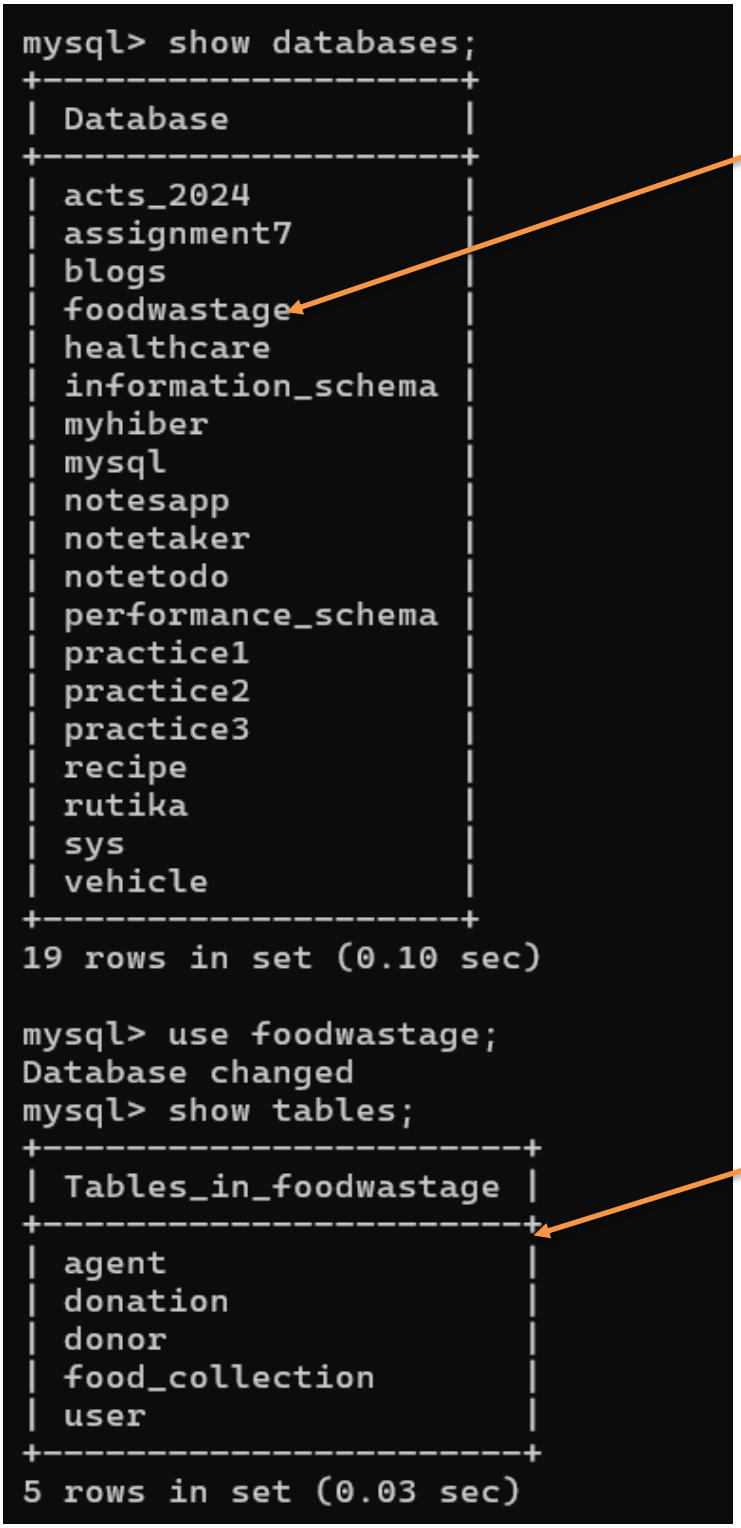
3) ER (Entity Relationship)



4) Use case


USE Case Diagram
HUNGER HELP
Manage Social Interaction With User
Includes
Profile
Admin
Accept Request
Includes
Manage Request
Select Date &Time
Includes
Extends
Search Doner
Donate
Create Account
Includes
Donate Food
Donar
Accept requests given by Management
Agent
Includes
peek from Location
Profile
Includes
Manage Account
Social interactions with nearby Donar
Includes
Feed

Project Database Diagram



```
mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| acts_2024          |
| assignment7        |
| blogs              |
| foodwastage        |
| healthcare         |
| information_schema |
| myhiber            |
| mysql              |
| notesapp           |
| notetaker          |
| notetodo           |
| performance_schema |
| practice1          |
| practice2          |
| practice3          |
| recipe             |
| rutika             |
| sys                |
| vehicle            |
+--------------------+
19 rows in set (0.10 sec)

mysql> use foodwastage;
Database changed
mysql> show tables;
+----------------------+
| Tables_in_foodwastage |
+----------------------+
| agent                |
| donation             |
| donor                |
| food_collection      |
| user                 |
+----------------------+
5 rows in set (0.03 sec)
```

Database created successfully named as **“foodwastage”**

Tables created successfully

Agent table structure :

```
mysql> desc agent;
+---------+--------------+------+-----+---------+----------------+
| Field   | Type         | Null | Key | Default | Extra          |
+---------+--------------+------+-----+---------+----------------+
| id      | int          | NO   | PRI | NULL    | auto_increment |
| address | varchar(255) | YES  |     | NULL    |                |
| age     | int          | NO   |     | NULL    |                |
| email   | varchar(255) | YES  |     | NULL    |                |
| gender  | varchar(255) | YES  |     | NULL    |                |
| name    | varchar(255) | YES  |     | NULL    |                |
| phone   | varchar(255) | YES  |     | NULL    |                |
| pwd     | varchar(255) | YES  |     | NULL    |                |
+---------+--------------+------+-----+---------+----------------+
8 rows in set (0.02 sec)
```

Donation table structure :

```
mysql> desc donation;
+--------------+--------------+------+-----+---------+----------------+
| Field        | Type         | Null | Key | Default | Extra          |
+--------------+--------------+------+-----+---------+----------------+
| id           | int          | NO   | PRI | NULL    | auto_increment |
| address      | varchar(255) | YES  |     | NULL    |                |
| adminremarks | varchar(255) | YES  |     | NULL    |                |
| agentremarks | varchar(255) | YES  |     | NULL    |                |
| cookdate     | date         | YES  |     | NULL    |                |
| cooktime     | time         | YES  |     | NULL    |                |
| foodtype     | varchar(255) | YES  |     | NULL    |                |
| qty          | varchar(255) | YES  |     | NULL    |                |
| status       | varchar(255) | YES  |     | NULL    |                |
| agentid      | int          | YES  | MUL | NULL    |                |
| donorid      | int          | YES  | MUL | NULL    |                |
+--------------+--------------+------+-----+---------+----------------+
11 rows in set (0.01 sec)
```

Donor table structure :

```
mysql> desc donor;
+---------+-------------+------+-----+---------+----------------+
| Field   | Type        | Null | Key | Default | Extra          |
+---------+-------------+------+-----+---------+----------------+
| id      | int         | NO   | PRI | NULL    | auto_increment |
| address | varchar(255) | YES  |     | NULL    |                |
| email   | varchar(255) | YES  |     | NULL    |                |
| name    | varchar(255) | YES  |     | NULL    |                |
| phone   | varchar(255) | YES  |     | NULL    |                |
| pwd     | varchar(255) | YES  |     | NULL    |                |
| type    | varchar(255) | YES  |     | NULL    |                |
+---------+-------------+------+-----+---------+----------------+
7 rows in set (0.00 sec)
```

Food_collection table structure :

```
mysql> desc food_collection;
+-------------+-------------+------+-----+---------+----------------+
| Field       | Type        | Null | Key | Default | Extra          |
+-------------+-------------+------+-----+---------+----------------+
| id          | int         | NO   | PRI | NULL    | auto_increment |
| address     | varchar(255) | YES  |     | NULL    |                |
| collectdate | date        | YES  |     | NULL    |                |
| collecttime | time        | YES  |     | NULL    |                |
| orphan      | varchar(255) | YES  |     | NULL    |                |
| agentid     | int         | YES  | MUL | NULL    |                |
| donorid     | int         | YES  | MUL | NULL    |                |
+-------------+-------------+------+-----+---------+----------------+
7 rows in set (0.00 sec)
```

User table structure :

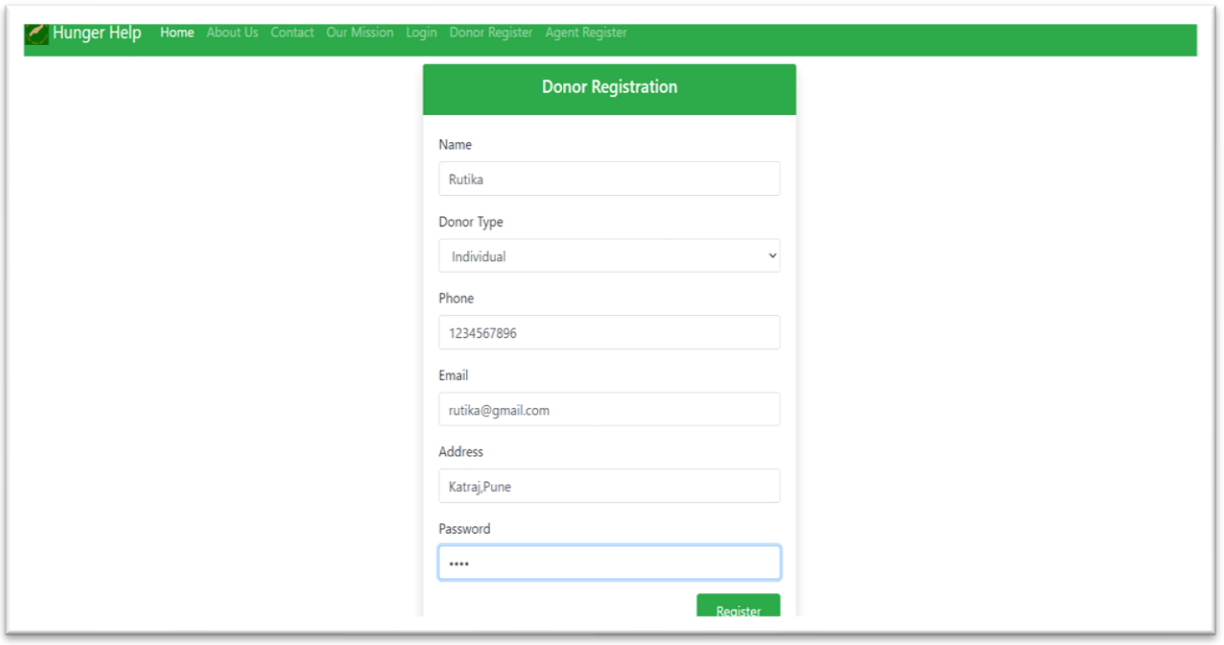
```
mysql> desc user;
+--------+--------------+------+-----+---------+-------+
| Field  | Type         | Null | Key | Default | Extra |
+--------+--------------+------+-----+---------+-------+
| userid | varchar(255) | NO   | PRI | NULL    |       |
| id     | int          | NO   |     | NULL    |       |
| pwd    | varchar(255) | YES  |     | NULL    |       |
| role   | varchar(255) | YES  |     | NULL    |       |
| uname  | varchar(255) | YES  |     | NULL    |       |
+--------+--------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

Results

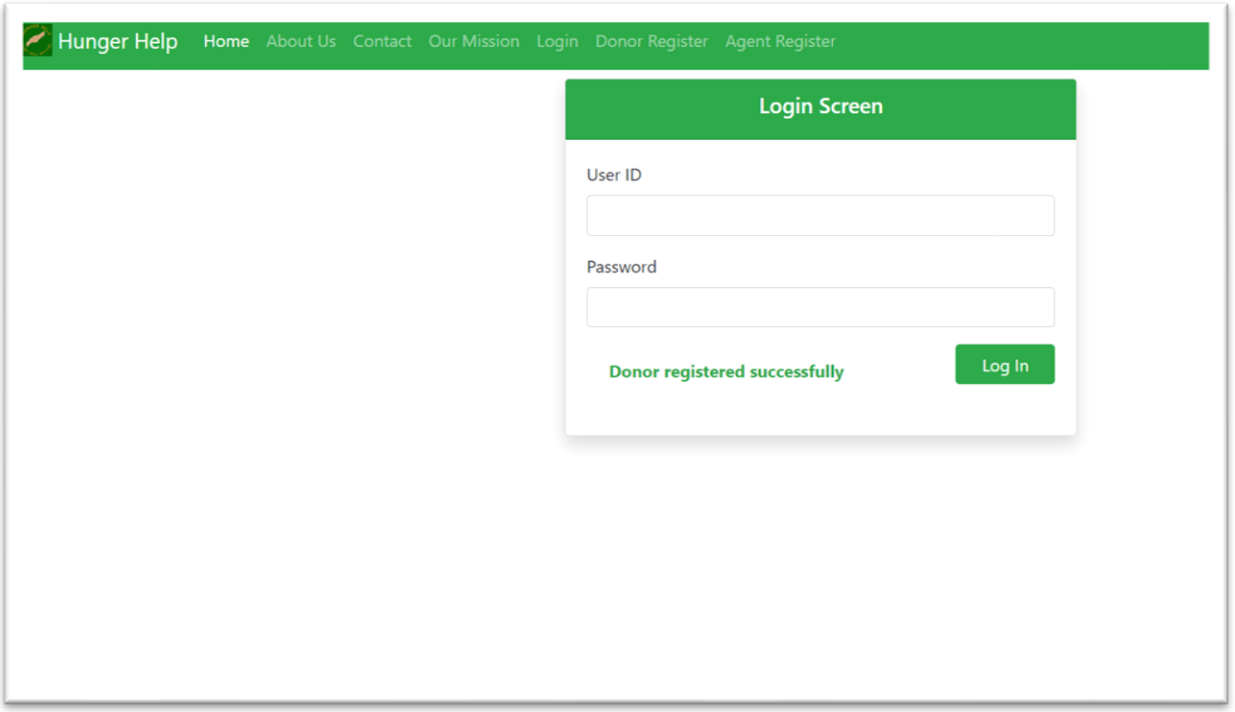
Home Page :

1) Donor related Functionalities :

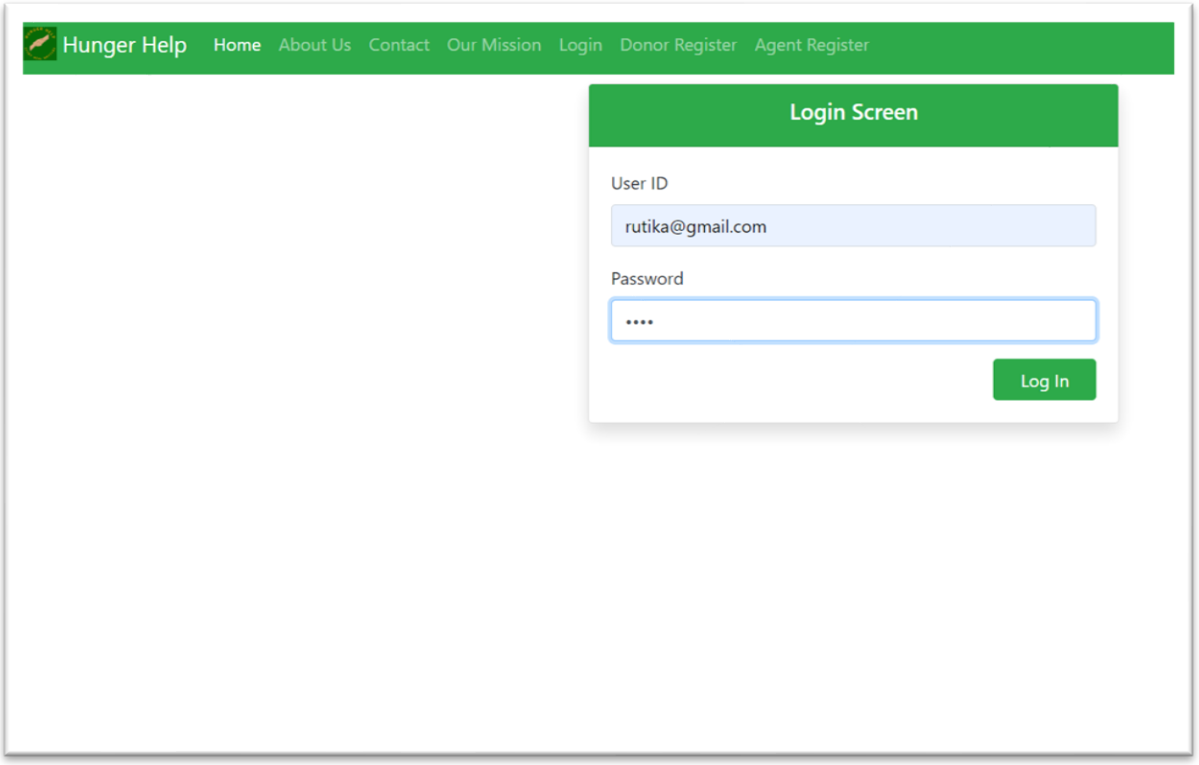
Donor Registration page :



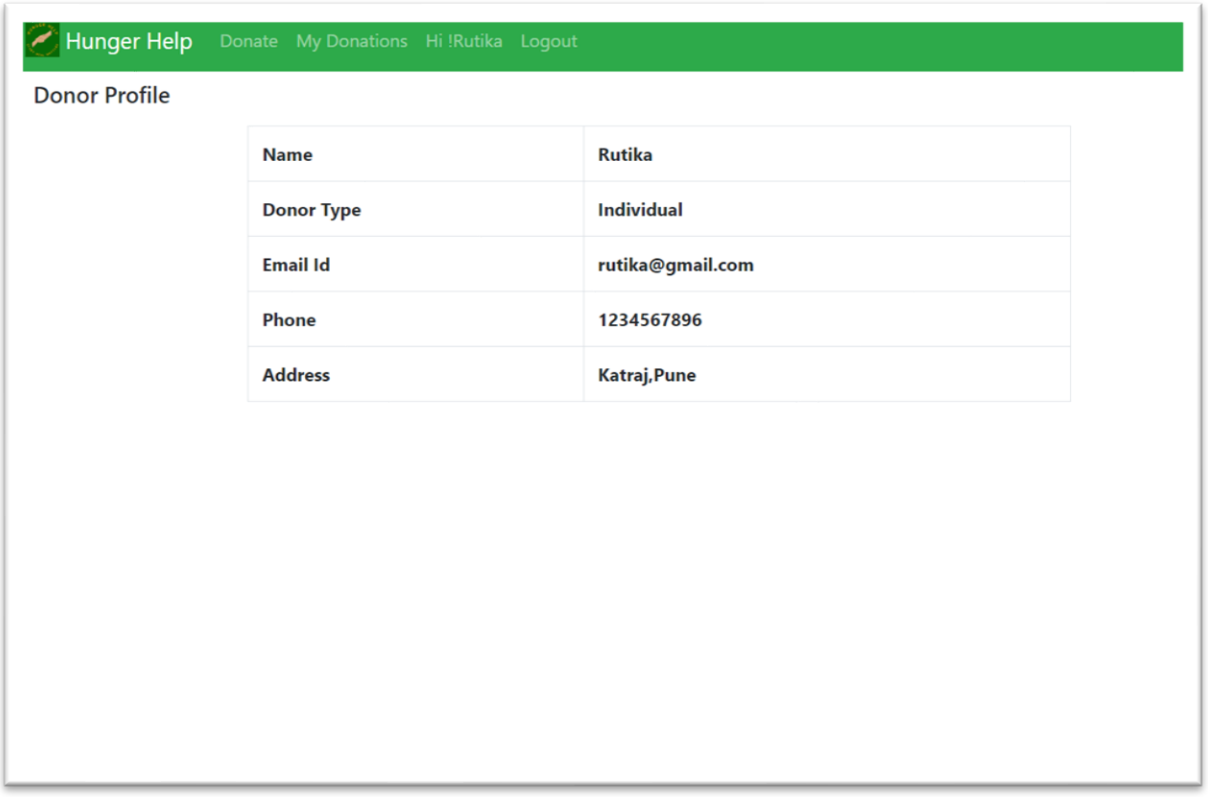
Donor Registered successfully :



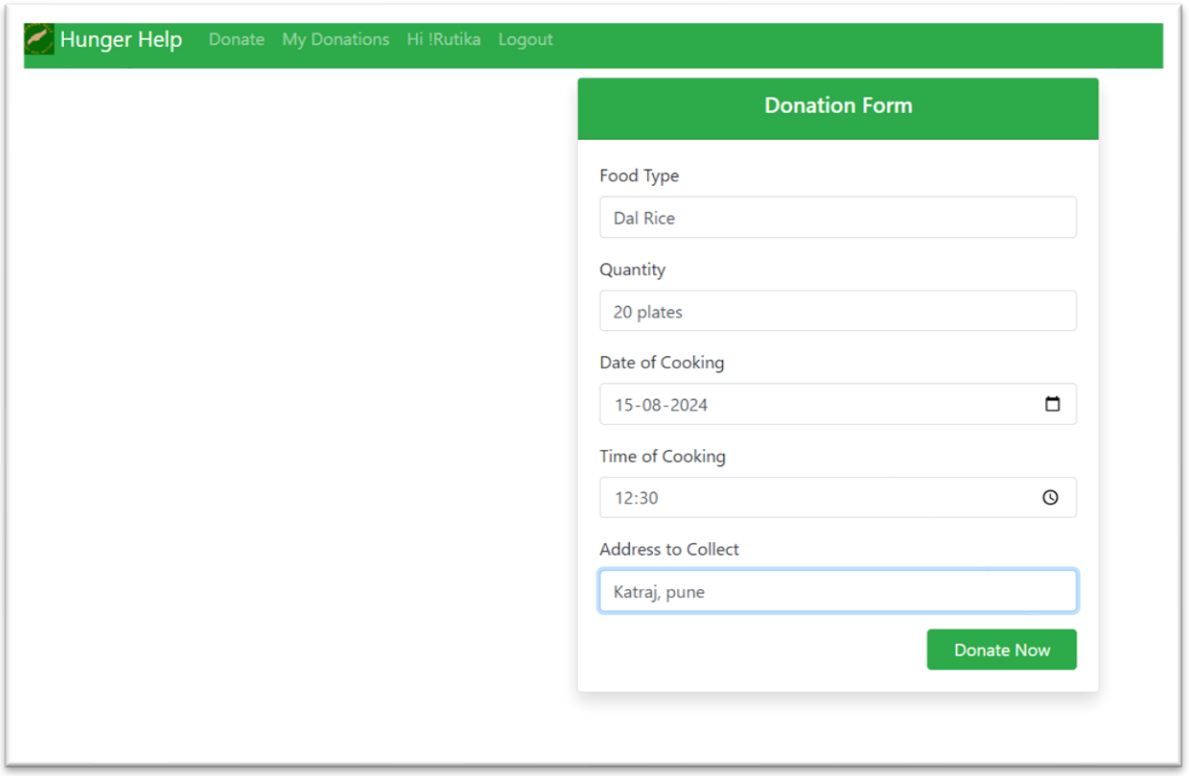
Donor Login Page :



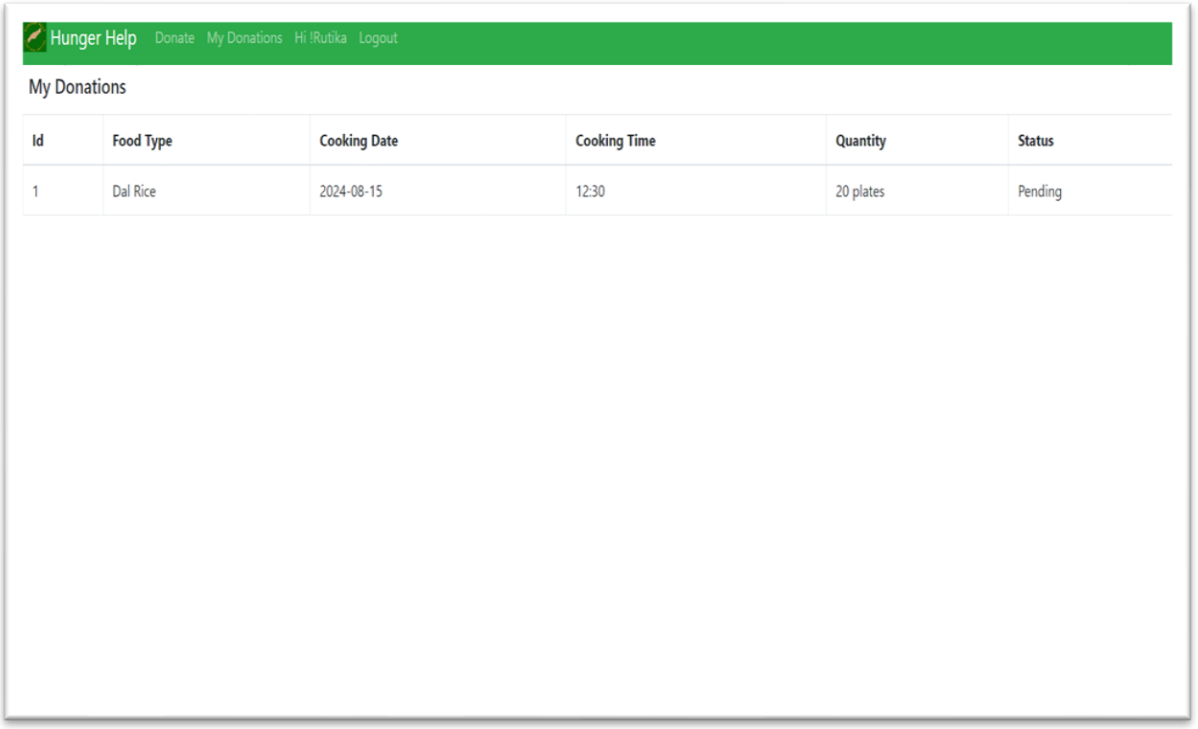
After Donor Login :



Donation Form :

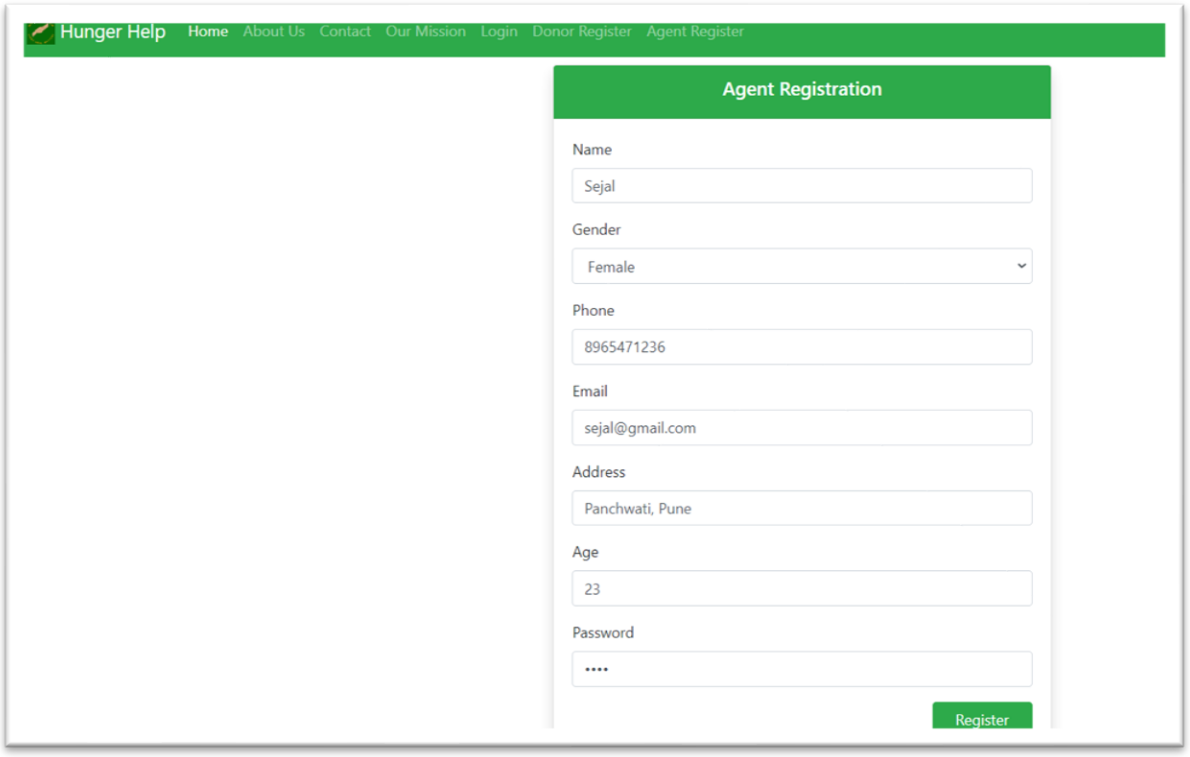


Donor Dashboard :

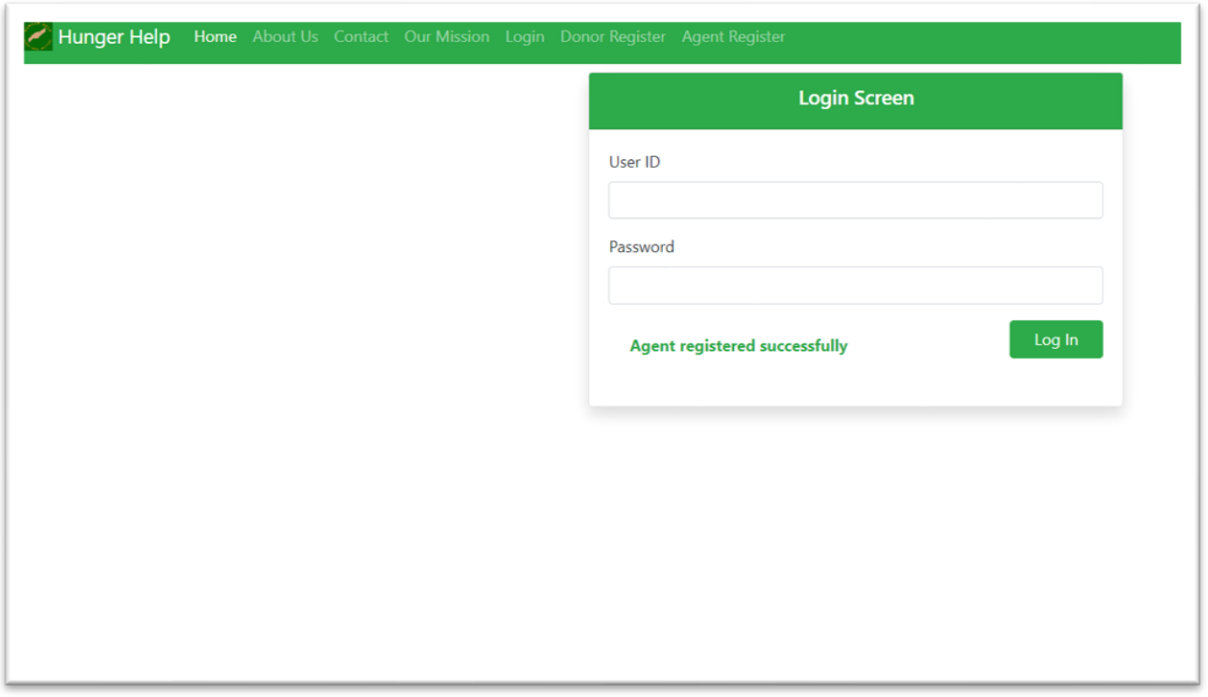


2) Agent related Functionalities :

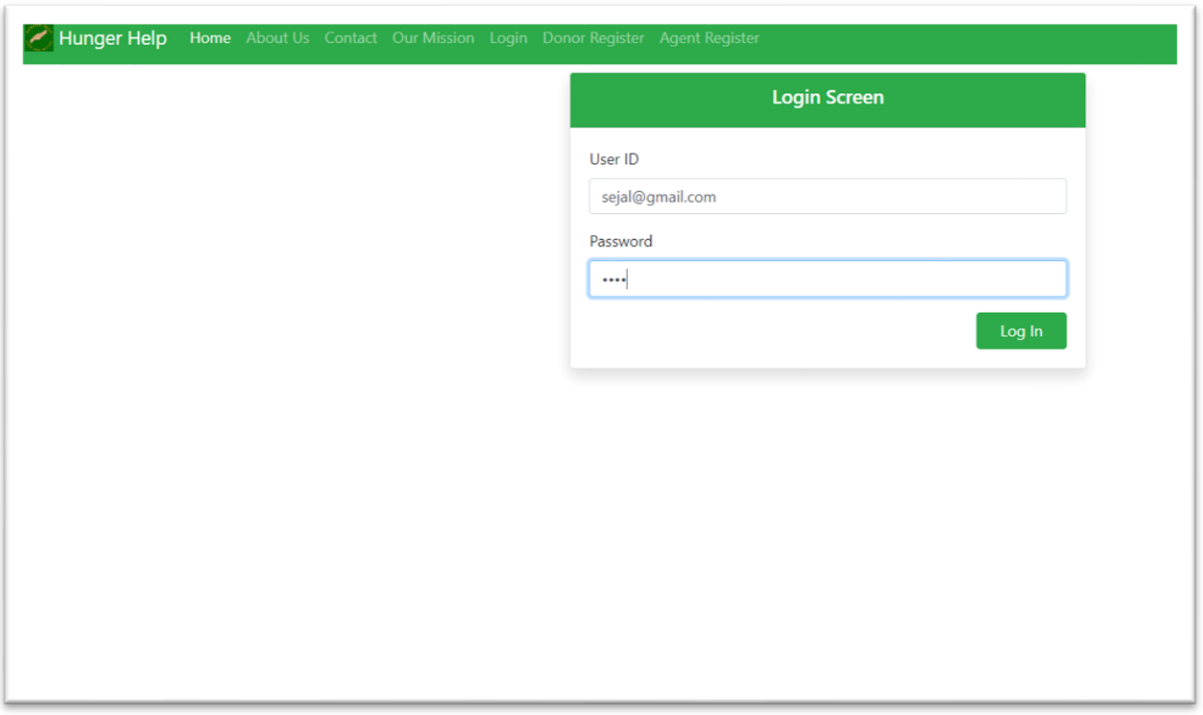
Agent Registration form :



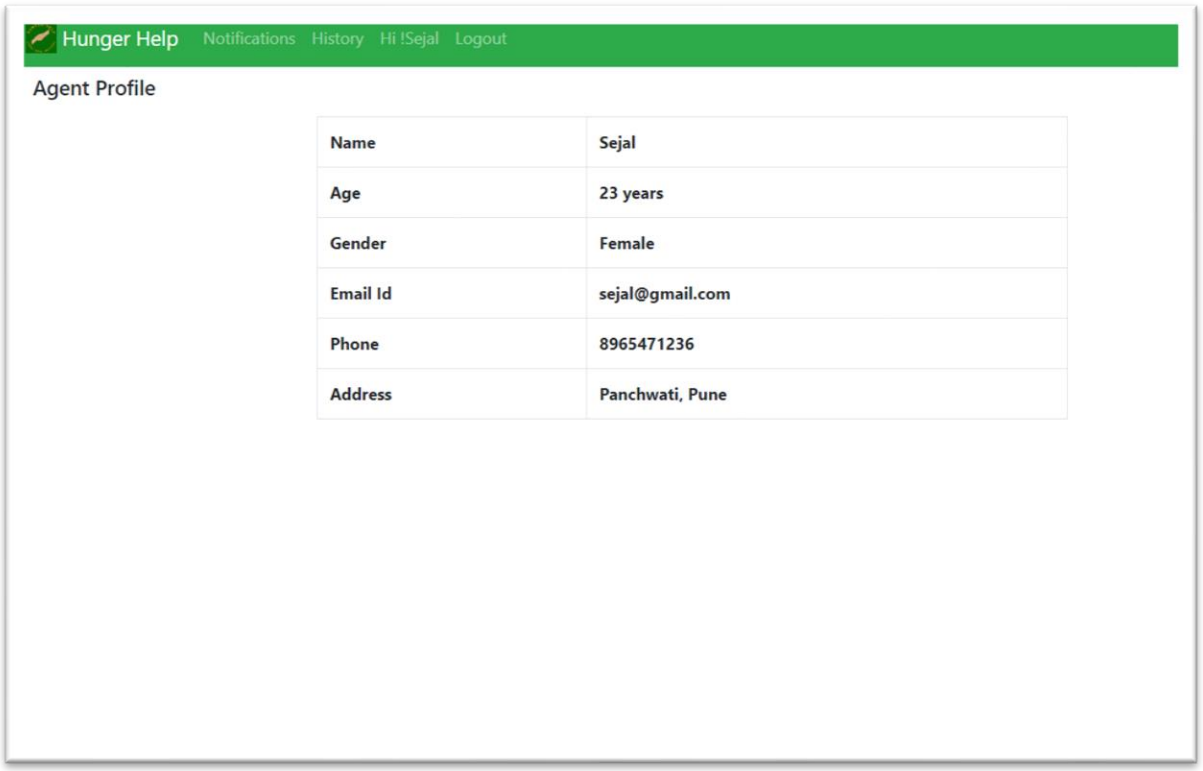
Agent registered successfully :



Agent Login Page :

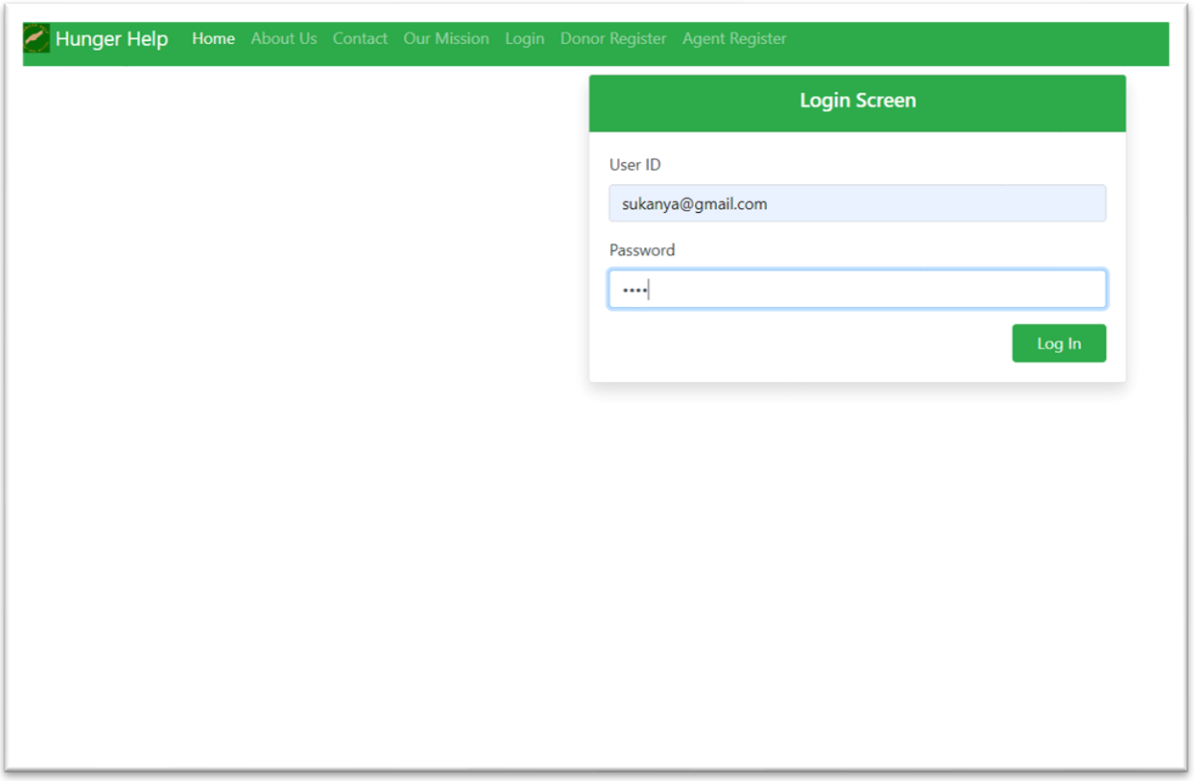


After Agent login :

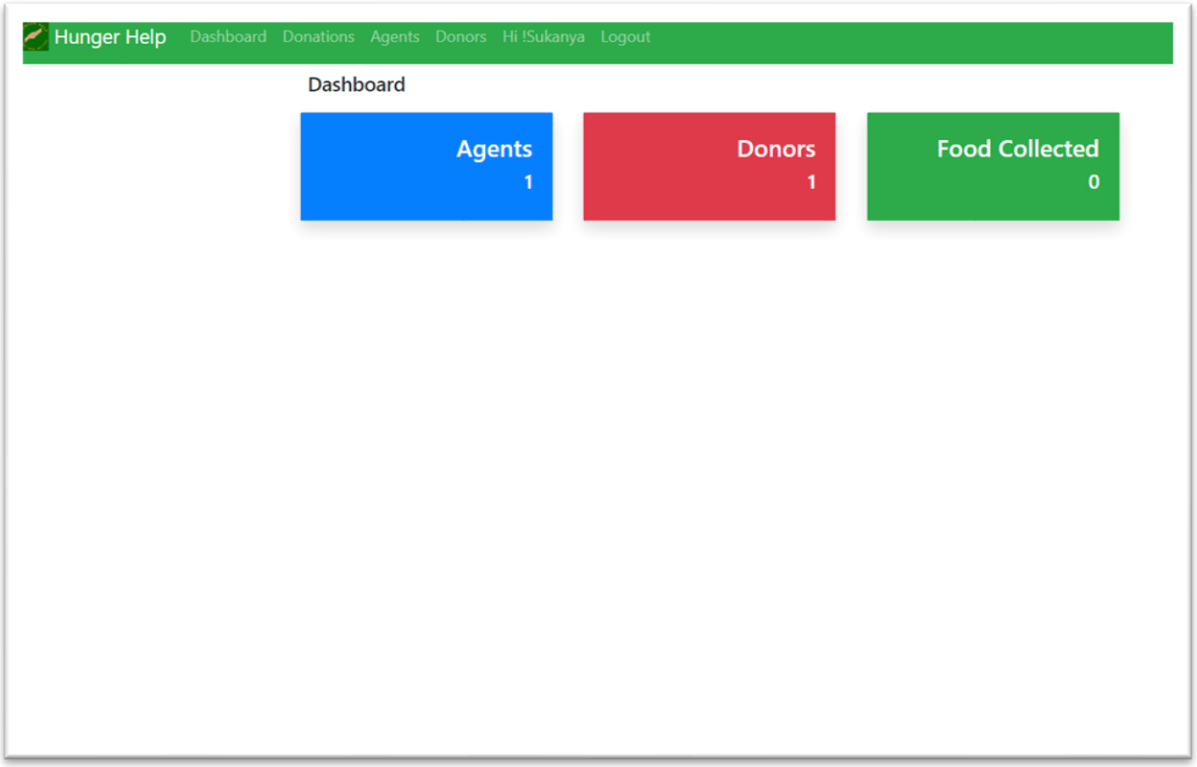


3) Admin related Functionalities :

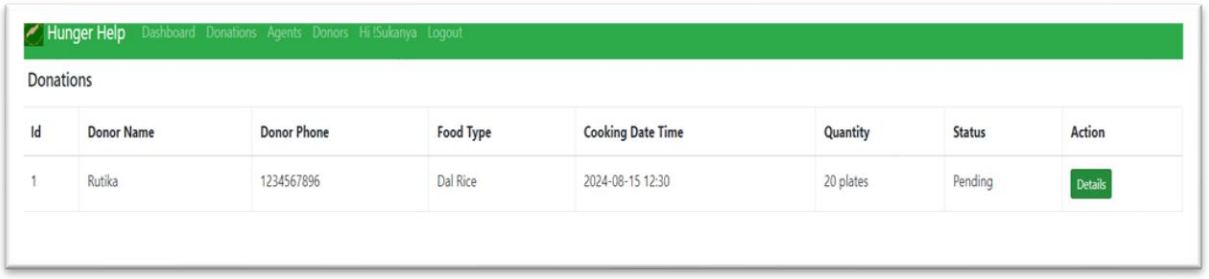
Admin login Page :



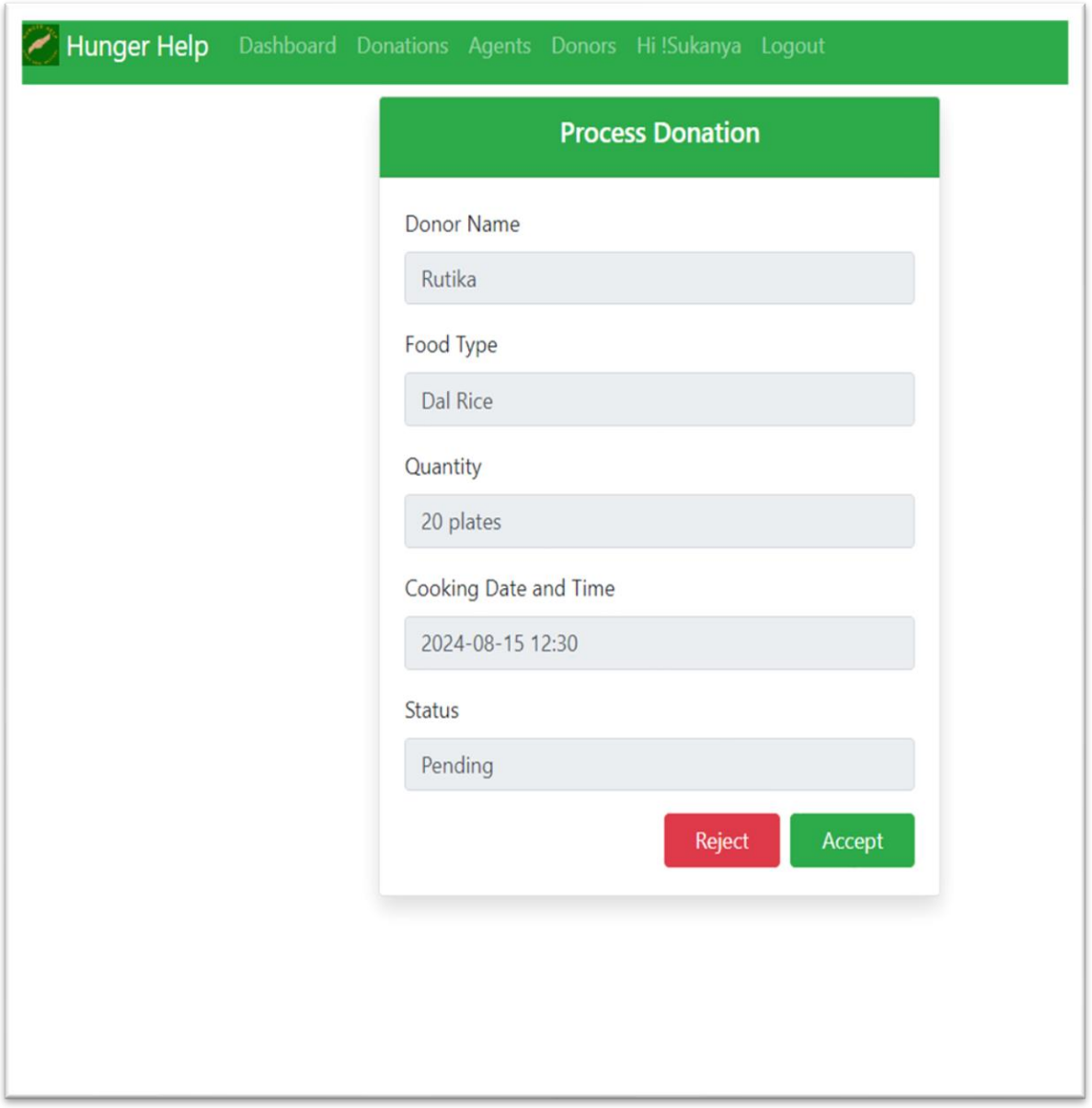
After Admin login :



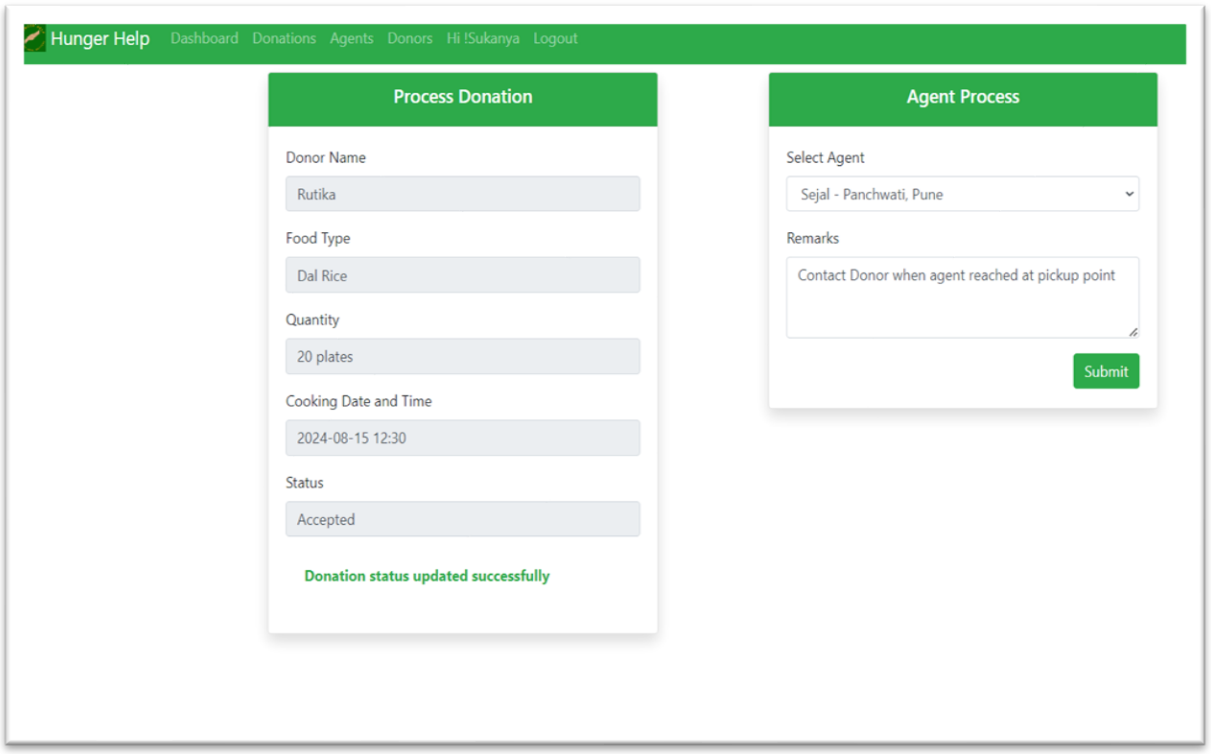
Admin Dashboard :



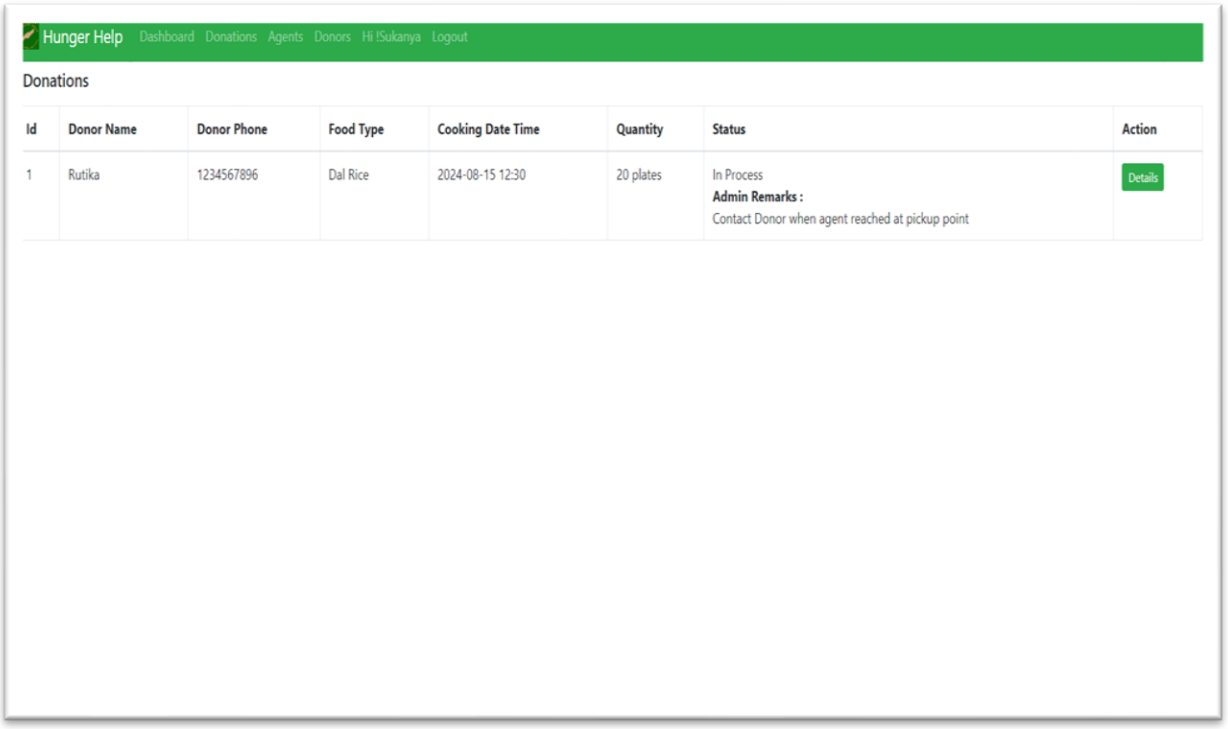
Donation approval :



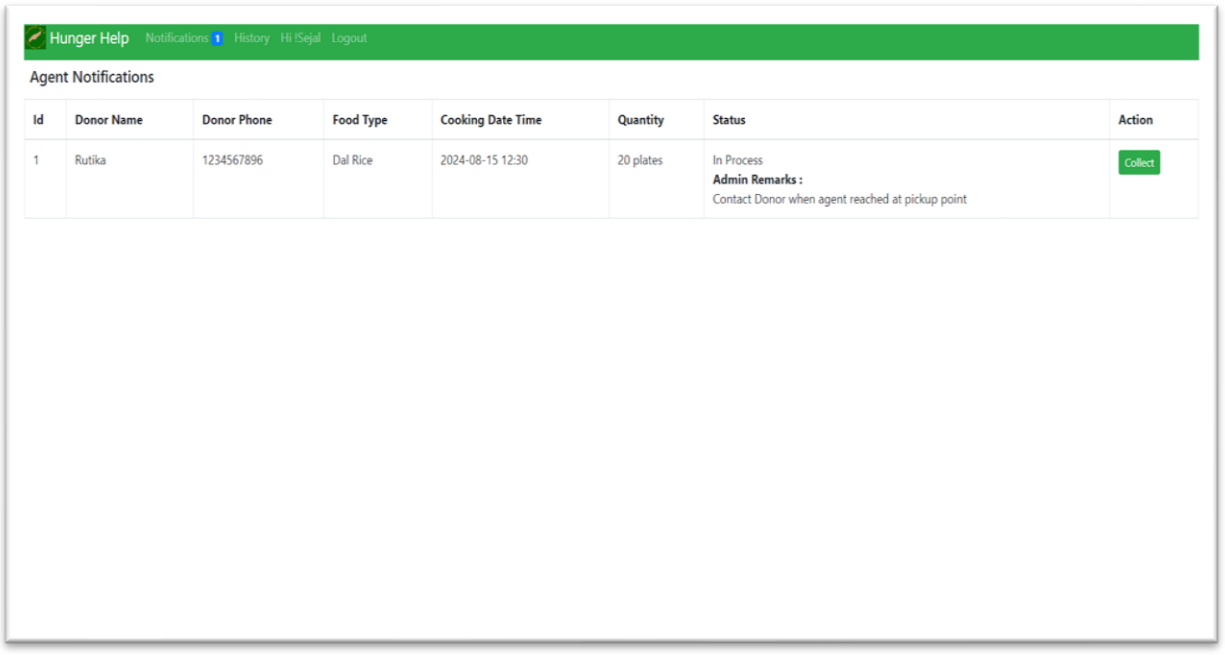
Agent selection :



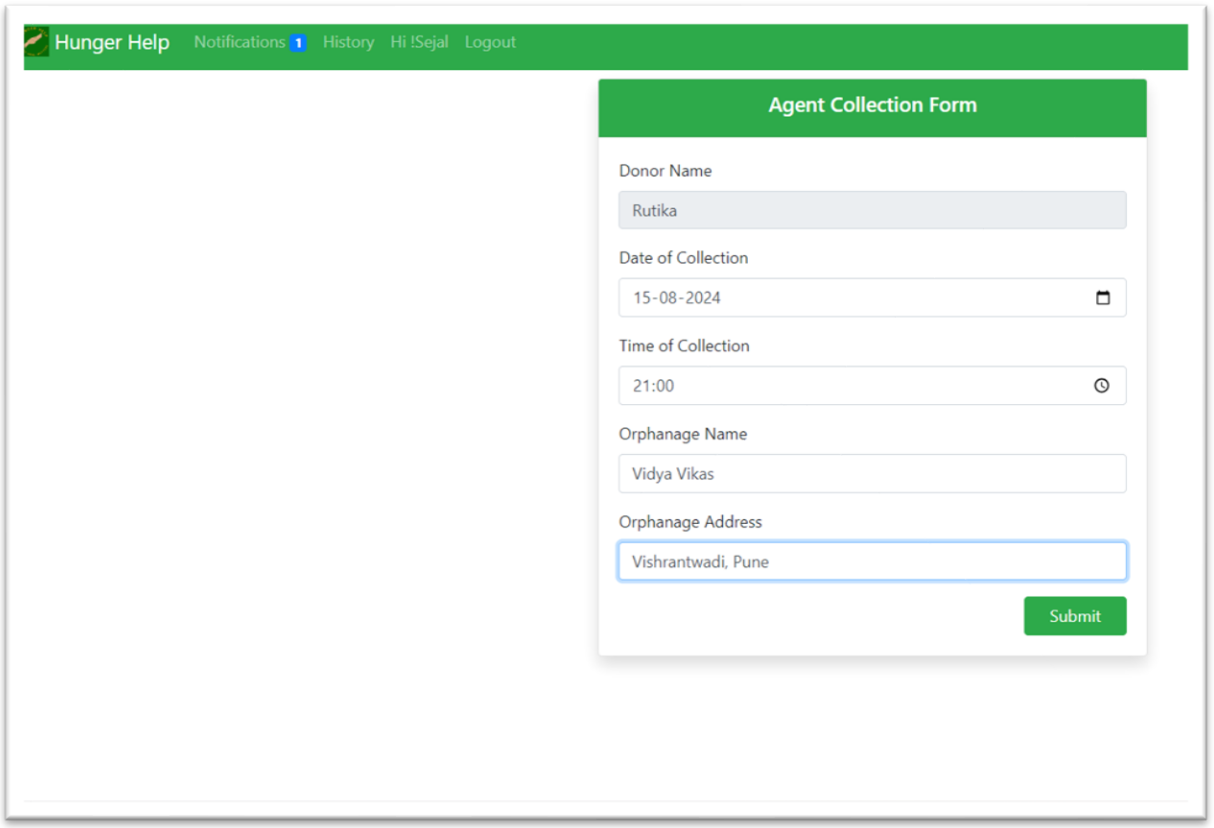
Admin dashboard after managed donation :



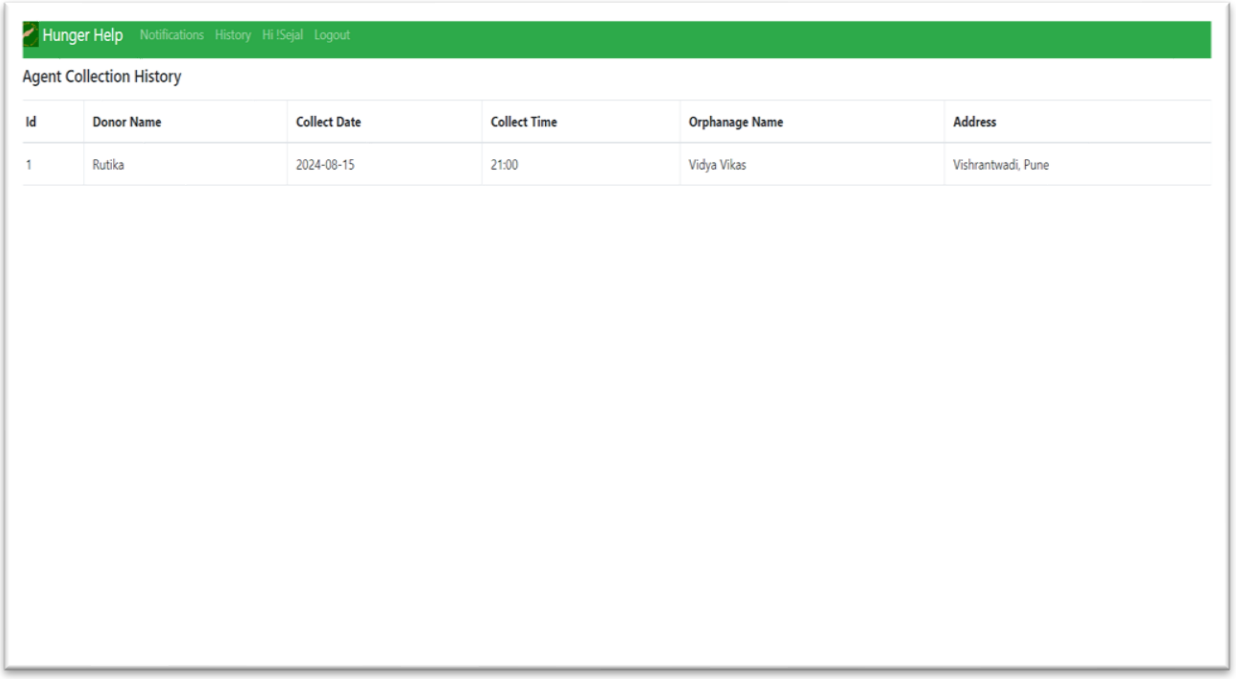
Agent notification dashboard after admin approval :



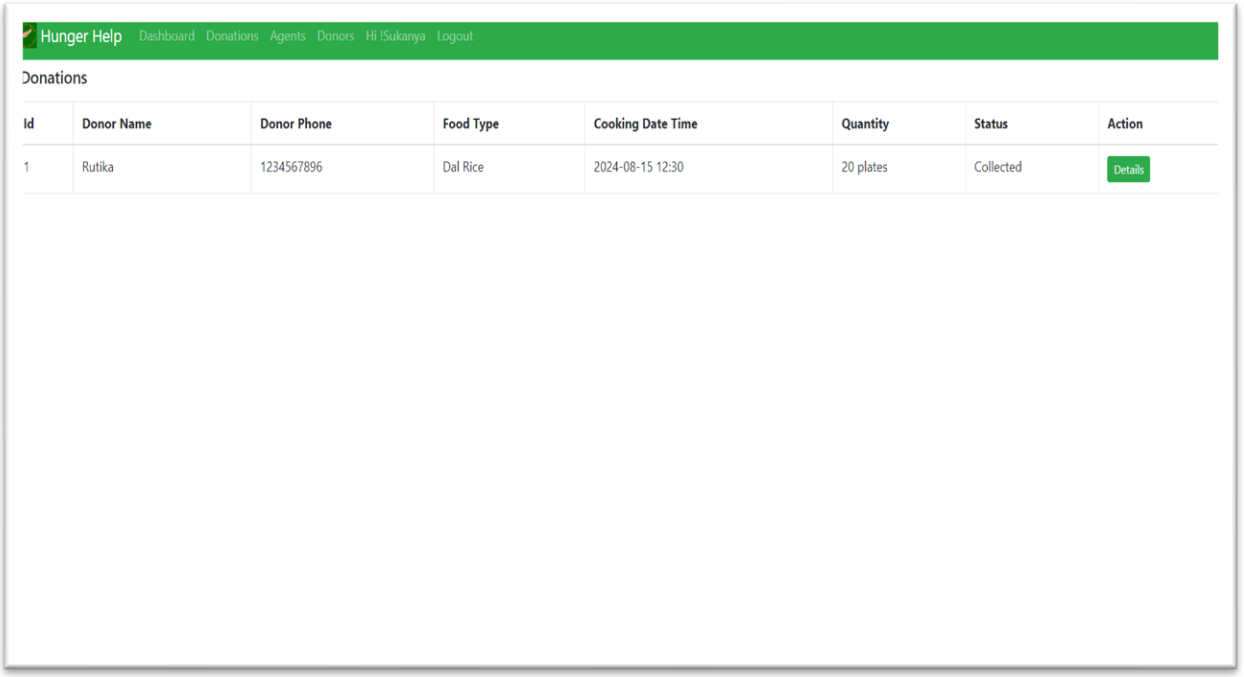
Agent Collection Form :



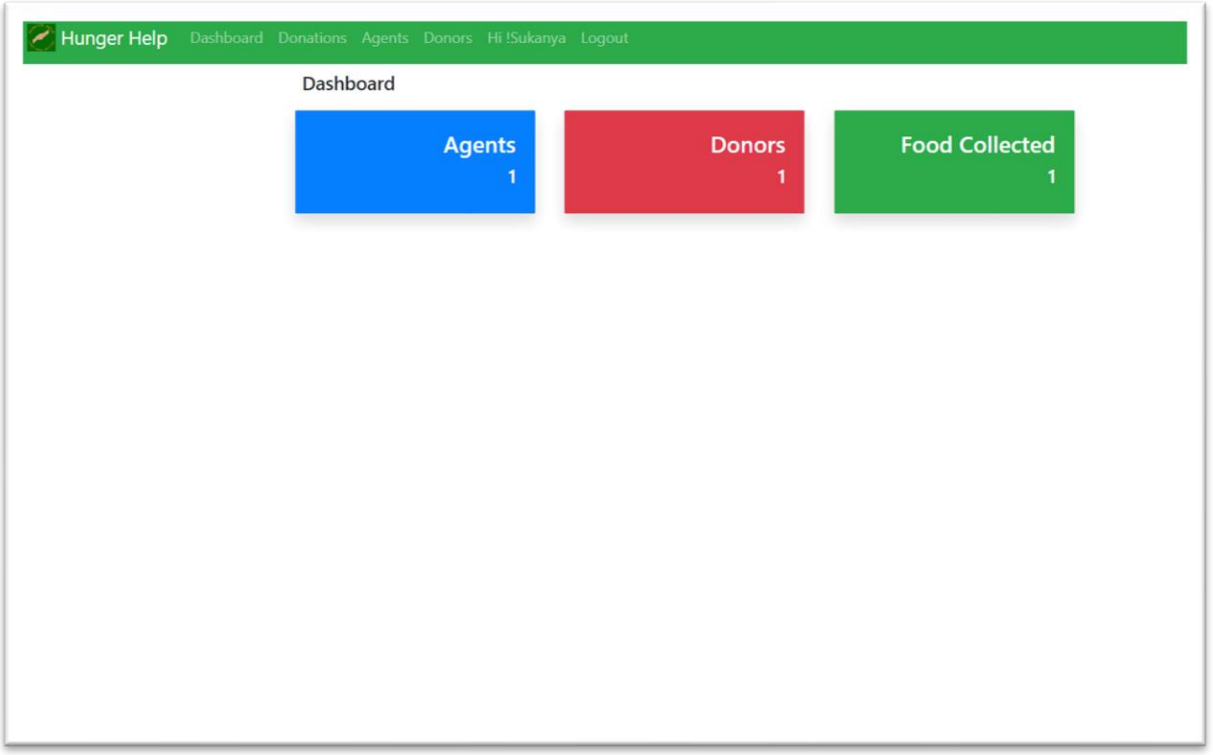
Agent Collection History :



Admin dashboard after successfully collecting food by agent :



Admin dashboard after collecting food :



Future Scope

From the research, we understood that people are trying to move more towards donating food via food waste management web application, as it saves time from searching online for different websites and collecting Orphanages contact information and is much faster. We would also like to expand our project by adding more platforms like contacting delivery companies for collection of food, etc. Another feature that sounds demanding is to show the live location of delivery of food. To simplify, our system shall offer a faster booking process and faster response to user demand which will saves time of the user.

Conclusion

Food waste remains a significant issue due to the global food system's focus on profit and control, which fosters overproduction and waste. The "Hunger Help" web application addresses this by connecting donors with NGOs to collect and distribute excess food to those in need. It features a responsive interface, efficient database integration and aiming to improve food recovery and support effective redistribution. To tackle food waste comprehensively, systemic changes are needed to create more sustainable and equitable food systems.

References

1. **Spring Boot** :

   - [Spring Boot Official Website] (https://spring.io/projects/spring-boot)

2. **Spring Data JPA** :

   - [Spring Data JPA Official Website] (https://spring.io/projects/spring-data-jpa)

3. **RESTful Web Services** :

   - [RESTful API Guide] (https://restfulapi.net/)

4. **MySQL** :

   - [MySQL Official Website] (https://www.mysql.com/)

5. **Spring Web** :

   - [Spring Web Official Website] (https://spring.io/projects/spring-web)