PLATE2DONATE

A PROJECT REPORT
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CERTIFICATE

Certified that **Vanshika Srivastava 202410116100236, Shipra Upadhyay 202410116100196** and **Tanishka Gupta 202410116100218** have carried out the project work having "**Title of Report Plate2Donate**" (**Mini Project-I, K24MCA18P**) for **Master of Computer Application** from Dr. A.P.J. Abdul Kalam Technical University (AKTU**)** (formerly UPTU), Lucknow under my supervision. The project report embodies original work, and studies are carried out by the student himself/herself and the contents of the project report do not form the basis for the award of any other degree to the candidate or to anybody else from this or any other University/Institution.

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PLATE2DONATE

Vanshika Srivastava, Shipra Upadhyay, Tanishka Gupta

ABSTRACT

The **Plate2Donate** project is a web-based initiative that makes food donation efforts easier and more prominent during events such as the traditional **Bhandara**. The two primary roles of the platform are **Donor** and **Head**, making the coordination process efficient and transparent for the food donation process.

The Donors will update the information related to the event. Such as type of food being donated, quantities, and schedules, which will make available information in real time to be used in planning and resource management for the event. In return, the **Head** oversees these updates and reviews the information regarding the event. He ensures the smooth flow of donation activities, eliminating confusion and making precise allocation of resources to organize the donations of food properly and with impact.

The website uses most of the important features to include a **Registration Page** that enables any user to easily register and give. The **Event Page** provides comprehensive details concerning each donation event, from event head to the specific donor details. The user-friendly interface makes it very convenient for users to access this platform and to do every event-related activity efficiently.

By using the most modern web development techniques and database management tools, Plate2Donate offers a solid way of managing food donations. The project promotes community spirit and altruism through dealing with logistical challenges in food distribution during large events. It helps donors take an active part in making a difference and enables heads to ensure success in their efforts.

ACKNOWLEDGEMENTS

Success in life is never attained single-handedly. My deepest gratitude goes to my project supervisor, **Ms. Divya Singhal** for her guidance, help, and encouragement throughout my project work. Their enlightening ideas, comments, and suggestions.

Words are not enough to express my gratitude to Dr. Arun Kumar Tripathi, Professor and Dean, Department of Computer Applications, for his insightful comments and administrative help on various occasions.

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Finally, my sincere thanks go to my family members and all those who have directly and indirectly provided me with moral support and other kind of help. Without their support, completion of this work would not have been possible in time. They keep my life filled with enjoyment and happiness.

Vanshika Srivastava

Shipra Upadhyay

Tanishka Gupta

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CHAPTER 1

INTRODUCTION

1.1 Background on Plate2Donate

Hunger remains an important global challenge with millions of people going to bed every night without even basic nutrition. Collective effort from individuals and communities often tackles this challenge. Bhandaras is one such concept: a treasured Indian tradition where free food is provided to anyone in need, bringing along a sense of inclusiveness and communal care. While such activities have the power to change people's lives, they face logistic difficulties such as the coordination of donors, volunteers, and beneficiaries in receiving information about the events.

Having identified this as an area where technology could solve some of the problems, Plate2Donate was created as an online application for charity initiatives. The platform bridges between those willing to donate and the recipients who want to be part of it. By digitizing the process, Plate2Donate makes sure there is seamless communication, transparency, and accessibility among all the parties involved in organizing or benefiting from such events. It aims to make the process of organizing an event like Bhandara not just easier but also more impactful in fostering a sense of community service and empathy.

1.2 Scope of the Project

This project, Plate2Donate will include:

Role-Based Access: allow the donors to give their heads to update the whole event process and oversee that process.

Event Management: the planning and tracking of events about food donation.

Transparency and Collaboration: real time update for clarity and accountability for the food distribution.

User-Friendly Interface: make the platform easy to operate so that it can encourage more participation.

This project is meant to help communities organize charitable food donation events in ways designed to maximize the impact of combined efforts through technology.

1.3 Purpose and Objectives

The purpose of Plate2Donate is to create a streamlined, user-friendly digital environment that encourages collaboration and simplifies the process of organizing charitable food distribution events. Some of the primary objectives of the platform include:

- Allowing users to register, log in, and actively participate by creating, reading, and managing event details.
- Allowing non-registered visitors to view event information, ensuring openness and inclusivity.
- Provide the ability for administrators to view event details and to maintain records by reading unnecessary or outdated data.
- Making information easily accessible online encourages wider community participation in food donation initiatives.

1.4 Significance

The significance of *Plate2Donate* lies in its ability to use technology for social good. By facilitating food donation events, the platform contributes to alleviating hunger and fostering community spirit. Moreover, its accessibility to non-registered users ensures that vital information about charitable events reaches the widest audience possible, maximizing the impact of each initiative. This platform also promotes accountability and transparency, ensuring that donations and efforts are utilized effectively.

1.5 Methodology Overview

The development of *Plate2Donate* leverages the MERN stack to create a robust and scalable web application. The methodology includes:

1. **Requirement Analysis**: Understanding the needs of various stakeholders, including donors, volunteers, and administrators.
2. **Design and Development**: Building the front-end user interface with React and developing the back-end with Node.js and Express.js, supported by MongoDB for data storage.
3. **Authentication and Authorization**: Implementing secure user authentication for users and administrators while allowing non-users to access public event details.
4. **Testing and Deployment**: Ensuring the application runs seamlessly through rigorous testing and deploying it on a reliable web server.

CHAPTER 2

FEASIBILITY STUDY

The feasibility study assesses the practicality of developing and implementing the Plate2Donate platform focusing on its technical, economic, operational, legal, and scheduling aspects.

2.1. Technical Feasibility

- **Availability of Technology**: The project can be developed using widely available technologies such as MERN.
- **Skill Requirement**: The development team requires the expertise in web development, database management, and security protocols, which are achievable.

2.2 Economical Feasibility

- **Cost of Development:** The initial expenses are basically development tools and hosting services besides the domain which is readily available for even small-time projects**.**
- **Revenue Stream:** Partnering, Sponsorship and premium features like paid organisation features.
- **Cost-Benefit Analysis:** The benefits of addressing food wastage and hunger outweigh the initial costs.

2.3. Operational Feasibility

- **User-Friendly Interface:** The platform is designed to be simple and accessible, making it easy for Donors, Heads, and Volunteers to use.
- **Community Acceptance:** The project aligns with social and environmental goals, increasing its likelihood of acceptance in communities**.**

2.4. Legal Feasibility

- **Compliance:** Data protection laws, like GDPR or local data privacy regulations, must be followed.
- **Licensing:** Licenses for food donation and operating the platform can be obtained.

2.5. Feasibility of Timeline

- **Project Timeline:** The project can be completed within 4-6 months, depending upon the size of the team and features' complexity.

CHAPTER 3
PROJECT OBJECTIVE

3.1 Key Objectives

The Plate2Donate project aims to be a centralized platform to organize and manage food donation events such as Bhandaras. The core idea is to use technology to make the process of connecting donors, volunteers, and beneficiaries easy and efficient, thereby encouraging collaboration for a common cause. The key objectives are as follows:

Empowering Community Involvement:

- Encourage individuals and organizations to participate actively in food donation events by providing an easy-to-use platform.
- Ensure that users are facilitated to contribute either as donors or volunteers, making it more inclusive and accessible.

Increasing Transparency and Trust

- Trust the users by giving open access to event details even to unregistered visitors
- Transparency in operations through proper communication between all stakeholders involved.

Simplifying Event Coordination:

- Reduce the logistical problems that come with organizing an event by centralizing all the details on a single platform.
- Provide features such as event creation, updates, and user management to simplify the process of organizing.

Promotion and Outreach:

- Make food donation events more visible to a wider audience and encourage increased participation and support.
- Allow the spread of information through a public-facing platform that is accessible to everyone, regardless of whether or not they are registered.

3.2 Project Objectives

The general objectives of the overall project for Plate2Donate are as follows:

Create a User-Friendly Platform:

- Design a responsive, intuitive interface that is user-friendly for both technical and non-technical users.
- Ensure that all types of users, whether registered, administrators, or visitors, find it easy to navigate.

Enable Secure Authentication and Access Management:

- Develop a robust login and registration system for users so that their data remains private and secure.
- Introduce differential user role assignments: make possible creating or editing an event with privileges and viewing or deleting event information with administrator rights.

Access for non-users:

- Exposing essential information about an event to non-registered, non-logged in visitors is very important and should increase accessibility and viewership.

Easy Data Management:

- The events will be stored in a MongoDB database for easy maintenance of records about events, user information, and privileges for administrators.
- Implement functionalities for updating and managing event information in an error-free manner.

Scalability and Future Development Support:

- Develop the application using the MERN stack so that the application can be scalable when users increase and data increases.
- Use modular architecture so that future development will be possible, such as integration of payment gateway or recommendation of location-based events

Social Impact Through Technology:

- Feed the Hungry: Help alleviate hunger through food distribution initiatives.
- Create a platform that fits within the larger goal of encouraging empathy, community service, and social responsibility.

Promote Sustainability in Operations:

- Reduce manual labour required to organize events through automation of processes where feasible.
- Design the platform with environmental consciousness in mind, employing digital solutions to minimize paper-based communication.

CHAPTER 4

HARDAWRE AND SOFTWARE REQUIREMENT

4.1. Hardware Requirements:

➢ Client-Side (User System)

- **Processor:** At least dual-core processor with a minimum speed of 1.6 GHz.
- **RAM:** At least 2 GB for basic operations, while 4 GB and above are recommended for better performance.
- **Storage**: With at least 500 MB free space for browser cache and temporary files.
- **Internet Connection**: A stable connection with a minimum speed of 2 Mbps.

➢ Server-Side (For Development and Deployment)

- **Processor:** Quad-core and above, 2.5 GHz and above.
- **RAM:** 8 GB (minimum) for development; 16 GB or higher for handling production workloads.
- **Storage:** 50 GB (minimum) SSD for application deployment, databases, and logs.
- **Network:**
  - High-speed connection with a minimum bandwidth of 10 Mbps for smooth server operations.
  - For cloud hosting, ensure a server with low latency in the target region.

4.2. Software Requirements:

- **Frontend Framework:** ReactJS will be used to build an interactive and responsive user interface. Its component-based architecture ensures reusability and scalability, making it ideal for the dynamic needs of the Plate2Donate website.

- **Backend Framework:** Node.js will serve as the backend framework, enabling a fast and scalable environment for handling server-side logic and API integrations.

- **Database:** MongoDB, a NoSQL database, is suitable for managing dynamic and large datasets, such as user registrations, donation details, and event records. Its flexibility ensures efficient data storage and retrieval.

- **API Development:** Express.js, built on Node.js, will be used to create robust RESTful APIs for efficient communication between the frontend and backend.

CHAPTER 5

PROJECT FLOW

The development and implementation of the Plate2Donate platform follows a structured project flow so that all phases are executed systematically. This approach helps the team to identify challenges, address requirements, and deliver a robust and user-friendly solution. The detailed breakdown of the project flow is presented below:

5.1. Problem Identification

- Lack of coordination: Unavailability of proper and efficient integration of the central platform of donors, volunteers, and recipients.
- Limited Accessibility: Information about events rarely reaches a large audience, excluding potential contributors and beneficiaries.
- Inefficient Management: Organizers have logistical challenges in maintaining and updating event details manually.

5.2. Requirement Analysis

- User Needs: Identified the need for user roles (admin, registered users, and visitors) and their specific functionalities, like creating and viewing events.
- Technology Requirements: Determine the requirement for a scalable, secure, and user-friendly platform.
- Operational Needs: Identified the need for efficient data handling, transparency, and reliable communication among stakeholders.

5.3. Design Phase

- UI/UX Design: A simple, intuitive interface that ensures smooth navigation by all user types.
- Database Design: Created schemas to store event data, user profiles, and administrative records.
- System Architecture A modular architecture was established where boundaries between front-end, back-end, and database integrations are clearly defined.

5.4. Technology Selection

- Front-End: React.js to design an interactive and responsive interface.
- Back-End: Node.js with Express.js for API request handling and server-side logic.
- MongoDB flexible database: NoSQL for agile flexible handling of dynamic data-logs like events and user's data.

5.5. Development

- Front-End Development: The user interface was built focusing on responsiveness and functionality.
- Back-end Development: Created the server-side API and integrated database with business logic.
- Authentication System: Developed a secure login and implemented role-based authorization.

5.6. Testing and Validation

- Unit Testing: Verified the correctness of individual components like user authentication and event management.
- Integration Testing: It ensured smooth interaction between the front-end, back-end, and database.
- User Testing: Held feedback sessions with target users to validate functionality and usability.

5.7. Deployment

- Hosting: Deployed the application on a cloud hosting platform like AWS, Heroku, or Vercel for scalability.
- Domain Setup: Setup of a custom domain for ease of access and branding.
- Performance Monitoring: Implement monitoring tools to track the performance and usage metrics of the platform.

USE CASE DIAGRAM:

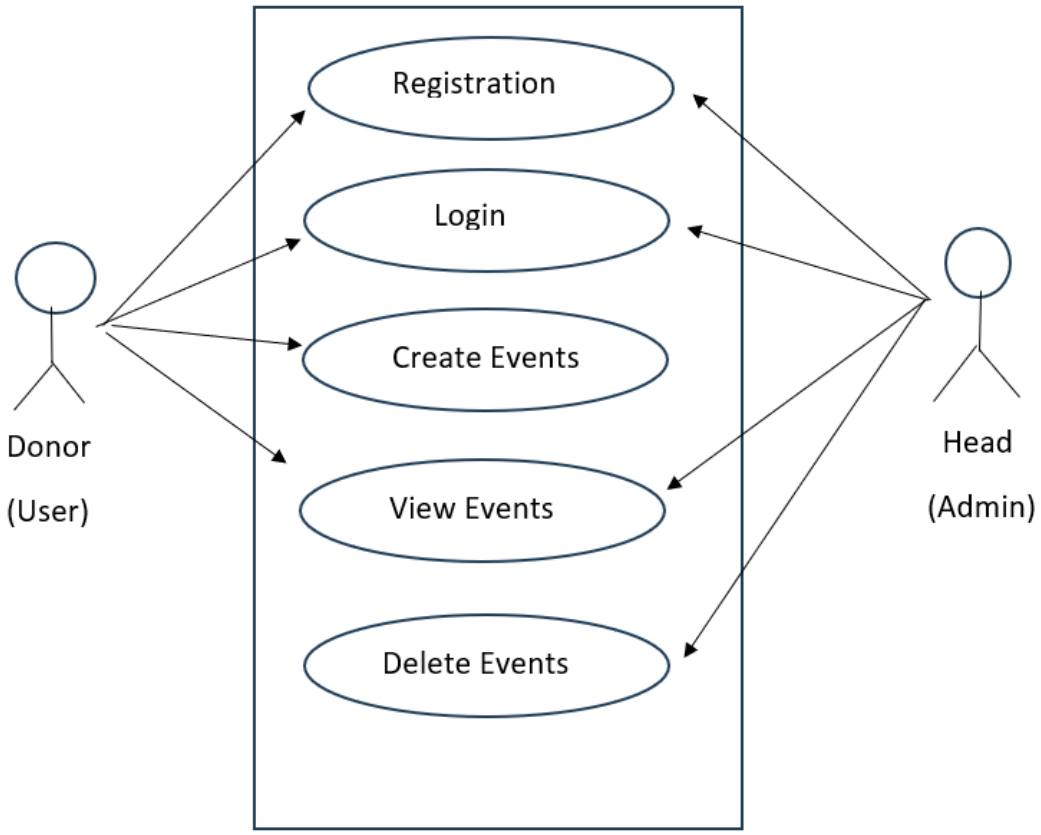

Fig. 5.1 Use case diagram of Plate2Donate

A Use Case Diagram is a graphic view of interactions among different kinds of users or actors and the system. It's a form of behavioural diagram, used within Unified Modelling Language (UML), to explain functional requirements in the system based on the perception of the system by the user.

A use case diagram is aimed at capturing and displaying the behaviour of a system in terms of the interactions of the users with the functionalities of the system. It helps developers, clients, and project managers understand how the system would be used, what actions are possible for users, and how the system responds.

Registration

- **Actor:** Donor (User)
- **Description:** A new user (Donor) can register an account on the platform by providing relevant credentials. This step is required for accessing additional functionalities, such as creating events.

Login

- **Actors:** Donor (User), Head (Admin)
- **Description:** Both Donors and the Admin can log in to the platform using valid credentials. This use case allows authentication and role-based access to the platform's functionalities.

Create Events

- **Actor:** Donor (User)
- **Description:** Logged-in Donors have the ability to create events. This use case enables users to add event details (e.g., name, time, location) to the system.

View Events

- **Actors:** Donor (User), Head (Admin)
- **Description:** Both Donors and the Admin can view all events listed on the platform. Even non-registered users (visitors) have access to view event details, though this is not explicitly shown in the diagram.

Delete Events

- **Actor:** Head (Admin)
- **Description:** The admin has exclusive permission to delete events. This allows the removal of outdated, incorrect, or irrelevant event details, ensuring the integrity of the system's data.

ENTITY RELATIONSHIP DIAGRAM:

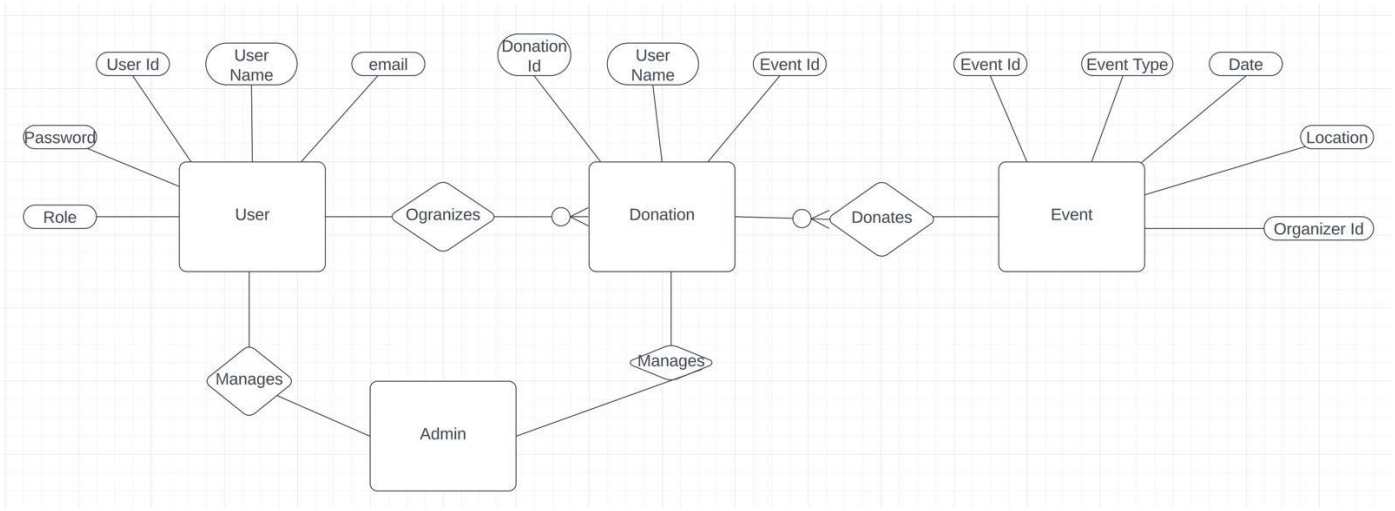

Fig. 5.2 ER Diagram of Plate2Donate

An **Entity Relationship Diagram (ERD)** is a visual representation of data entities and their relationships within a system. It is widely used in database design and system modelling to illustrate how data is structured and interrelated.

Key Elements of an ERD:

1. **Entities**: Represent real-world objects or concepts (e.g., User, Donation, Event). They are shown as rectangles.
2. **Attributes**: Descriptive information about entities (e.g., User ID, Event Type). These are shown as ovals connected to their entity.
3. **Relationships**: Connections between entities to show how they interact or are related. Relationships are shown as diamonds.
4. **Primary Keys**: Unique identifiers for entities (e.g., User ID).

CHAPTER 6

PROJECT OUTCOME

The Plate2Donate project successfully delivers a digital platform that streamlines the organization and management of food donation events, such as Bhandaras. By using modern web technologies, the platform achieves its goal of connecting donors, volunteers, and beneficiaries efficiently. Below are the key outcomes of the project:

User-Friendly Platform

- A responsive and intuitive interface enables users to create, read, and manage event details with ease.
- Non-registered visitors may view event information without the obligation of an account, hence highly open and inclusive.

Role-Based Management

- Users can create an account, log in, and take part in creating as well as updating events.
- Administrators can manage event details, thus preventing inaccuracy by reviewing and eliminating irrelevant or outdated information

Improved Accessibility and Awareness

- The platform is a central point from which all event information is readily available to a wider reach and encouraging participation.
- Open access for non-users encourages community involvement and awareness of charity activities.

Effective Event Organization

- Digital management of event information minimizes logistical issues for the organizers.
- Role-based access ensures secure authentication, thereby improving data integrity and

transparency.

Social Value:

- The platform encourages community values by making it easy to participate in food donation activities.
- By fighting hunger through collective efforts, Plate2Donate serves a greater social cause, thus encouraging empathy and shared responsibility.

Scalable and Reliable Technology

- Using a very scalable MERN stack and providing a scalable architecture to suit massive growth in user activity with growing data volumes, built on the platform, as well as future feature extensions about payment integrations or other enhancements - for example, real-time notifications.

6.1 User Interface

HOME:

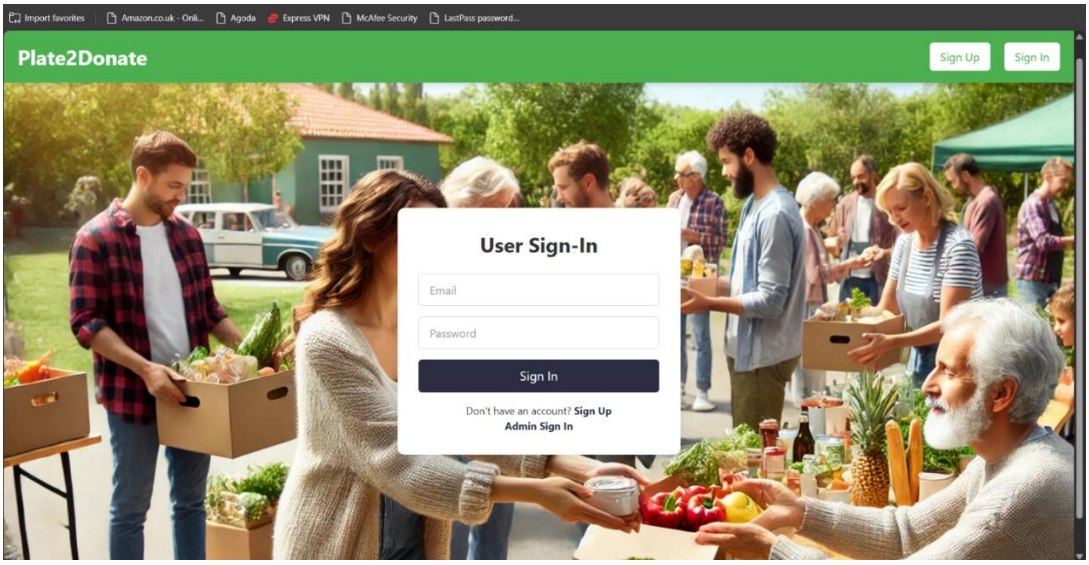

Fig 6.1 Home page of Plate2Donate

The Home Page of Plate2Donate serves as the gateway to the platform, providing users and visitors with an overview of its purpose and functionality. It highlights the mission of connecting donors, volunteers, and organizers to facilitate food donation events like Bhandaras.

SIGN UP:

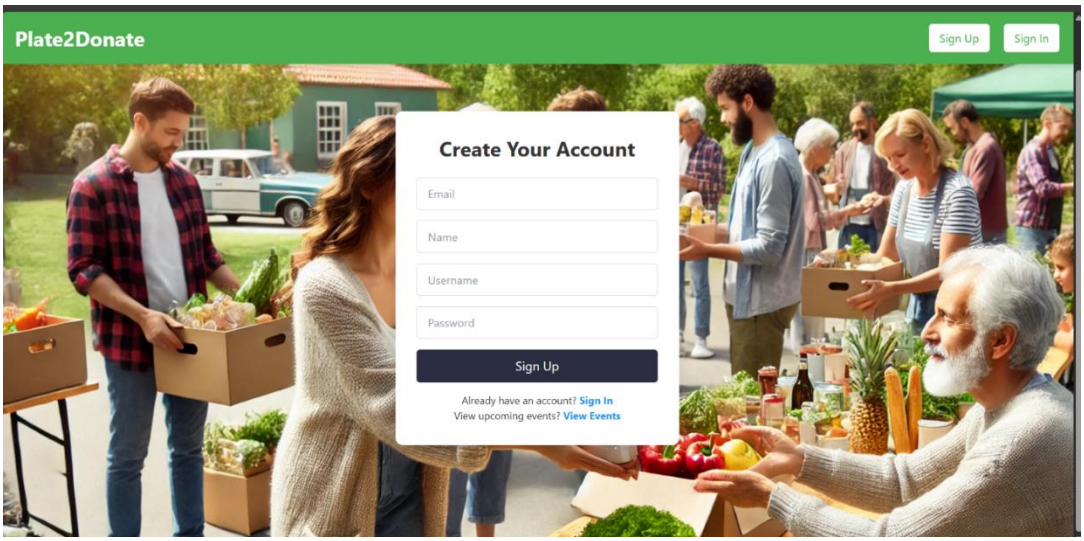

Fig 6.2 Sign Up page of Plate2Donate

The User Sign-Up module enables new users to register on the platform. Users provide required details such as name, email, and password. Once registered, they gain access to additional features like creating and managing events.

USER SIGN-IN:

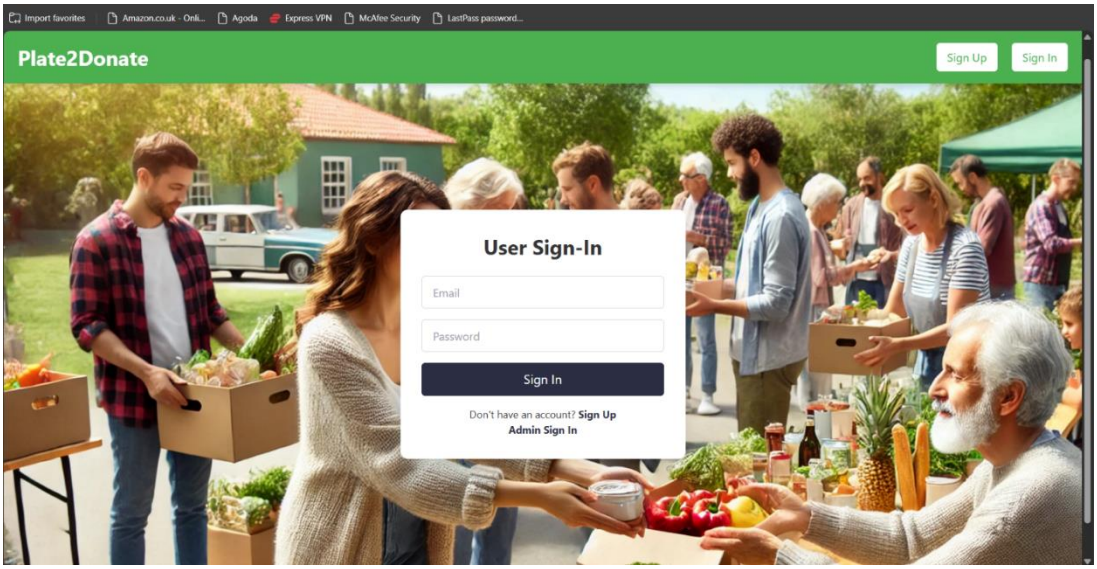

Fig 6.3 Sign-in page of Plate2Donate

The User Sign-In module allows registered users to log in to their accounts. Users need to enter valid credentials (username/email and password) to access functionalities like creating events or viewing detailed event information.

ADMIN SIGN-IN:

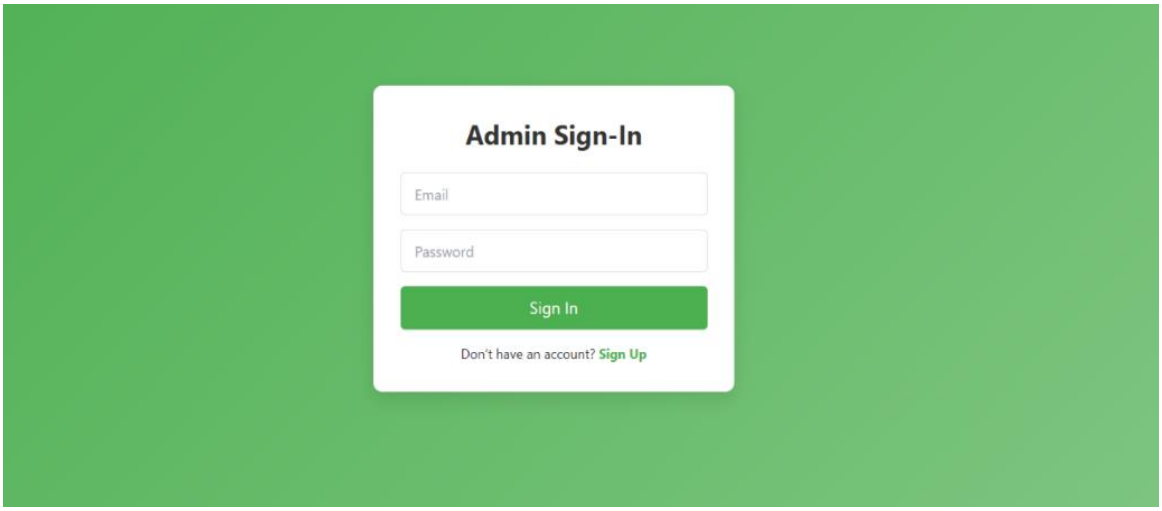

Fig 6.4 Admin Sign-in page of Plate2Donate

The Admin Login module is exclusively for administrators to access the backend functionality of the platform. Admins use valid credentials to log in and manage events, such as reviewing and deleting outdated or irrelevant events.

EVENT PAGE:

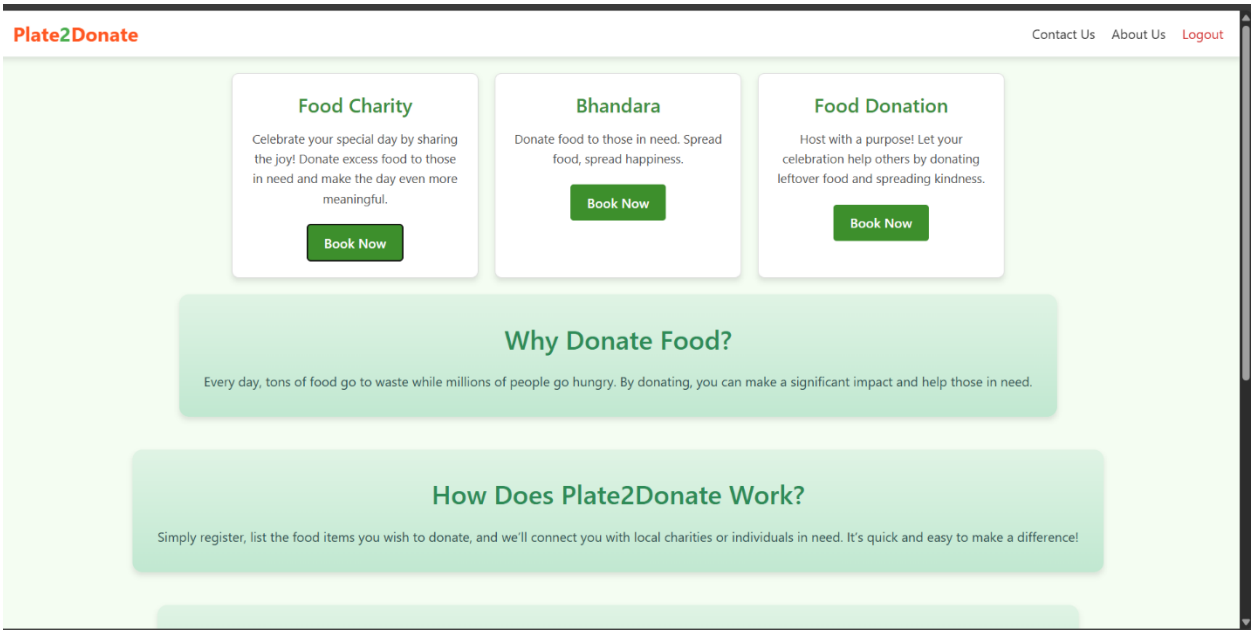

Fig 6.5 Event page of Plate2Donate

CREATE EVENT:

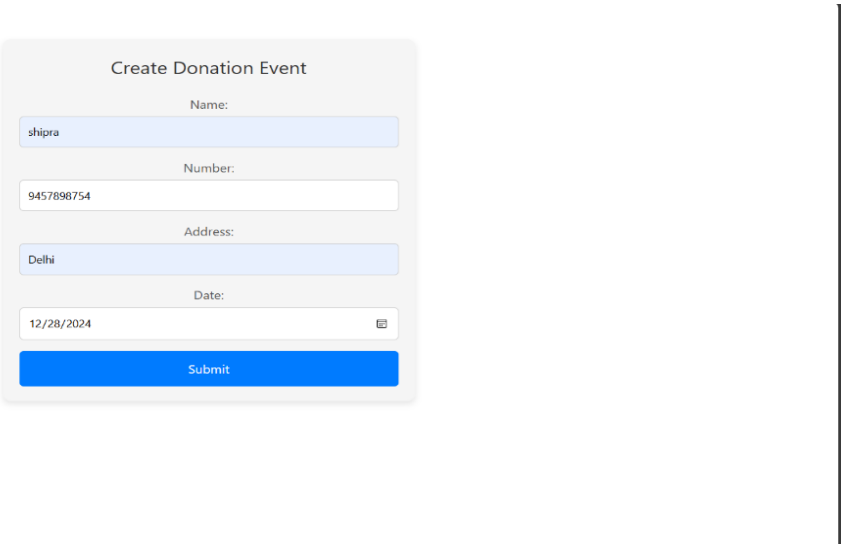

Fig 6.6 Create Event page of Plate2Donate

The Add Event module allows logged-in users (donors) to create events by entering details like event name, location, date, and description. This feature simplifies the sharing of event information with the community.

VIEW EVENTS:

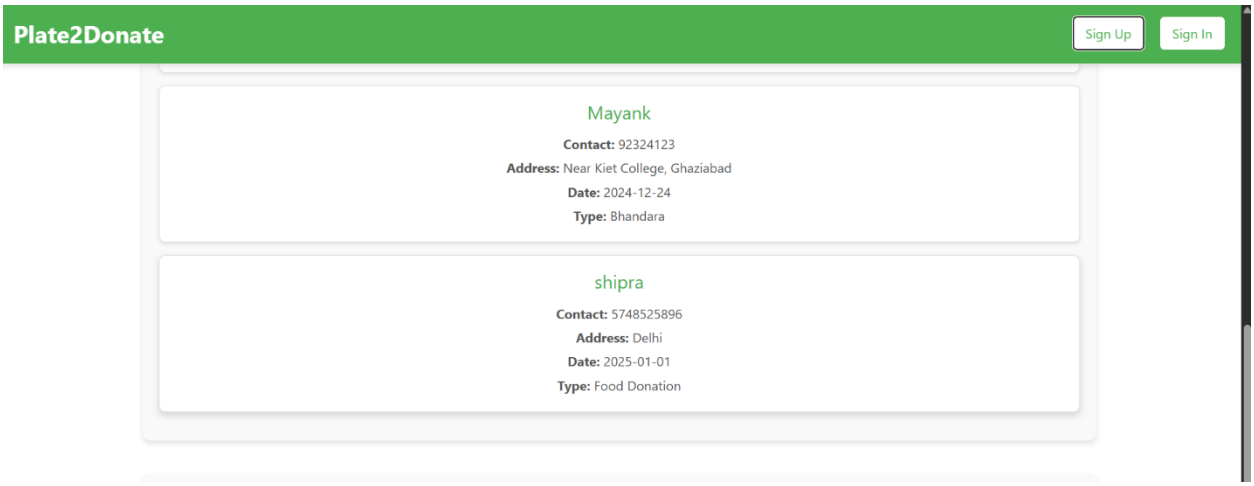

Fig 6.7 View Events page of Plate2Donate

The View Event module displays a list of all events added to the platform. Events are visible to all users, including visitors who are not logged in. Each event shows relevant details such as name, location, and timing, fostering greater participation.

CONTACT US:

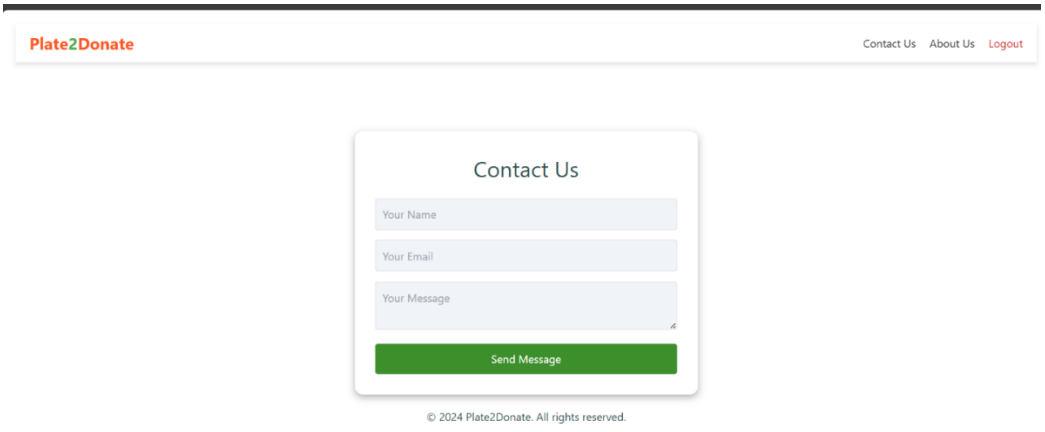

Fig 6.8 Contact Us page of Plate2Donate

The Contact Us module provides users with a way to get in touch with the platform administrators or support team. It typically includes a form for submitting queries, feedback, or support requests, along with contact details.

ABOUT US:

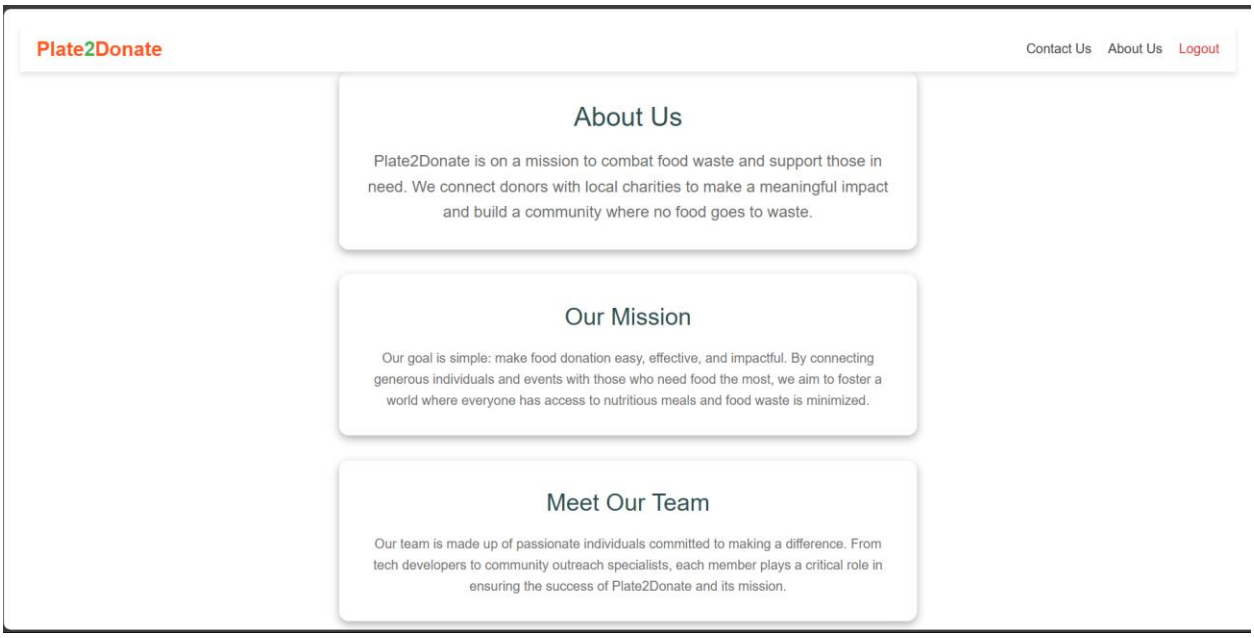

Fig 6.9 About us page of Plate2Donate

The About Us module gives an overview of the *Plate2Donate* platform, explaining its mission, vision, and purpose. It highlights how the platform helps connect donors, volunteers, and beneficiaries to organize and manage food donation events effectively.

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