SANITIZATION MANAGEMENT SYSTEM

A PROJECT REPORT SUBMITTED IN PARTIAL FULFILMENT OF REQUIREMENT FOR THE AWARD OF THE DEGREE

MASTER OF COMPUTER APPLICATIONS

(MCA)

OF

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

BY

BIBIN THOMAS
Reg No : 22PMC120

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Under the guidance of

Ms.Kochumol Abraham
Assistant Professor
PG Department of Computer Applications
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PG DEPARTMENT OF COMPUTER APPLICATIONS

Marian College Kuttikkanam Autonomous

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

KUTTIKKANAM – 685 531, KERALA.

CERTIFICATE

This is to certify that the project work entitled

SANITIZATION MANAGEMENT SYSTEM

is a bonafide record of work done by

BIBIN THOMAS

Reg. No. 22PMC120

In partial fulfillment of the requirements for the award of Degree of

MASTER OF COMPUTER APPLICATIONS [MCA]

During the academic year 2022-2023

Ms.Kochumol Abraham
Assistant Professor
PG Department of Computer Applications
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Mr.Win Mathew John
Head of the Department
PG Department of Computer Applications
Marian College Kuttikkanam Autonomous

Examiner

Examiner

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First of all, I thank the “God Almighty” for his immense grace and blessings in my life and at each stage of my project work

I express my sincere gratitude to Prof Dr.Ajimon George, Principal, Marian College Kuttikkanam Autonomous, Dr.Mendus Jacob, Director, PG Department of Computer Applications for the support given throughout the project work.

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BIBIN THOMAS

ABSTRACT OF SANITIZATION MANAGEMENT SYSTEM

Name of the project: Sanitization Management System

The Sanitization Management System (SMS) project focuses on developing a user-friendly website that allows individuals and organizations to conveniently book sanitization services for their homes, offices, and other locations. With the increasing importance of cleanliness and hygiene in light of global health concerns, this project addresses the need for a centralized platform that simplifies the process of scheduling and managing sanitization services.

At the time of Corona virus, pandemic has affected all sections of the society, it is important that we follow all the guidelines and precautions to keep ourselves and loved ones safe. The main purpose of this system is to provide sanitization services to clean and disinfect the environment.

The main objective for developing this project is to provide an easier way to book sanitization for residents in commercials areas to save time. This will reduce the time of people who want sanitize their home or offices and also reduce the manual storing of managing the details of users. This will systematically record, store and update recorded data of users and the service they have rendered.

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1. INTRODUCTION

1. INTRODUCTION

In today's world, maintaining clean and hygienic environments has become a top priority. Whether it's homes, offices, schools, or public spaces, ensuring proper sanitization is crucial for the well-being and safety of individuals. To address this need, the development of a sanitization management system has emerged, aimed at facilitating the process of booking and scheduling sanitizing services efficiently and conveniently.

The sanitization management system is a comprehensive software solution that leverages technology to streamline the entire sanitization process. It provides a user-friendly platform where individuals or organizations can easily request and manage sanitizing services according to their specific requirements.

1.1 PROBLEM STATEMENT

The current system is difficult in various circumstances, it is very much time consuming and slow. It is not user friendly because data is not stored in structure and proper format.
Limitations of existing system

- **Manual Control:** All report calculation is done manually so there is a chance of error.
- **Lots of Paper works:** Person record maintain in the register so lots of paper require storing details.
- **Not user friendly:** The present system not user friendly because data is not stored in structure and proper format.
- **Time consuming**

1.2 PROPOSED SYSTEM

At the time of Corona virus pandemic has affected all sections of the society, it is important that we follow all the guidelines and precautions to keep ourselves and loved ones safe so this web-based application helps to sanitize and disinfects home and offices by sending request to sanitization company without going anywhere. This project aims in simplifying the process of booking sanitization services through a user-friendly website. By offering a centralized platform for service selection, scheduling, and payment, the system enhances

convenience and efficiency in accessing professional sanitization services. This project aligns with the growing emphasis on cleanliness and hygiene, promoting a healthier and safer environment for homes, offices, and other locations.

Advantages of Proposed System

- **Easy and Efficient**
- **Cost-Effective**
- **Environment Friendly**

1.3 FEATURES OF PROPOSED SYSTEM

- Automation of the entire system improves the productivity.
- It provides a friendly graphical user interface which proves to be better when compared to the existing system.
- It gives appropriate access to the authorized users depending on them permissions.
- It effectively overcomes the delay in communications.
- Updating of information becomes so easier.
- System security, data security and reliability are the striking features.
- The System has adequate scope for modification in future if it is necessary.

2. FUNCTIONAL REQUIREMENTS

FUNCTIONAL REQUIREMENTS

Sanitization Management consist of two modules:

1.User

2.Admin

USER MODULE

- **Can Register and login**
- **Fill the Request form -** Fill the form with the details needed to book service
- **Slot booking** – Book the slot for sanitizing according to time and date
- Will Receive a **tracking id** to track the status of request.
- **Tract the request -** For viewing the status of request.
- **Contact us** – For contacting if any query arises
- **About us -**To view about the website.

ADMIN MODULE

- **Dashboard**
  - In this section, admin can briefly view total services, total on the way, total new request, total in process request and total rejected.
- **Manage Sanitization Services**
  - In this section, admin can manage sanitization services (Add/Del/update).
- **Manage Sanitization Request**
  - In this section, admin can view new, request and change the status of request according to current status.
- **Manage User Queries**
  - Admin can manage if any issues or problem arises from user.
- **Manage Users**
  - Admin can manage the users who have access to the website.

3.NON-FUNCTIONAL REQUIREMENTS

NON-FUNCTIONAL REQUIREMENTS

a. Reliability

The reliability of the overall project depends on the reliability of the separate components. The main pillar of reliability of the system is the backup of the database which is continuously maintained and updated to reflect the most recent changes.

b. Maintainability

A commercial database is used for maintaining the database and the application server takes care of the site. In case of a failure, a re-initialization of the project will be done. Also, the software design is being done with modularity in mind so that maintainability can be done efficiently.

c. Security

Ensuring robust security measures is crucial for the successful implementation of the Sanitization Management System (SMS) project. As a non-functional requirement, security encompasses the protection of sensitive data, prevention of unauthorized access, and the maintenance of confidentiality, integrity, and availability of system resources. The SMS project acknowledges the importance of incorporating strong security practices to safeguard user information and maintain the overall integrity of the system.

d. Scalability

This application is designed in a way that it could handle increasing volumes of data and users without significant performance degradation. It could be able to accommodate growth in the number of users and the amount of expense data.

4. FEATURES AND HIGHLIGHTS

Sanitization management system helps to allow users to book and schedule slots for sanitizing homes, offices, and other locations.

Here are some key features that such a system could include:

1. **User Registration:** Users can create an account by providing their personal details, such as name, contact information, and address.
2. **Location Selection:** Users can specify the location that needs to be sanitized, such as their home, office, or any other premises.
3. **Slot Booking:** Users can select a convenient date and time slot for the sanitization service. The system should provide an available slot based on the user's location and the service requested.
4. **Service Tracking:** User can track the status of the service they have rendered.
5. **Real-time Availability:** The website will be available 24*7.
6. **Admin Dashboard:** In administrative dashboard, admin can manage bookings, track and update status, monitor user problems, and handle any issues or disputes.
7. **Service Provider Management:** The system can include features to manage and onboard service providers, ensuring their qualifications, certifications, and availability.
8. **Service History:** Admin can manage the services rendered to the users i.e. their service history, including details of past sanitization appointments, and any related communication.
9. **Customer Support:** The system should provide a means for users to contact customer support if they have any queries, issues, or require assistance.

These are the features included in the project sanitization management system.

5. TECHNICAL ASPECTS

5.1 Architecture of the project

The architecture of the Sanitization Management System follows a layered and modular design, incorporating key components and their interactions to provide an efficient Sanitizing Service.

1. Presentation Layer:

- **User Interface**: This component handles the user interaction and provides a user-friendly interface for accessing the application.
- **Views and Forms**: It comprises the screens and forms that allow users to register and login and also for registering their sanitization service.

2. Application Layer:

- **Admin Module**: This module acts as the core functionality of the system, handling the request, managing the queries, etc.

3. Data Layer:

- **Database**: It includes a relational database management system called SQLite to store user data, expense records, budgets, and other relevant information.

4. Integration Layer:

- **External APIs**: This component integrates with several external systems, to visualize the service data automatically.

5. Reporting and Analytics:

- **Reporting Engine**: This component generates reports of the details of the user and the services that they have rendered.

Here are some key technical aspects focused on:

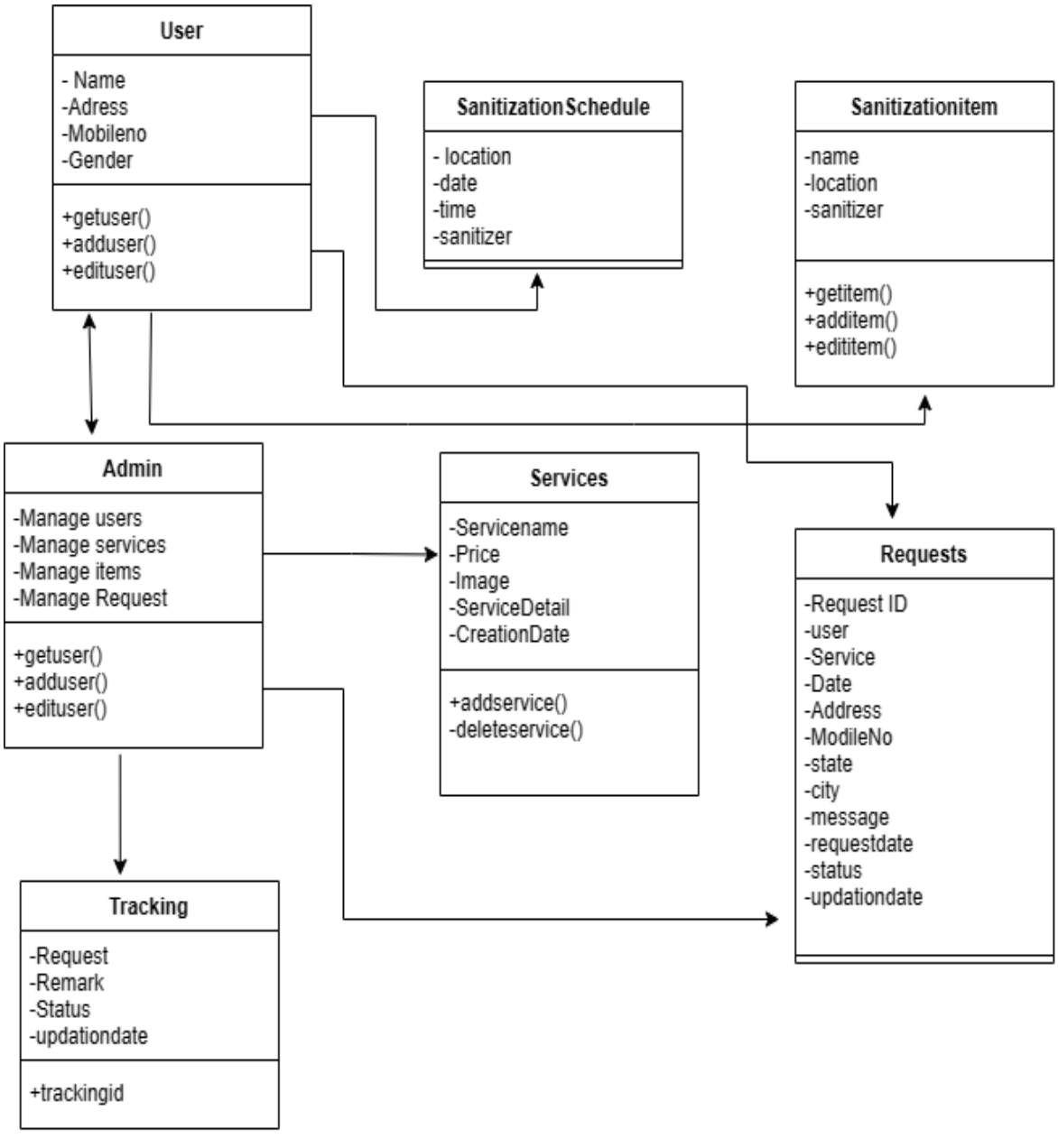
- **Web Framework:** Choosing a suitable web framework such as Django to build the project. This framework provides the necessary tools and libraries to develop web application efficiently.
- **User Interface:** Design a user-friendly interface using HTML, CSS, and JavaScript. Implementing forms for user registration, login, and booking slots. Using frameworks like Bootstrap or Materialize CSS for responsive and visually appealing designs.
- **Database Management:** Selecting a database management system like SQLite to store user information, bookings, and other relevant data.
- **Authentication and Authorization:** Implementing user authentication and authorization mechanisms to ensure secure access to the system. Use of frameworks like Django's built-in authentication system for managing user sessions and permissions.
- **Slot Scheduling:** Developing a scheduling system that allows users to select slots for sanitization services. Use data structures and algorithms to manage and track slots.
- **Notifications:** Implement a notification system to send a pop-up message of the tracking ID to track the status of the request.
- **Error Handling and Logging:** Implementing error handling mechanisms to gracefully handle exceptions and provide meaningful error messages to users when something goes wrong. Additionally, setting up log to capture and store application logs for debugging and monitoring purposes.
- **Security Considerations:** Implementing security best practices such as input validation, protection against common web vulnerabilities (e.g cross-site scripting, SQL injection), and secure handling of sensitive data like passwords and payment information.
- **Performance Optimization:** Optimize the system's performance by employing techniques such as caching, database indexing, and code profiling. Identify and address any bottlenecks that may impact the system's responsiveness and scalability.

5.2 Third-Party Libraries:

- **Django-Jazzmin:**
  It provides the ability to customize Django admin interface with a modern and responsive design with additional features and customization options.
- **CSS – Bootstrap 5:**
  It is a popular CSS framework that provides a collection of pre-built responsive components and utilities which simplifies the process of designing and styling web pages, making them visually appealing and mobile-friendly. It can be used to create a consistent and professional looking user interface.
- **PDF generation – User Records:**
  This is a python library used for generating PDF documents programmatically and it provides a wide range of features for creating dynamic and customized PDFs.
- **CSV:**
  It is a python library that lets you export data as CSV format.
- **XLWT:**
  It is a python library that lets you export data as excel format.

5.3 UML DIAGRAM

Class Diagram of the Project



6. Challenges Faced During Development

Challenges faced during the development

- **Database Management**

  Configuring and managing the database connections, migrations, and data models was bit challenging, especially when dealing with complex relationships and data transformations.

- **Authentication and Authorization**

  Implementing user authentication, managing user roles and permissions, and securing sensitive data

- **Templating and Front-end Integration**

  Integrating front-end frameworks like Bootstrap and handling dynamic content rendering through Django's template engine.

- **URL Routing and Views**

  Configuring URL routing patterns and mapping them to appropriate views was confusing at times, especially when dealing with dynamic URLs, query parameters, and complex URL structures.

- **User Experience**

  Designing a user-friendly interface and ensuring a seamless user experience can be challenging. It requires understanding the needs and preferences of users and implementing intuitive navigation and forms for booking and scheduling slots.

- **Scalability and Performance**

  As the user base grows and more people book slots simultaneously, the system needs to handle increased traffic and maintain optimal performance. Scaling the application and optimizing the database queries, caching mechanisms, and server configurations may be necessary to maintain responsiveness.

- **Testing and Quality Assurance**

  Writing comprehensive tests to cover various scenarios, including edge cases and error conditions, can be time-consuming. Ensuring the system is thoroughly tested to prevent bugs, handle exceptions gracefully, and provide a stable user experience requires careful planning and execution.

7. FUTURE ENHANCEMENT

Here are future enhancements for the Sanitization Management System project, specifically focusing on email delivery of tracking IDs and an interactive interface:

1. Email delivery of tracking ID

Implementing an automated email delivery system would enhance communication with users. Once a booking is confirmed, the system can generate a unique tracking ID for each appointment and automatically send an email to the user containing the tracking ID and other relevant details. This would provide users with a reference for their appointment and allow them to track the progress of the sanitization process.

2. Interactive user interface

Improving the user interface (UI) and user experience (UX) of the system can enhance usability and engagement. The interface should be intuitive, visually appealing, and provide easy navigation for users to book and manage their sanitization appointments. Interactive elements such as calendars, drag-and-drop functionality, and visual representations of available time slots can make the scheduling process more user-friendly.

3. In-app messaging and chat support

Including an in-app messaging or chat support feature would enable users to communicate directly with the sanitization service provider or support team. This feature can be helpful for addressing any queries, requesting modifications to appointments, or seeking additional information about the sanitization process.

4. Personalized user profiles

Implementing personalized user profiles would allow users to create accounts, save their preferences, and view their booking history. User profiles can store information such as preferred cleaning products, specific instructions for sanitization, and any additional notes for the service provider. This would streamline the booking process for returning users and enable personalized recommendations for future appointments.

5. Multi-platform accessibility

Expanding the system's accessibility across multiple platforms such as web, mobile, and tablet devices would ensure that users can access and manage their sanitization appointments from their preferred devices. This flexibility would cater to the diverse needs and preferences of users.

6. Real-time availability updates

Integrating the system with a real-time availability tracking mechanism would allow users to see the current availability of slots for sanitization. This feature would provide transparency and help users make informed decisions when selecting a time slot. As soon as a slot is booked by another user, the availability status should be updated in real-time to prevent overlapping appointments.

These are the enhancements that I aim to improve the functionality, convenience, and user experience of the Sanitization Management System project, making it easier for people to book and schedule sanitization appointments for their homes and offices.

8. CONCLUSION

Sanitization Management System project provides a convenient and efficient solution for individuals and businesses to book and schedule sanitization services for their homes, offices, and other spaces. By leveraging technology and automation, this system streamlines the process of requesting and managing sanitization slots, ensuring a clean and safe environment for users.

One of the key benefits of this system is its user-friendly interface, which allows users to easily navigate through the booking process. Through the web, individuals can select their desired date and time, specify the location, and choose the type of sanitization service they require. This eliminates the need for traditional, time-consuming phone calls and manual scheduling, making the entire process more efficient and convenient.

The system also incorporates a robust scheduling and management component, allowing service providers to efficiently allocate resources and ensure timely completion of sanitization tasks. By optimizing routes and assigning tasks based on location proximity, the system maximizes the productivity of sanitization teams and minimizes unnecessary travel time. This results in improved operational efficiency and reduced costs for both service providers and customers.

Additionally, the Sanitization Management System promotes transparency and accountability. Users can access real-time updates on the status of their bookings, and upcoming appointments, and even track the progress of the sanitization process.

In conclusion, this project revolutionizes the way people book and schedule sanitization services. By providing a user-friendly interface, customizable options, efficient scheduling, and transparent processes, this system enhances the overall sanitization experience, ensuring a clean and safe environment for homes, offices, and other spaces.

GitHub Repository link of the project: **https://github.com/Bibin369/Miniproject.git**

9. REFERENCES

1. A. Stevens, Database Development, MIS Press, New York, 1992, p.34.

2. J. Martin, Computer Database Organization, Prentice-Hall, Englewood Cliffs.

3. Test Case: https://artoftesting.com/login

4.Django documentation: https://docs.djangoproject.com/en/4.2/

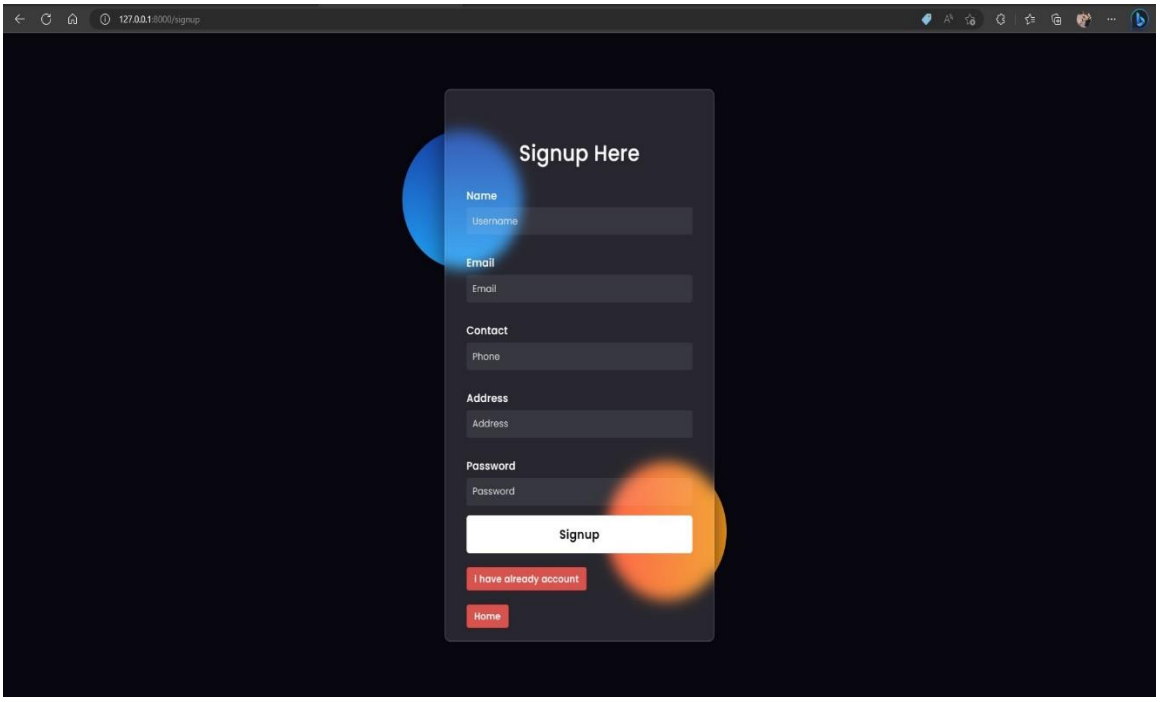
5.ChatGpt: https://chat.openai.com/

10. ANNEXURE

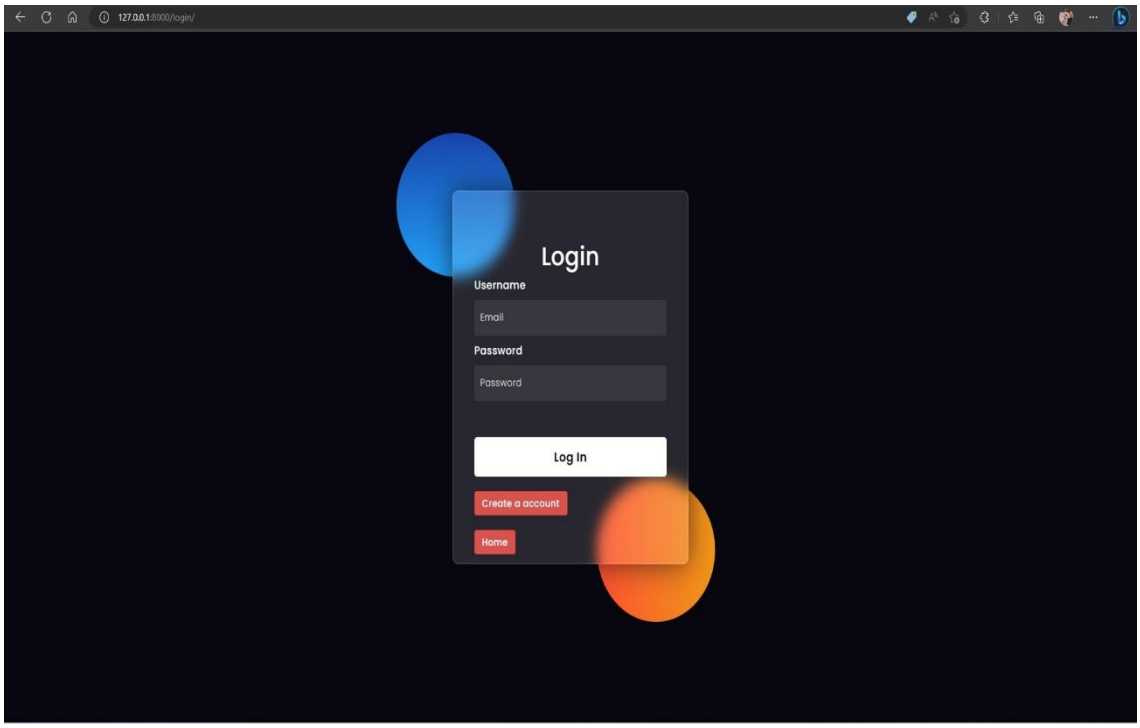
A. SCREENSHOTS

- **Home Page**

- **User Registration**

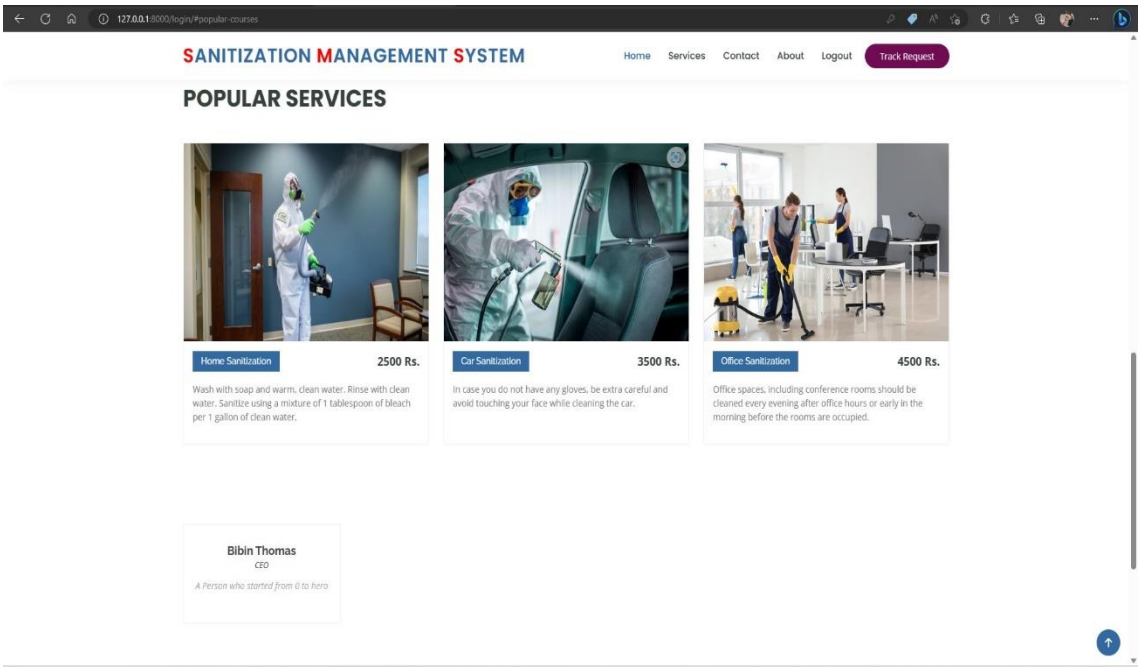


- **User Login**

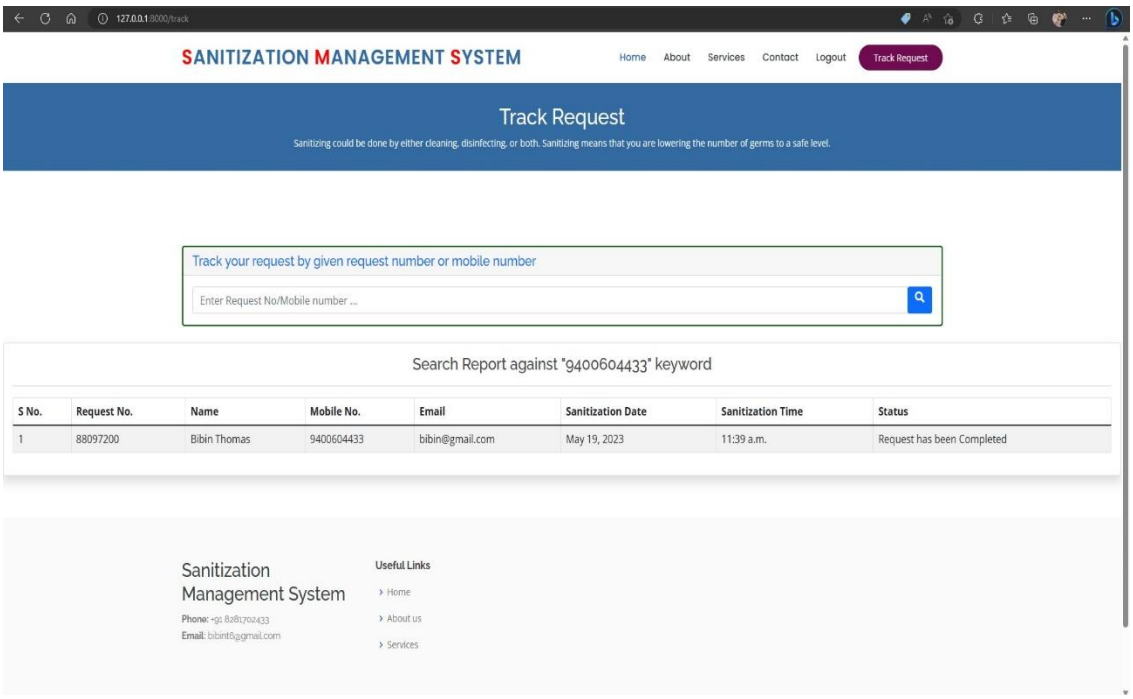


- **User Home Page After Login**

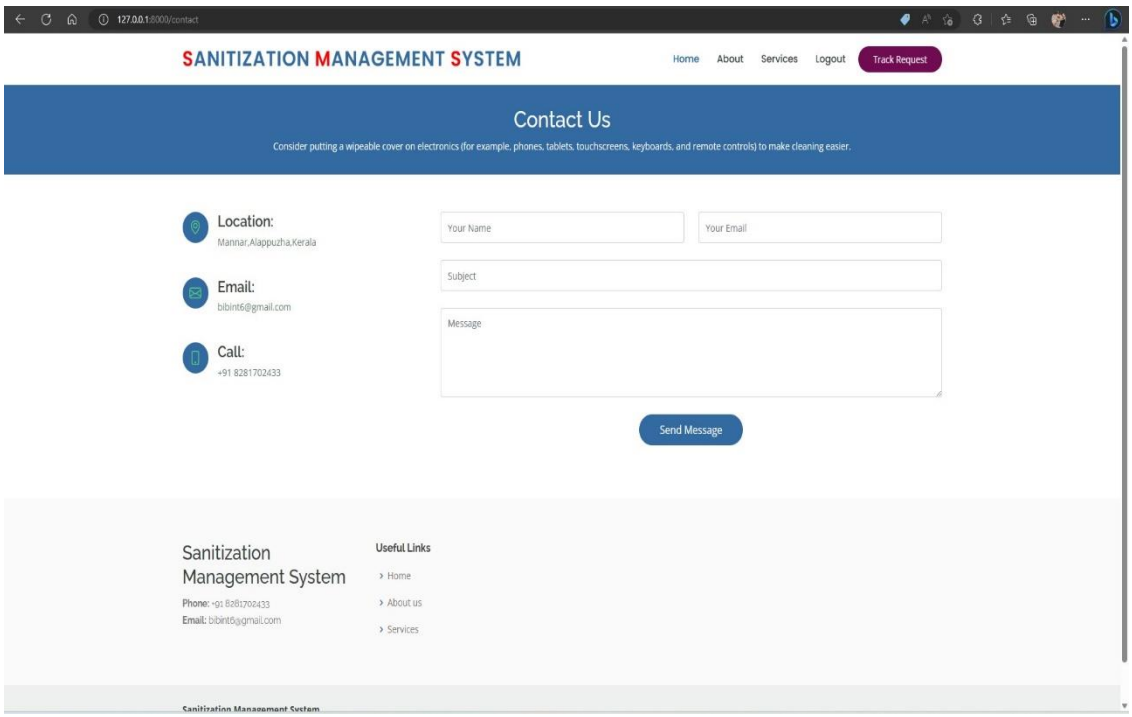
- **Services Provided**



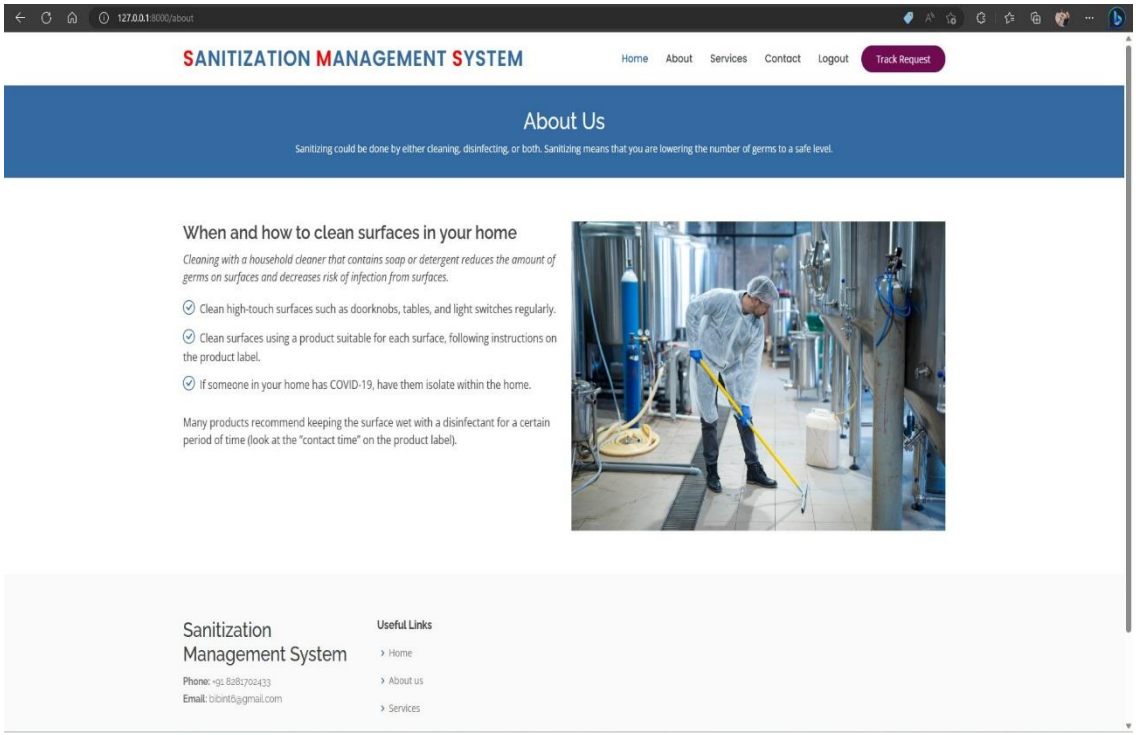
- **Track Request**



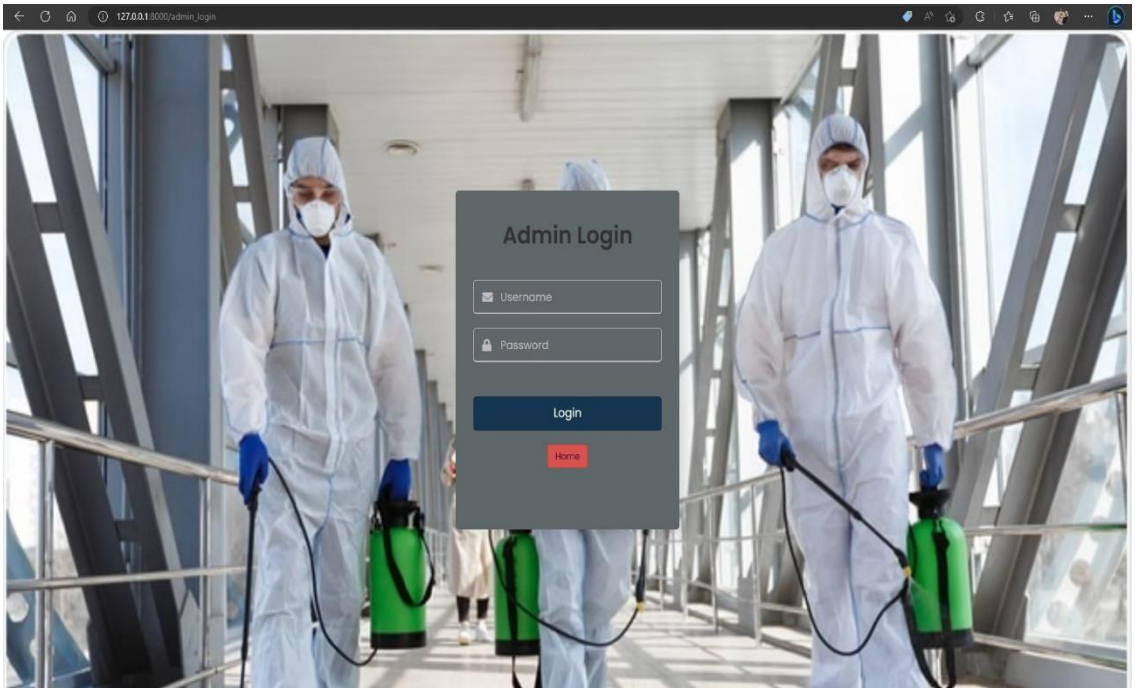
- **Contact us**



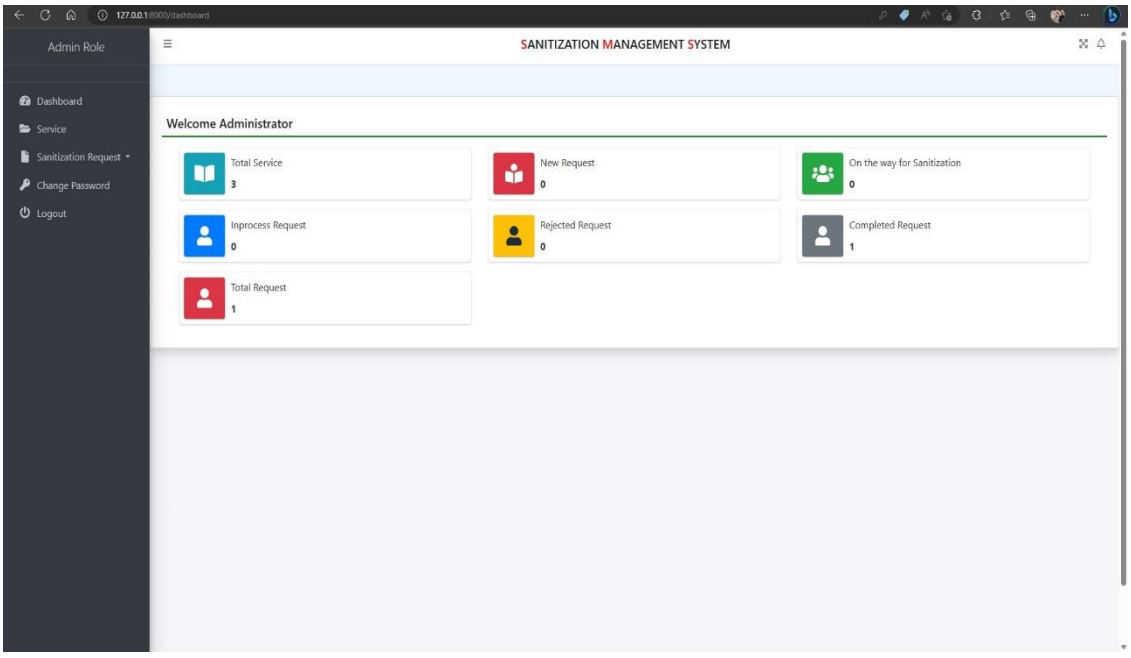
- **About us**



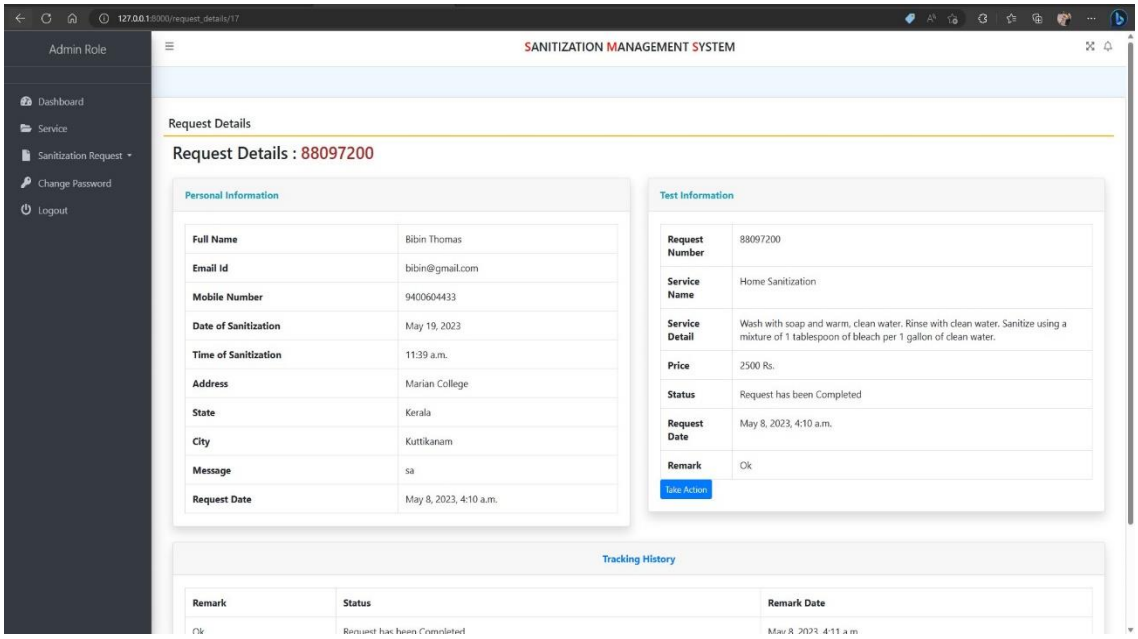
- **Admin Login**



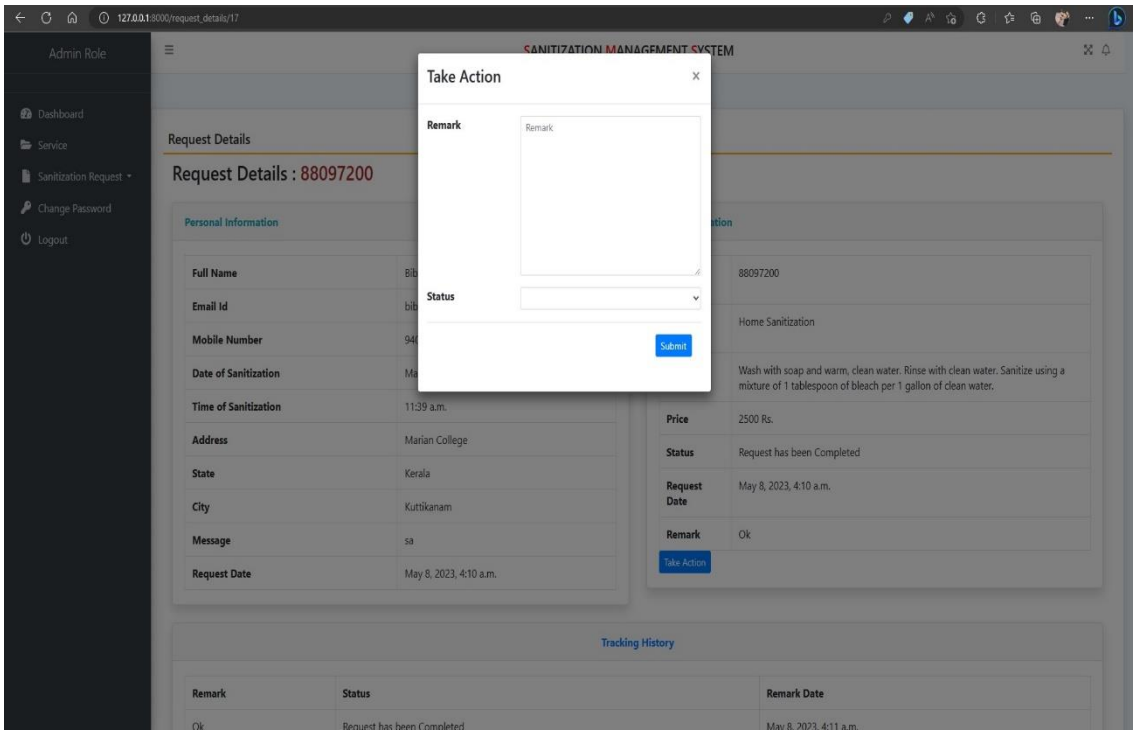
- **Admin Dashboard**



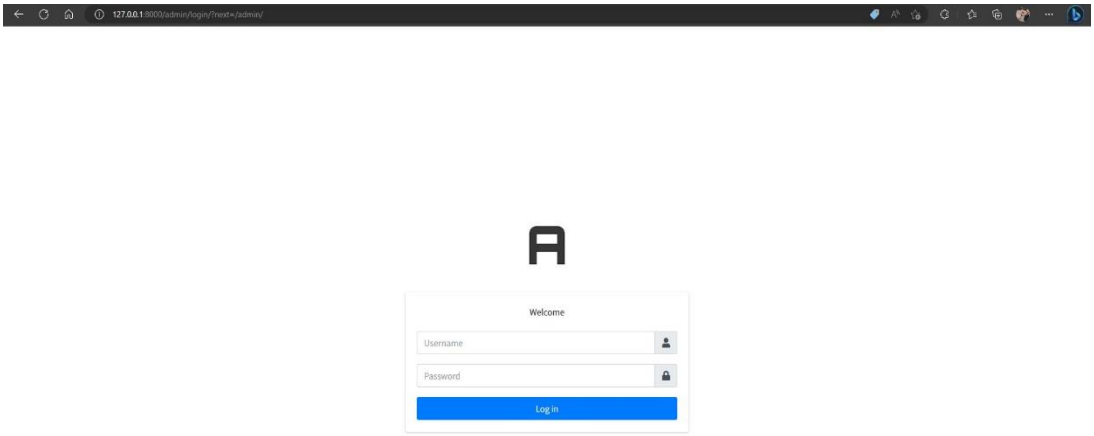
- **Request Details in Admin**



- **Action Taking on Request**



- **Django Admin Login**



- **Django Admin Dashboard**