Project Report - MAD I

Student Details:

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Project Title:

"Household Services Platform: Bridging Service Professionals and Customers"

Problem Statement and Approach:

Problem Statement:
This multi-user application serves as a platform for providing comprehensive home servicing and solutions. It connects customers and service professionals through a web interface, with distinct roles for admin, service professionals, and customers. The admin oversees and manages the connections between customers and professionals, ensuring smooth interactions and service facilitation.

Approach:

1. **Requirement Analysis**: Identified core functionalities like service requests by customers, request handling by professionals, and admin actions such as blocking/unblocking users.
2. **Database Design**: Created an ER diagram to design the database schema with entities like Users, ServiceProfessionals, Customers, Services, and ServiceRequests, ensuring proper relationships and attributes.
3. **Backend Development**: Used Flask to implement user authentication, service request management, and admin operations like service creation and user account management (managing new professionals and blocking/unblocking existing users).
4. **Frontend Development**: Built a responsive interface using HTML, CSS, Bootstrap, and Font Awesome for icons, covering user registration, login, request handling, search, and admin dashboards with charts.

Frameworks and Libraries Used:

•**Flask**: Facilitates building the web application, managing routing, and handling backend operations.

•**SQLAlchemy**: An Object-Relational Mapping (ORM) tool used for database interactions and managing relationships between tables.

•**Jinja2**: A templating engine for rendering dynamic HTML content seamlessly.

•**Matplotlib:** Generates graphical representations of data, such as bar and pie charts, for the admin dashboard.

•**Bootstrap**: A frontend framework utilized to design responsive and visually appealing UI components.

•**Font Awesome:** A library of icons used to enhance the visual appeal and usability of the application interface.

ER Diagram Description for Home Service Platform

This schema facilitates seamless interaction between customers, professionals, and services, with admins managing the ecosystem.

Entities (Tables):

• **User**: Stores user details like username, passhash, name, address, pincode, user type (admin, customer, professional), and is_blocked status. Acts as the base entity for Customer and ServiceProfessional.

• **Customer**: Linked to the User table, representing customers with their service requests.

• **ServiceProfessional**: Linked to the User table, representing service professionals with attributes like description, experience, and approval status. Professionals are associated with a Service.

• **Service**: Represents available services with attributes like name, price, time required, and description. Linked to professionals and service requests.

• **ServiceRequest**: Central entity connecting Customer, ServiceProfessional, and Service. Tracks service interactions with attributes like status (requested, accepted, closed), date of request, completion date, rating, and review.

Relationships (Links):

1. **Customer ↔ User**: One-to-one relationship; a customer is a specific user.

2. **ServiceProfessional ↔ User**: One-to-one relationship; a professional is a specific user.

3. **Service ↔ ServiceProfessional**: One-to-many relationship; multiple professionals can offer a service.

4. **ServiceRequest ↔ Customer**: Many-to-one relationship; a customer can create multiple service requests.

5. **ServiceRequest ↔ ServiceProfessional**: Many-to-one relationship; a professional can handle multiple requests.

6. **ServiceRequest ↔ Service**: Many-to-one relationship; each request pertains to a specific service.
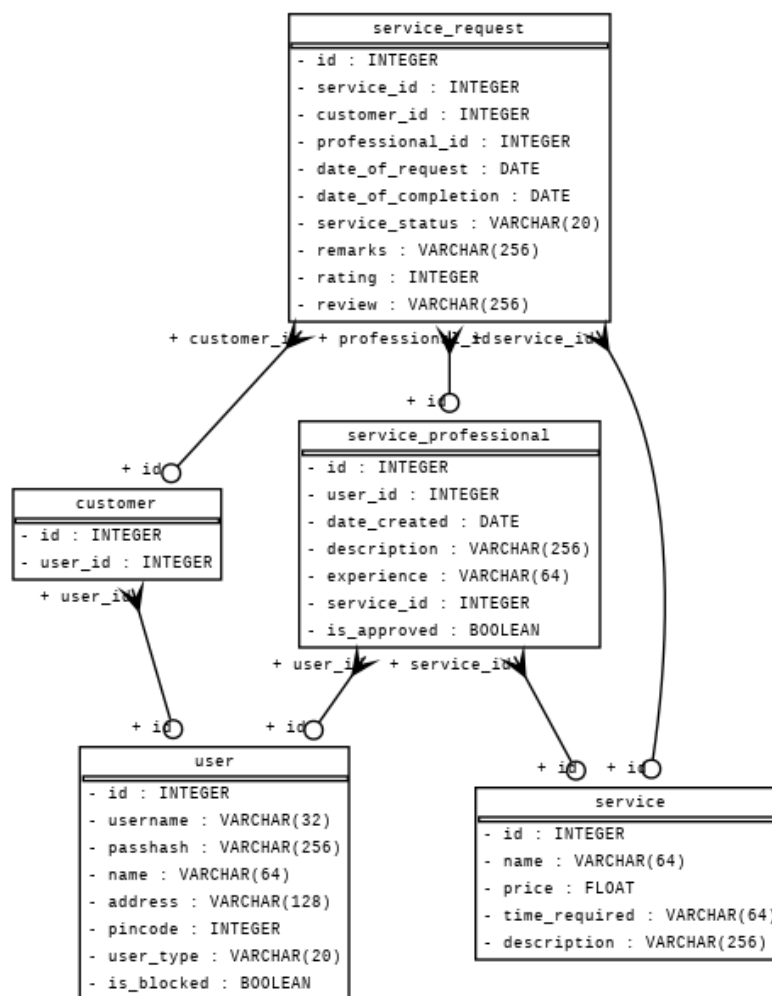
Presentation Video:

Demo Video Link: Link