

Project Report

Introduction and Student Details:

I am **Mohit Saini**, a student of the **IITM BS degree program**, currently at the end of the **Diploma stage**. The only remaining requirement for my completion is the **MAD 2 project**.

This report provides an overview of the **system design and architecture** for a web application called **Household Service Application**. The application is developed using **Flask REST API, Vue.js, JWT authentication, SQLite database, Celery, and Redis**. The system is designed to **connect service professionals with customers**, allowing users to request, accept, and manage household services efficiently.

System Components:

Flask REST API

- Utilized for building the backend of the application.
- Handles HTTP requests and responses.
- Implements JWT authentication for user authorization.

Vue.js

- Frontend framework used to create interactive user interfaces.
- Enables dynamic rendering of content and seamless user interactions.

SQLite Database

- Lightweight and efficient relational database management system.
- Stores data related to users, services, ad requests, alerts etc.

Celery and Redis

- Celery is used for asynchronous task execution.
- Redis acts as a message broker to facilitate communication between Flask and Celery.
- Tasks include sending reminder emails to users and generating monthly reports.

JWT Authentication

- JSON Web Tokens are employed for secure user authentication.
- Users receive tokens upon successful login, which are then used to access protected endpoints.

Model Overview


The database consists of the following main tables: -

- **User:** Stores user account details, including **name, email, password, and roles**.
- **Role:** Defines different **user roles** within the system (**Admin, Customer, Service Professional**).
- **Professional:** Stores information about **service providers**, their expertise, and availability.
- **Customer:** Contains customer details such as **name, address, and contact information**.
- **Service:** Maintains details of **offered household services**, including **pricing, categories, and provider details**.
- **ServiceRequest:** Tracks **customer service requests**, including **status updates and negotiations**.
- **Categories:** Holds various **categories** for household services (**Plumbing, Electrical, Cleaning, etc.**).
- **Alert:** Stores alert messages for users.

System Workflow

- Users interact with the frontend Vue.js application to browse Service, Active User, and Requested Services.
- Flask REST API handles incoming requests, authenticates users using JWT, and • interacts with the SQLite database to retrieve or manipulate data.
- Celery tasks are triggered asynchronously to perform background operations • such as sending reminder emails and generating reports.
- Redis acts as a message broker, facilitating communication between Flask and • Celery for task execution.
- Monthly reports are generated based on user activity and emailed to relevant users.

Video link -:

 Mad2A2Z_HS.mp4