Software Design Specification

for

Grievance Portal-4

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1. Introduction

1.1 Purpose

The purpose of this Software Design Specification (SDS) is to provide a detailed description of the design of the Grievance Portal software system. This document outlines the software design and architecture, data design, component design, and human interface design.

1.2 Scope

The Grievance Portal - “Awaaz” software system is designed to provide a platform for users to submit and track grievances related to various services. The system will have three primary user roles: Citizen, Admin and Officer.

1.3 Overview

This document provides an overview of the software design of the Grievance Portal system. It describes the system architecture, data design, component design, and human interface design.

1.4 References

The following references were used in the creation of this SRS document:

- IEEE Std 830-1998, IEEE Recommended Practice for Software Requirements Specifications
- Indian Government websites related to public services
- SRS document

1.5 Definitions and Acronyms

- SDS: Software Design Specification
- GUI: Graphical User Interface

2. System Overview

The Citizens will be able to submit their grievances and the Officers will be able to view their grievances on the basis of their department and level of authority. The admins of each district will be able to register new officers and view the statistics of the officers in his district. There is an automatic tracking system that details all the actions taken by the officers on a certain complaint, along with extra features such as responsive web design, reminder sending button, etc.

3. System Architecture

3.1 Architectural Design

The system will be designed using a 3-tier architecture, consisting of a presentation layer, application layer, and database layer. The presentation layer will be responsible for rendering the GUI and user interactions. The application layer will handle all business logic and communication with the database layer. The database layer will be responsible for storing and retrieving data.

3.2 Decomposition Description

The Grievance Portal system will be decomposed into the following components:

- Presentation layer
- Application layer
- Database layer

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3.3 Design Rationale

The 3-tier architecture was chosen to provide a separation of concerns and increase modularity. This architecture will also allow for easy scalability and maintenance.

4. Data Design

4.1 Data Description

The following data entities will be used in the Grievance Portal system:

- User data: Contains user information, including name, email, and password.
- Complaint data: Contains information about grievances submitted by users, including subject, description, department, status, and an action history object that contains a record of all the actions taken upon that complaint.
- Officer data: Contains information such as name, email, password, department, level, district, etc.
- Officer Ratings data: Contains information about the rating of an officer, and in which complaint he got how much rating.
- Admin: Contains information such as email id, password of the admin.

4.2 Data Dictionary

The following data dictionary describes the data entities used in the Grievance Portal system:

User data

- ID: The unique identifier for the user.
- Name: The user's name.
- Email: The user's email address.
- Password: The user's password.
- Age: The user’s age.
- Phone number: The user’s phone number.
- District: The user’s district.

Complaint data

- ID: The unique identifier for the grievance.
- Created by: The ID of the user who submitted the grievance.
- Contact: The email address of the user who created the grievance.
- Subject: The subject of the grievance.
- Description: The description of the grievance.
- Department: The department of the grievance.
- Officer ID: The officer assigned to the grievance.
- Action history: The array of actions taken on the grievance.
- Status: The status of the grievance (Pending, In Process, Resolved).
- Date Submitted: The date the grievance was submitted.
- Rating: The rating of the grievance.
- Reopen Count: The number of times the grievance was reopened.

Officer data

- ID: The unique identifier for the officer.
- Name: The officer’s name.
- Department: The officer’s department.
- Level: The officer’s level.
- District: The officer’s district.

- Email: The officer's email address/
- Password: The officer's password.
- District: The officer's district.

Officer Ratings data

- OfficerId: The officer's unique Identifier.
- Average Rating: The officer's average rating.
- Ratings: An array of ratings in which each rating contains the complaint id, user id and number of stars given.

Admin Data

- ID: The unique identifier for the admin.
- Name: The admin's name.
- District: The admin's district
- Email: The admin's email address.
- Password: The admin's password.

5. Component Design

5.1 Component Description

The Grievance Portal system will consist of several components, which will be developed using the following technologies:

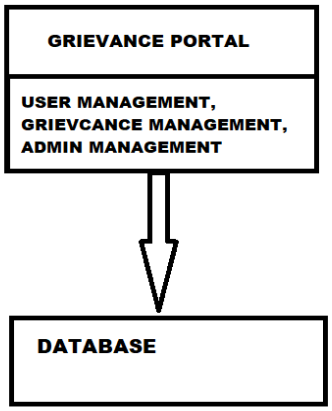
- Frontend: ReactJS,TailwindCSS
- Backend: Node.js, Express.js, MongoDB

The following components have been developed for the system:

User Management Component: This component will be responsible for managing user authentication and authorization. It will handle user login, registration, and password recovery functionalities.
Grievance Management Component: This component will handle the core functionality of the system, which is the management of grievances. It will allow users to submit their grievances, track their status, and receive updates on their grievances.
Admin Management Component: This component will provide administrative functionalities to the system. It will allow administrators to view and manage all grievances, manage user accounts, and generate reports.

5.2 Component Diagram

The component diagram below illustrates the components and their relationships in the system.



6. Human Interface Design

6.1 Overview of User Interface

The Grievance Portal system will have a user-friendly and intuitive interface. The user interface will be designed to provide a seamless experience to the users, and it will be developed using HTML, CSS, and JavaScript. The following section provides a detailed description of the various screens that will be developed for the system.

6.2 Screen Images

The following are the screen images that will be developed for the Grievance Portal system:

- **Home Screen**: This screen will be the first screen that the users will see when they access the system. It will provide an overview of the system and the functionalities that the users can perform.
- **Login Screen**: This screen will allow users to log in to the system. It will provide a form for users to enter their login credentials.
- **Registration Screen**: This screen will allow new users to register for the system. It will provide a form for users to enter their personal details and create a new account.
- **Dashboard Screen**: This screen will provide an overview of the grievances submitted by the user. It will display the status of each grievance and allow users to view the details of each grievance. Here the

user can also send a reminder to the officer or rate the officer when the complaint is resolved.

- **Grievance Submission Screen**: This screen will allow users to submit a new grievance. It will provide a form for users to enter the details of their grievance.
- **Grievance Details Screen**: This screen will display the details of a grievance. It will show the status of the grievance, the date of submission, and the details of the grievance.
- **Officer Dashboard Screen**: This screen will provide an overview of all the grievances in the system. It will display the status of each grievance and allow officers to view the details of each grievance.
- **Officer Grievance Details Screen:** This screen will display the details of a grievance. It will allow administrators to update the status of the grievance and add comments.
- **Admin Dashboard Screen:** This screen will display the details of the officers in the district of the administrator, such as the id of the officer, the number of pending, in process and resolved grievances that it has.
- **Admin Officer Registration Screen**: This screen will allow the administrator to register a new officer with their email ID and password.

6.3 Screen Objects and Actions

The following table provides a list of the screen objects and the actions that can be performed on them.

Screen Object	Action
Home screen	View system overview, Signup
Login	Enter Login Credentials, Login
Registration Screen	Enter Personal details, Create Account
Dashboard Screen	View Grievance Status, View Grievance Details, Send Reminder, Rate Officer
Grievance Submission Screen	Enter Grievance Details, Submit Grievance
Grievance Updation Screen	Update Grievance Status, Provide Feedback

Officer Registration Screen	Admin can register new officer

7. Requirement Matrix

Use Case	Actors	Pre-conditions	Main Success Scenario	Extensions	Post-condition
4.1 User Registration and Login	Citizens	Internet connectivity. Only for allowed mail ids.	User clicks on the login button. App checks for the authorization of login.	Id or password incorrect. Shows error dialog box.	Users can now access all features of the app.
4.2 Add New Grievance	Citizens	Internet connectivity. User has logged into his account.	User creates a new grievance.	Shows Grievance filed! dialog box.	Users can now close the app and wait for the response or file another grievance.
4.3 View Pending Grievances	Citizens, Grievance Officer	Internet connectivity. User must have logged and file at least one grievance	User sees a table showing all pending grievances	Show the details of the grievance.	Users can check all of their pending grievances.
4.4 Check Action History	Citizens, Admin i.e. Grievance Officer	Internet connectivity. Admin must have taken action on at least one grievance submitted by the user	User sees a table showing all grievances on which action has been taken.	It will show the details of the grievance.	User sees a table showing all grievances on which action has been taken.
4.5 Send Reminder	Citizens, Grievance Officer	Internet connectivity. The grievance should be a valid one.	User sends a reminder alert to the admin.	The user can define the priority of the reminder.	User sends a reminder alert to the admin.
4.6 Delete Grievance	Citizens, Grievance Officer	Internet connectivity. Grievance must have been resolved or no need for.	The grievance is deleted from the database.	can add a comment.	The grievance is deleted from the database.

4.7 Submit Grievance to Department	Grievance Officer	Internet connectivity. Grievance should be assigned to the appropriate department.	The Grievance gets sent to the appropriate Government Department for action.	NIL	The Department can view all the details of the grievance.
4.8 Take Action on Grievance	Grievance Officer	Internet connectivity. Grievance should be a valid one.	A status has been assigned to the grievance.	add a question for the user if they are satisfied or not.	Users can give their satisfaction and reviews.
4.9 View Grievances	Grievance Officer	Internet connectivity. Officer login	Admin can view all the grievances and assign the best course of action.	Can inform the user if some other details are required or there is some mistake.	Admin can now assign the grievance to the appropriate department.
4.10 Reopen Grievances	Grievance Officer	Internet connectivity. User login	Users can reopen the grievance.	Display a message indicating the grievance has been reopened.	Department receives the reopened grievance as a new one with action history denoting that it was reopened.

8. Appendices

This section contains additional information that is not necessary for understanding the software design but may be helpful for maintenance or future enhancements.

8.1 Glossary

Term	Definition

Admin	Administrator who has access to all system functionalities.
Officer	Officer who can view and update grievances.
Grievance	A complaint submitted by a user regarding an issue they have faced.

8.2 System Requirements

The system should be able to run on any modern web browser and operating system. The database management system should be capable of handling a large number of transactions without compromising on the system's performance.

8.3 Future Enhancements

The following are some of the features that can be added to the system in the future:
Ability to attach files to the grievance.
Ability to track the time taken to resolve a grievance.
Integration with other systems used by the organization.

IEEE Std 830-1998, IEEE Recommended Practice for Software Design Specifications.