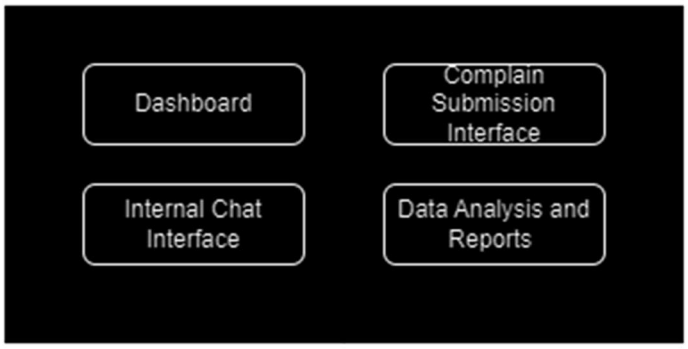
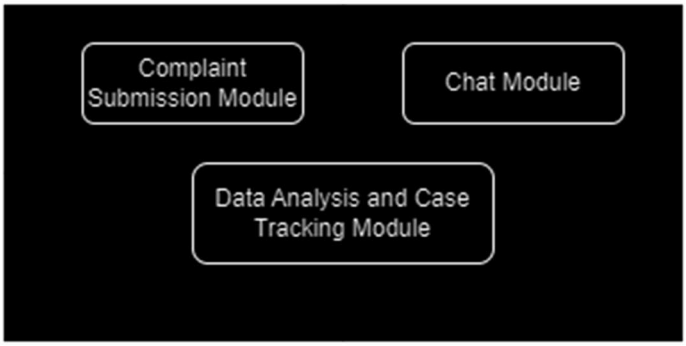
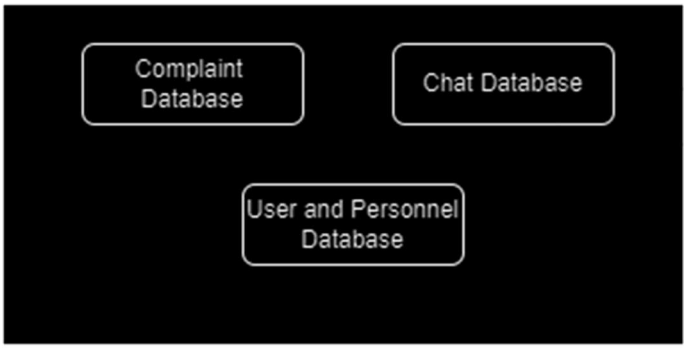
RealHack 5.0 – System Design Problem – Team BabiesHackout







1. User Interface (UI):

    Description: This component comprises different interfaces for various user functionalities, such as complaint submission, case tracking, internal communication, and data analysis.

    Possible Technologies: HTML5, CSS, JavaScript, and a front-end framework like React

    Justification: These technologies offer a responsive and user-friendly interface, ensuring a consistent experience across devices.

2. Application Layer(Models):

    Description: This layer contains modules for different functionalities, including complaint submission, case tracking, internal communication, and data analysis.

    Possible Technologies:

    For server-side logic: Node.js

    For API endpoints: RESTful APIs or GraphQL.

    Justification: These technologies are widely used for building scalable and maintainable server-side applications. RESTful APIs provide a straightforward approach for communication between the client and server.

3. Complaint Submission Module:

    Description: Manages the submission process, validates and stores citizen complaints.

    Possible Technologies:

    Server-Side: Express.js (Node.js framework) for handling complaint submissions.

    Justification: These technologies offer robust data storage and server-side capabilities. PostgreSQL provides relational database features, while MongoDB offers flexibility with a NoSQL approach.

5. Chat Module:

Description: Facilitates communication among police personnel involved in handling complaints for seamless collaboration.

Possible Technologies:

Real-time communication: WebSocket technology for instant messaging.

Server-Side: Node.js with socket.io for real-time event-driven communication.

Justification: WebSocket technology provides low-latency communication, crucial for real-time collaboration among police personnel.

6. Data Analysis Module:

Description: Enables analysis of complaint data to identify patterns, trends, and areas requiring attention and tracks the progress of each complaint from submission to resolution.

Possible Technologies:

Data Analytics: Python

Visualization: Matplotlib or Plotly for generating charts and graphs.

Justification: Python is widely used for data analysis, and these libraries offer powerful tools for extracting insights from the complaint data.

7. Server:

Description: To store the data of the application

Possible Technologies: MongoDB

Justification: MongoDB is chosen for its flexibility, scalability, performance, and seamless integration with Node.js, making it a suitable choice for the server-side database in the Complaint Management System.