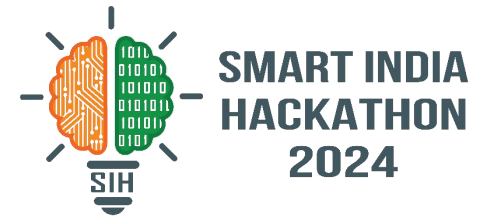
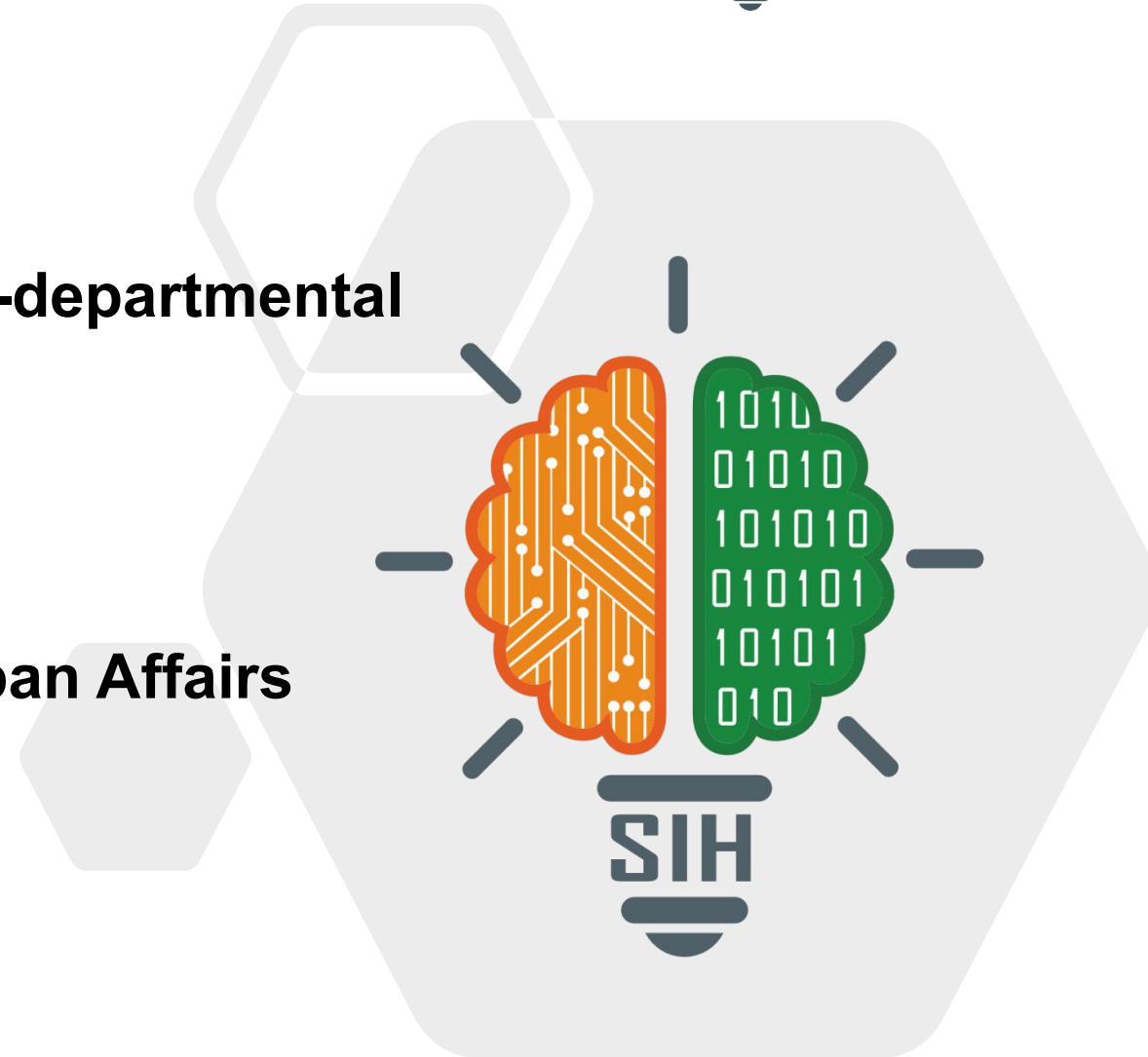
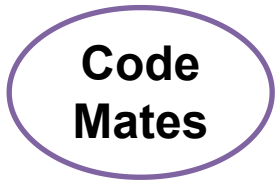


SMART INDIA HACKATHON 2024

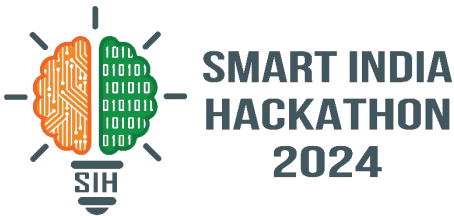


- Problem Statement ID – 1724
- Problem Statement Title- **Platform for Inter-departmental cooperation**
- Theme- **Smart Cities Mission**
- Organization- **Ministry of Housing and Urban Affairs**
- PS Category- **Software**
- Team ID-
- Team Name- **CodeMates**





❖ Infra Link: Linking India's Infrastructure



Detailed Explanation:

Addressing the Problem :

- Provides a centralized platform for different city departments to exchange project data, resources, and scheduling, thus avoiding resource underutilization and project delays.
- Enables inter-departmental communication to coordinate projects at the same location and phase them appropriately, reducing costs and time.
- Offers role-based access control to ensure secure data sharing and collaboration among authorized personnel.

Innovation and Uniqueness :

- The system can analyze past data to recognize patterns and suggest task schedules.
- Suggest changes or adjust schedules automatically to avoid conflicts (e.g., two departments working on the same road).
- Real-time project updates, resource sharing, and coordination features.
- Integrated geospatial tools to detect potential project conflicts and assist in unified project planning.

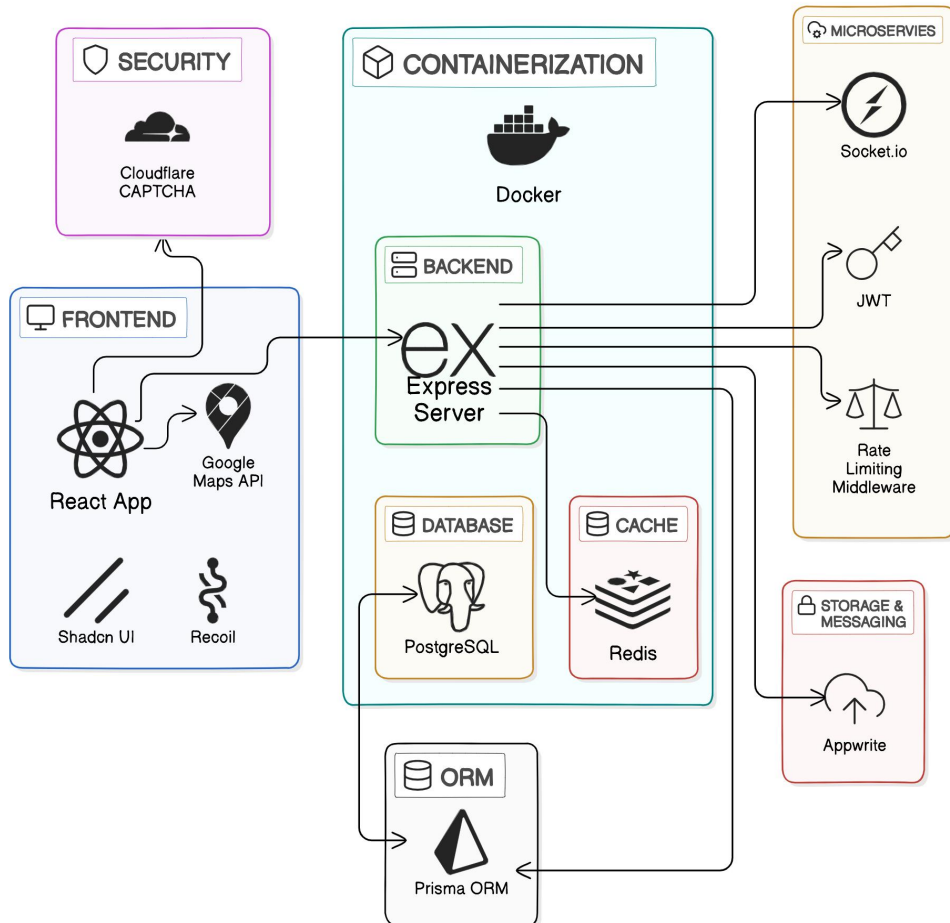
Proposed Solution:

1. Develop a digital platform to streamline collaboration between various departments in Indian cities.
2. Enable resource sharing across departments for optimal use of machinery, expertise, and technology.
3. Facilitate unified project scheduling to prevent overlaps and conflicts in project execution.
4. Enhance communication between departments for better coordination on multi-departmental projects.
5. Improve project management by offering real-time updates and tracking for ongoing and upcoming projects.

Functionality	Availability	Description
Register resources	swapping sharing renting donating Transfer of ownership	The platform enables employees of government organizations to register various resources whether digital or tangible for their availability
Request for resources	sharing swapping renting donating Transfer of ownership	The platform enables organizations to request resources from the point of view of their availability
Training	Training and capacity development	The platform enables organizations to access training easily for continuous skills development.
partnership	Consultancy and learning	The platform helps government organizations to create a partnership for consultancy and learning.

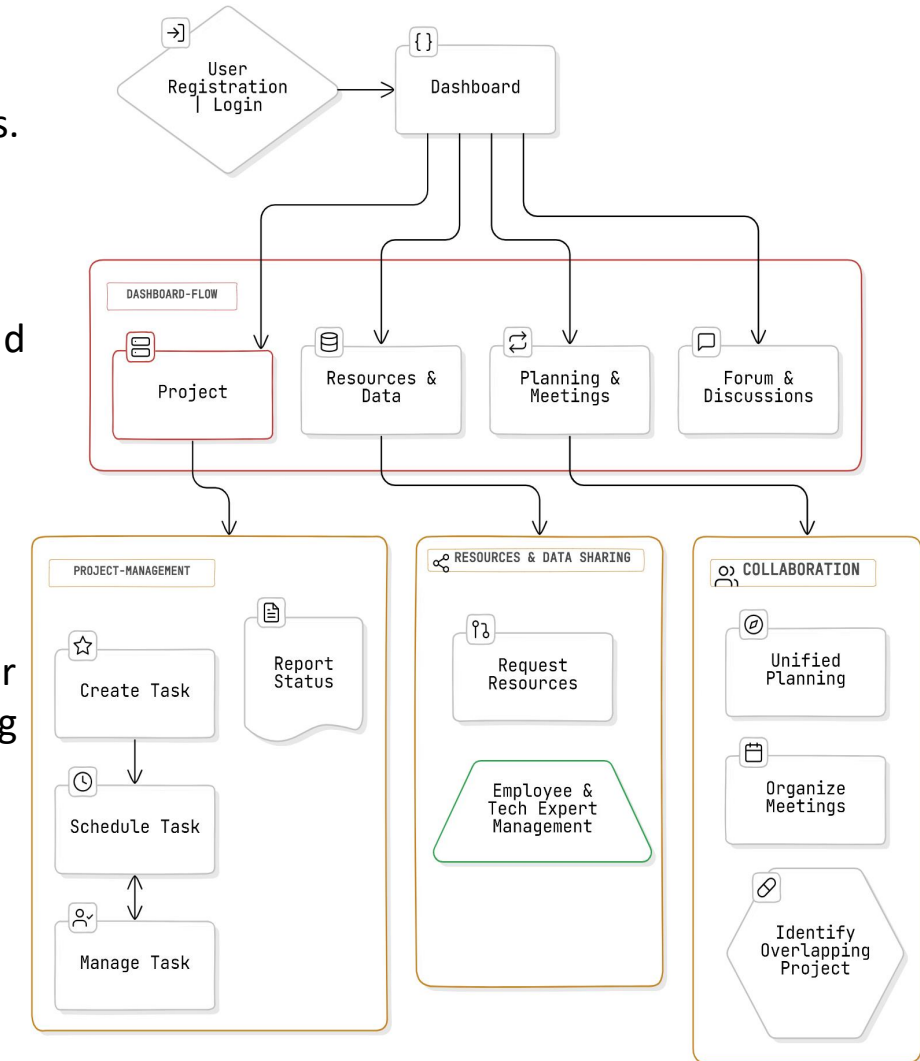
Technologies to be used:

Web Application Architecture



Methodology & Process:

- **Step 1:** Register departments, employees, and technical experts with role-based access.
- **Step 2:** Implement task scheduling, resource sharing, and project database management using Express and Prisma ORM.
- **Step 3:** Use Socket.io for real-time communication and notifications between departments.
- **Step 4:** Trigger notifications for meetings or coordination using Appwrite.
- **Step 5:** Deploy on AWS for scalability and security.



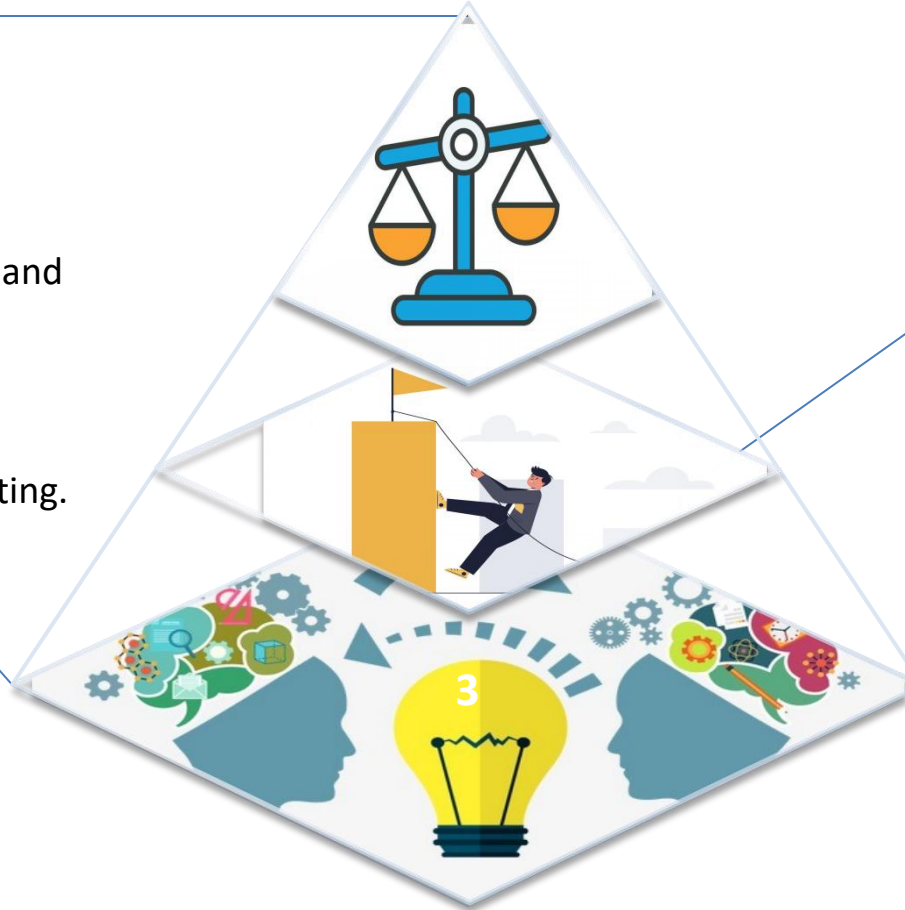
❖ FEASIBILITY AND VIABILITY

Feasibility •

- **Frontend:** React for building a responsive and scalable user interface.
- **Backend:** Node js with Express js framework for efficient server-side operations.
- **Database:** Postgres with Prisma ORM for secure and streamlined database management.
- **APIs:** Google Maps API for quick geospatial data integration.
- **Cloud:** AWS for scalable, secure, and reliable hosting.

Strategies to Overcome •

- **Data Integrity and Security:** Ensuring secure data sharing between departments.
- **Scalability:** Handling large amounts of data from multiple cities and departments.
- **Resource Coordination:** Managing and synchronizing shared resources effectively across departments.
- **Handling Conflicts in Scheduling:** Automating conflict detection and task scheduling, especially when multiple projects overlap at the same site.



Challenges •

- **Security:** Implement end-to-end encryption for data in transit and at rest.
- **Scalability:** Use AWS EC2 and Docker for scalable backend deployment, ensuring dynamic resource allocation.
- **Resource Coordination:** Implement a centralized resource inventory that can be accessed and updated by all departments.
- **Handling Conflicts in Scheduling:** Automate task prioritization and phasing based on project timelines and dependencies. Build conflict-resolution workflows that suggest alternate schedules or shared timelines.



Potential Impact

Efficiency in Urban Projects:

Prevents delays by ensuring seamless coordination between city departments, enabling faster project completion.

Resource Optimization:

Maximizes the use of shared resources, reducing waste and preventing duplication of efforts across departments.

Cost Saving for Government:

By preventing project overlaps and minimizing resource wastage, the solution helps reduce overall project costs, saving government funds.



Benefits

Economic:

Reduces costs by preventing overlapping work and improving project scheduling, leading to better resource utilization and increased productivity.

Environmental:

Minimizes disruptions to city infrastructure, lowering environmental damage caused by repeated work (e.g., repairing roads after multiple agencies intervene).

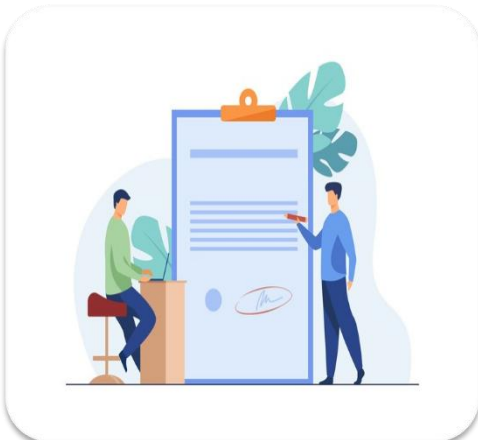
Social:

Enhances communication, transparency, and accountability between departments and the public, improving service delivery and fostering trust.



Research

- Challenges faced by Urban Local Bodies In India.
<https://forumias.com/blog/challenges-faced-by-urban-local-bodies-in-india-explained-pointwise/>
- Studies on digital platforms for resource sharing and project collaboration.
<https://dl.acm.org/doi/full/10.1145/3510615>



Reference

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<https://www.india.gov.in/spotlight/pm-gati-shakti-national-master-plan-multi-modal-connectivity>
- Google Maps API Documentation for geospatial features.
<https://developers.google.com/maps/documentation/javascript>
- Appwrite Documentation for authentication and data storage solutions.
<https://appwrite.io/docs>