SMART INDIA HACKATHON 2024

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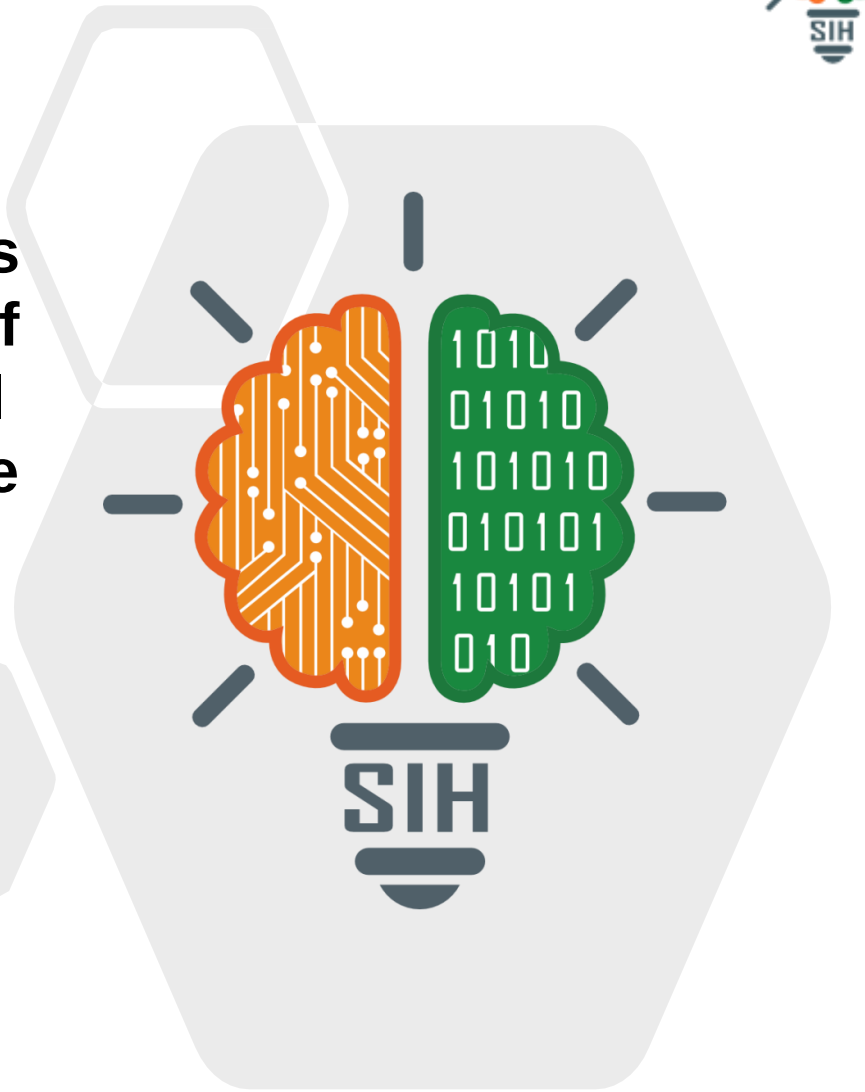
- **Problem Statement ID – 1620**
- **Problem Statement Title- Queuing models in OPDs/ availability of beds/ admission of patients. A hospital based solution is ideal which can be integrated with city wide module.**
- **Theme- MedTech / BioTech / HealthTech**
- **PS Category- Software**
- **Team ID-**
- **Team Name- 2024T21**



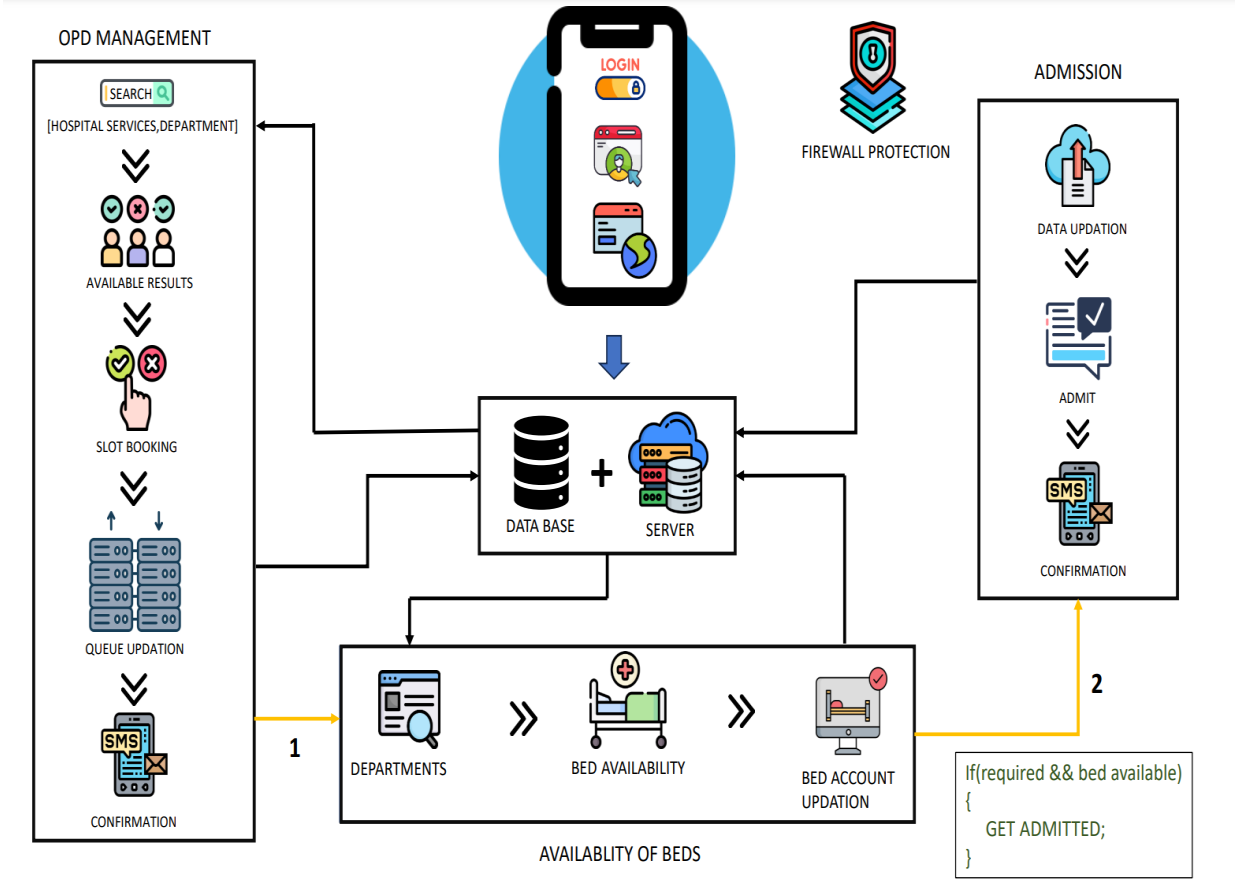
IDEA TITLE

- Centralized, user-friendly web-based portal for hospital management.
- Streamlined forms and document uploads for patient data and records.
- Secure, role-based access for patients, staff, and admins.
- Real-time tracking and reporting of patient flow and bed occupancy.
- API-enabled for integration with existing systems and city-wide modules.

UNIQUENESS:

- **Dynamic Resource Optimization:** Real-time tracking of patient flow and bed availability.
- **Real-Time Data Analytics:** Provides actionable reports on patient flow and resource use.
- **Integrated Alerts and Notifications:** Automated updates for appointments and bed status.
- **Patient Interface for Transparency:** Online access to wait times, bed availability, and appointment booking.
- **City-Wide Integration:** Connects with city-wide modules for comprehensive resource management.
- **Live Tracking of Patients**: Provides real-time tracking of patients and offers information about nearby hospitals.

USE CASE DIAGRAM:



TECHNICAL APPROACH

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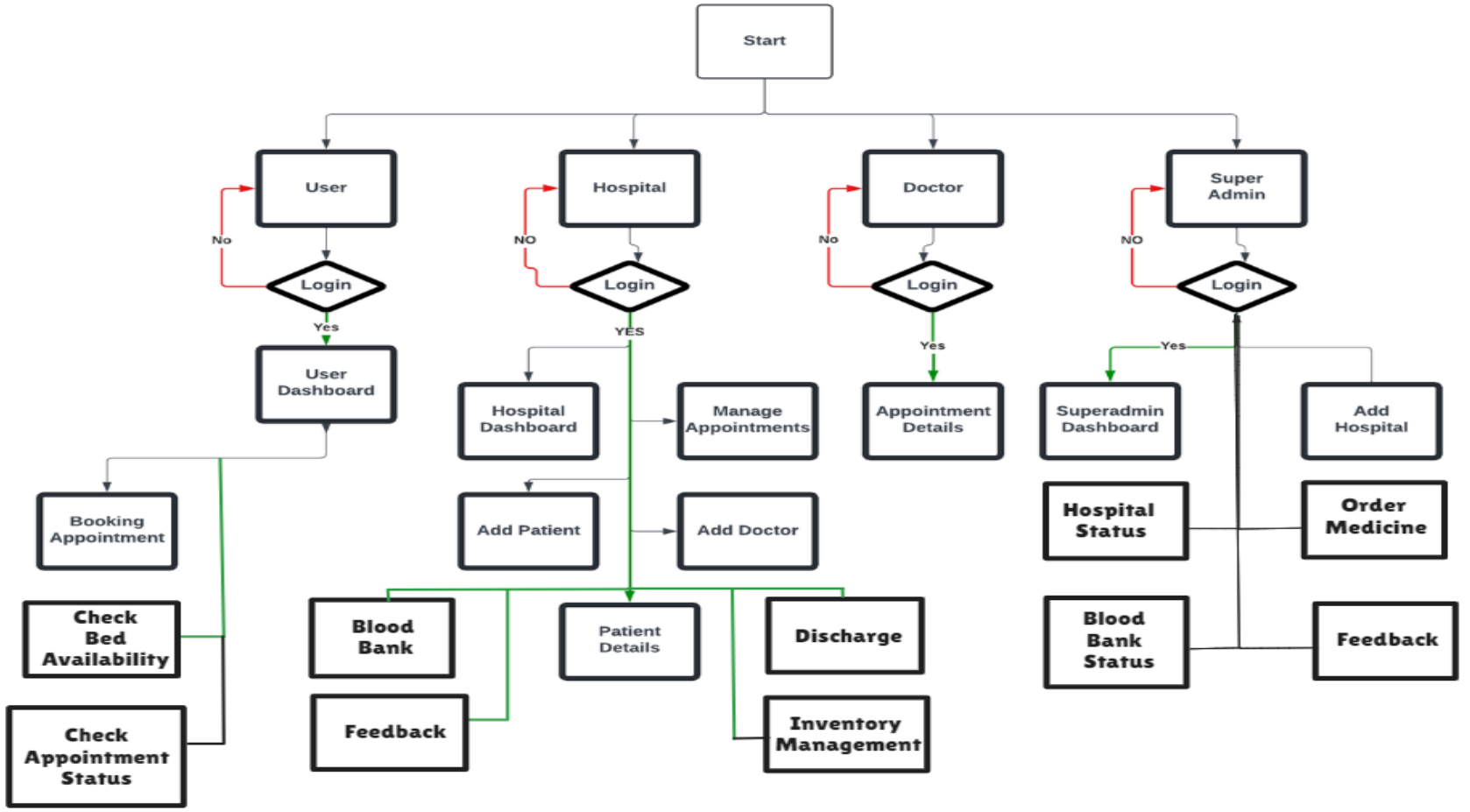
TECHNOLOGY:

- **React.js:** For responsive and dynamic UI
- **JavaScript:** For client-side interactivity
- **Node.js:** Runtime Environment for Server Side
- **Express.js:** Framework for Node.js
- **MongoDB:** For Storing and Managing data
- **Power BI:** Generates insightful data visualizations



FEASIBILITY AND VIABILITY

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Technical Feasibility: Utilizes the MERN stack for scalability, with seamless integration into existing hospital systems and city-wide modules.

Operational Feasibility: User-friendly interface and scalable design makes it easy for hospital staff and patients to adopt and expand.

Economic Feasibility: Cost-effective due to open-source technologies and long-term savings through efficient resource management.

Time Feasibility: Achievable within a reasonable timeline using agile development with room for post-launch improvements.

Challenge	Solution
Data Security	Role-Based Access Control (RBAC), ensuring GDPR compliance for secure data handling.
Integration with Existing Systems	API-enabled for seamless integration with existing systems and city-wide modules.
Real-Time Tracking & Reporting	Implement robust real-time tracking and reporting mechanisms for patient flow and bed occupancy.

Impact

Adaptable Tool: Can be modified to track and manage other healthcare projects effectively.

Resource Utilization: Optimizes bed usage and resource allocation in real-time.

Efficient Processes: Reduces manual effort and improves scalability in hospital operations.

Benefit

Patient Satisfaction: Simplifies appointment booking and provides real-time updates.

Simplified Management: Streamlines tracking of patient flow, bed availability, and compliance.

Data Security: Protects patient data with secure, authorized access.

RESEARCH AND REFERENCES

- **eHospital by the Ministry of Health & Family Welfare, Government of India**
  https://ehospital.nic.in/
- **World Health Organization (WHO) - Hospital Management**
  https://www.who.int/hospitals
- **National Health Service (NHS) - Hospital Management Systems**
  https://www.nhs.uk/hospital-management
- **Health IT - The Office of the National Coordinator for Health Information Technology (ONC)**
  https://www.healthit.gov/
- **Healthcare Information and Management Systems Society (HIMSS)**
  https://www.himss.org/