Project Name: Smart Campus Issue & Resource Management System

1. Current Limitations

While the current prototype successfully structures the reporting process, several limitations are acknowledged:

- **Prototype Data Persistence:** For the purpose of this hackathon demonstration, the system utilizes **browser-based local storage** to simulate the database. A production deployment would require migration to a centralized cloud database (e.g., PostgreSQL).
- **Basic Authentication:** The system uses a simulated login mechanism. It does not currently integrate with the University's official Single Sign-On (SSO) or LDAP system.
- **Static Location Data:** The list of blocks and rooms is currently static. The system does not yet dynamically sync with the university's master infrastructure map.

2. Technical Limitations

- **Offline Synchronization:** While the frontend retains data during a session, the system does not yet support a full "Offline-First" architecture (PWA) that syncs automatically when an internet connection is restored after a long outage.
- **Scalability:** The current client-side processing logic is optimized for demonstration loads. Large-scale deployment would require server-side caching and load balancing.

3. Future Enhancements (Roadmap)

To transition this prototype into a production-grade campus solution, the following features are proposed:

A. AI-Driven Priority Sorting

Integration of Natural Language Processing (NLP) is planned to analyze description text.

- *Objective:* Automatically detect high-risk keywords (e.g., "spark," "fire") and upgrade priority to "High" without manual intervention.

B. Mobile Application

Development of a native mobile app is proposed to leverage device hardware:

- **Camera Integration:** To allow users to upload photos of broken facilities.
- **GPS Geotagging:** To automatically detect the user's location (Block/Hostel).

C. IoT Integration

Future iterations aim to connect with "Smart Campus" sensors (e.g., smart water tanks) to automatically generate tickets when infrastructure failures are detected.

4. Real-World Deployment Considerations

- **Data Privacy:** All student data must be encrypted to comply with institutional privacy policies.
- **Adoption Strategy:** A gamification strategy (e.g., "Top Reporter" badges) could be introduced to incentivize students to switch from WhatsApp to this platform.