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Web Tech Fall 2025 Final Exams

Project Description

"I am developing an interactive, web-based inventory management system called **Mecha-Lab Manager**. This platform helps the Ashesi Engineering Department track common, inexpensive (and expensive) hardware components (such as Arduinos, sensors, and motors). It solves the problem of lost equipment and inefficient manual tracking by providing a digital dashboard where Lab Administrators can manage inventory, and Students can view equipment availability in real-time."

PERSONA(s)	PROBLEM:
Persona X (The Administrator): "Mr Lockman Tinubu." He needs a way to quickly add new components to the system and see who has borrowed what without checking a paper logbook. **Persona K (The Student):** "Keli, 2nd Year CS." He needs to know if a DHT11 Sensor is available before walking all the way to the lab.	The current process of tracking lab equipment is manual or non-existent, leading to lost items (Arduino Unos often go missing), frustration for students who need parts for projects, and a lack of accountability...

User Roles / Services

Service: Equipment tracking and status management...

User Roles:

- **Admin:** Has complete control. Can **Create** new items, **Update** status (mark as broken/lost), and **Delete** old items.

- **Student:** Read-only access (initially). Can **read** the dashboard to see what is available (e.g., "5 Ultrasonic Sensors Available")...

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Main Functions of the Website (CRUD)

1. Inventory Dashboard: A visual table displaying all lab components with status indicators (Green for Available, Yellow for Borrowed).

2. Add Component (Create): A form for Admins to register new equipment with unique Serial Numbers.

3. Status Updates (Update): A mechanism to change an item's status when it is checked out or returned.

4. Analytics: A chart visualization showing the percentage of broken vs. working equipment.

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