Software Requirement Specification for TAC Portal

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Project ID	34
Problem Statement	BIT inventory management system

COMPONENTS:

FRONT END	Vue.js
BACK END	Node.js with Express.js
DATABASE	MongoDB
API	REST Ful API

Implementation Timeline

Phase	Deadline	Status	Notes
Stage 1	**26/07/24**	**In Progress**	**Planning and Requirement Gathering**
Stage 2		**Not Started**	**Design and Prototyping**
Stage 3		**Not Started**	**DB Designing**
Stage 4		**Not Started**	**Backend Implementation**
Stage 5		**Not Started**	**Testing & Implementation**
Stage 6		**Not Started**	**Deployment**

1. Introduction

Purpose:

The purpose of this project is to develop a comprehensive, paperless inventory management system using the MEVN stack to streamline material requests, approvals, and billing processes within a campus. By integrating MongoDB, Express.js, Vue.js, and Node.js, the system will enhance efficiency, reduce manual paperwork, and provide real-time tracking of inventory levels, ultimately improving resource management and administrative workflow in an educational setting.

Scope of Project:

1. **Material Request Submission:** Users can submit and manage material requests through a web interface.

2. **Approval Workflow:** Administrators review, approve, or reject requests, ensuring proper authorization.

3. **Inventory Tracking:** Maintain real-time updates on inventory levels and adjust based on requests.

4. **Billing and Transactions:** Automate billing processes and track financial transactions for approved requests.

5. **Reporting and Analytics:** Generate reports on inventory usage and request statuses to support decision-making.

2. System Overview:

2.1. Users:

1. **Students**:

● Create and submit material requests including details like item name, quantity, and Purpose.

- View the status of their requests, including approval, rejection, or pending status.
- Get notifications about request status updates and inventory changes.
- Access historical records of past requests and their outcomes.

2. Admins:

● Review, approve, or reject material requests submitted by requesters.
● Adjust inventory levels based on approved requests and track stock availability.
● Oversee and process billing for approved requests, including invoice generation.
● Produce and analyze reports on inventory usage, request statistics, and financial transactions.

- Manage user accounts, including adding or removing users and assigning roles and permissions.

2.2. Features:

Request Submission: Use a web interface to submit material requests, including details such as item name, quantity, and justification.

Approval Workflow: Utilize an admin dashboard to review, approve, or reject material requests with integrated approval workflows.

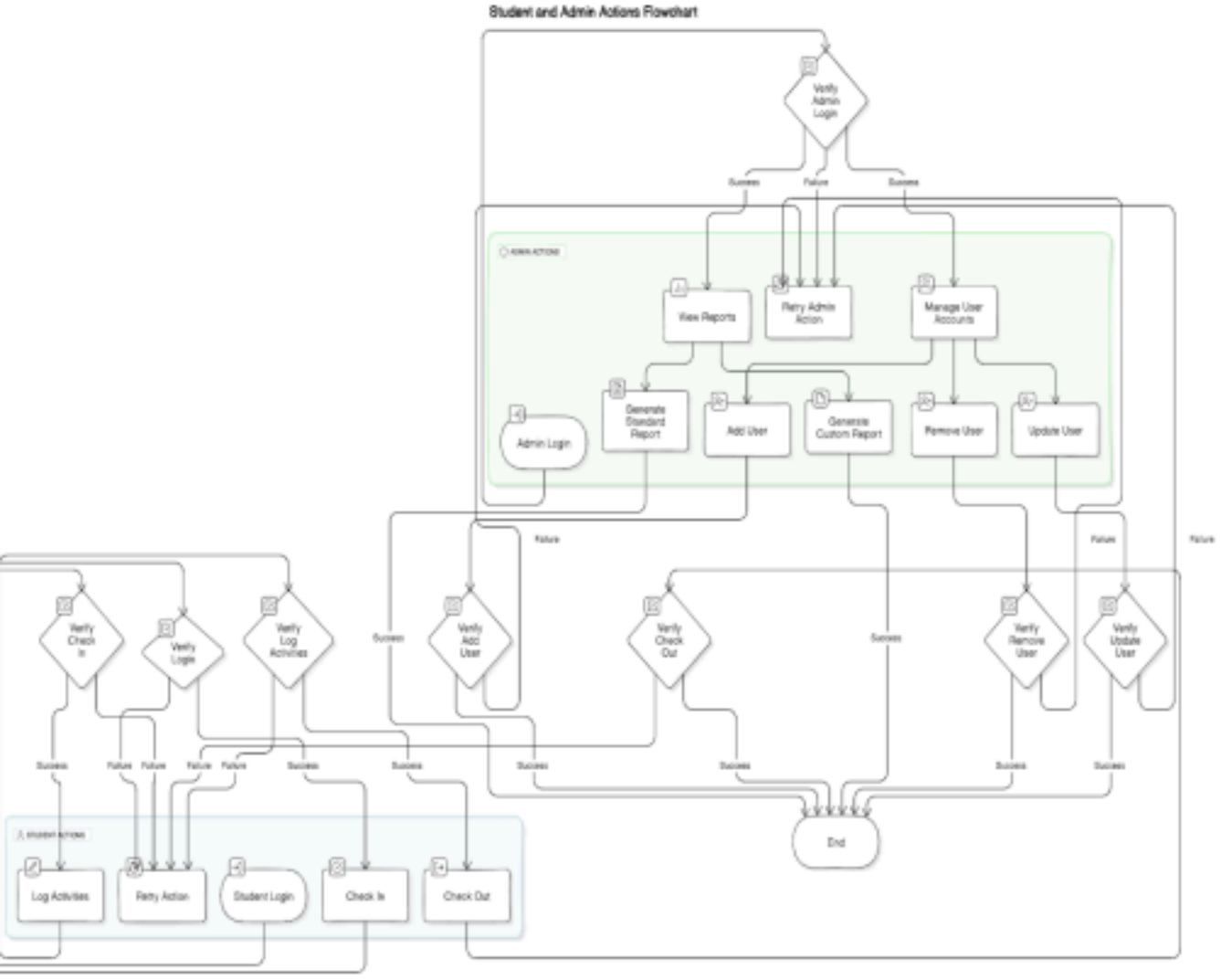
Inventory Tracking: Access real-time inventory updates through a centralized dashboard, reflecting current stock levels and recent adjustments.

Billing Management: Generate and manage invoices for approved requests, with automated billing processes and transaction

tracking.

Reporting and Analytics: Create customizable reports and analytics on inventory usage, request statuses, and financial transactions to support strategic decision-making.

STUDENT AND ADMINS WORKFLOW:



3. System Requirement Analysis:

3.1. Functional Requirements:

- **User Management:**
  - **Requesters:** Users can create and manage their material requests, including providing

item details and justification.

- **Admins:** Administrators can manage user accounts, including adding or removing requesters and assigning roles and permissions. Secure login with password hashing is required for all users.

- **Material Request Management:**
  - **Request Submission:** Requesters can submit material requests through a web interface, specifying item name, quantity, and purpose.
  - **Request Tracking:** Requesters can track the status of their requests (approved, rejected, pending) and receive notifications about updates.
  - **Approval Workflow:** Admins can review, approve, or reject material requests, with an integrated workflow to handle requests efficiently.
- **Inventory Management:**
  - **Real-Time Tracking:** Admins can view and update inventory levels in real-time, reflecting changes based on request approvals and stock adjustments.
  - **Stock Alerts:** Automated alerts for low stock levels to ensure timely replenishment.
- **Billing and Transactions:**
  - **Invoice Generation:** Admins can generate and manage invoices for approved material requests, including tracking financial transactions.
  - **Transaction History:** Maintain a record of all billing transactions for auditing and review purposes.
- **Reporting and Analytics:**
  - **Admin Dashboard:** Admins can access a comprehensive dashboard to monitor real-time data on inventory levels, request statuses, and financial transactions.
  - **Customizable Reports:** Generate and download detailed reports and analytics on inventory usage, request trends, and financial summaries for specified periods.

3.2. Non-Functional Requirements:

●**Performance:** The system must handle many concurrent users efficiently and provide quick response times for actions like request submission and inventory tracking.

- **Security:** Encrypt sensitive data such as passwords and personal information. Implement role-based access control to restrict feature access to authorized users.
- **Usability:** Design intuitive and user-friendly interfaces for both students and admins, with clear instructions and feedback.
- **Reliability:** Ensure high system availability with minimal downtime and regular data backups to prevent data loss.
- **Scalability:** Design the system to support growing user numbers and data volume, with the capability to scale and add features as needed.

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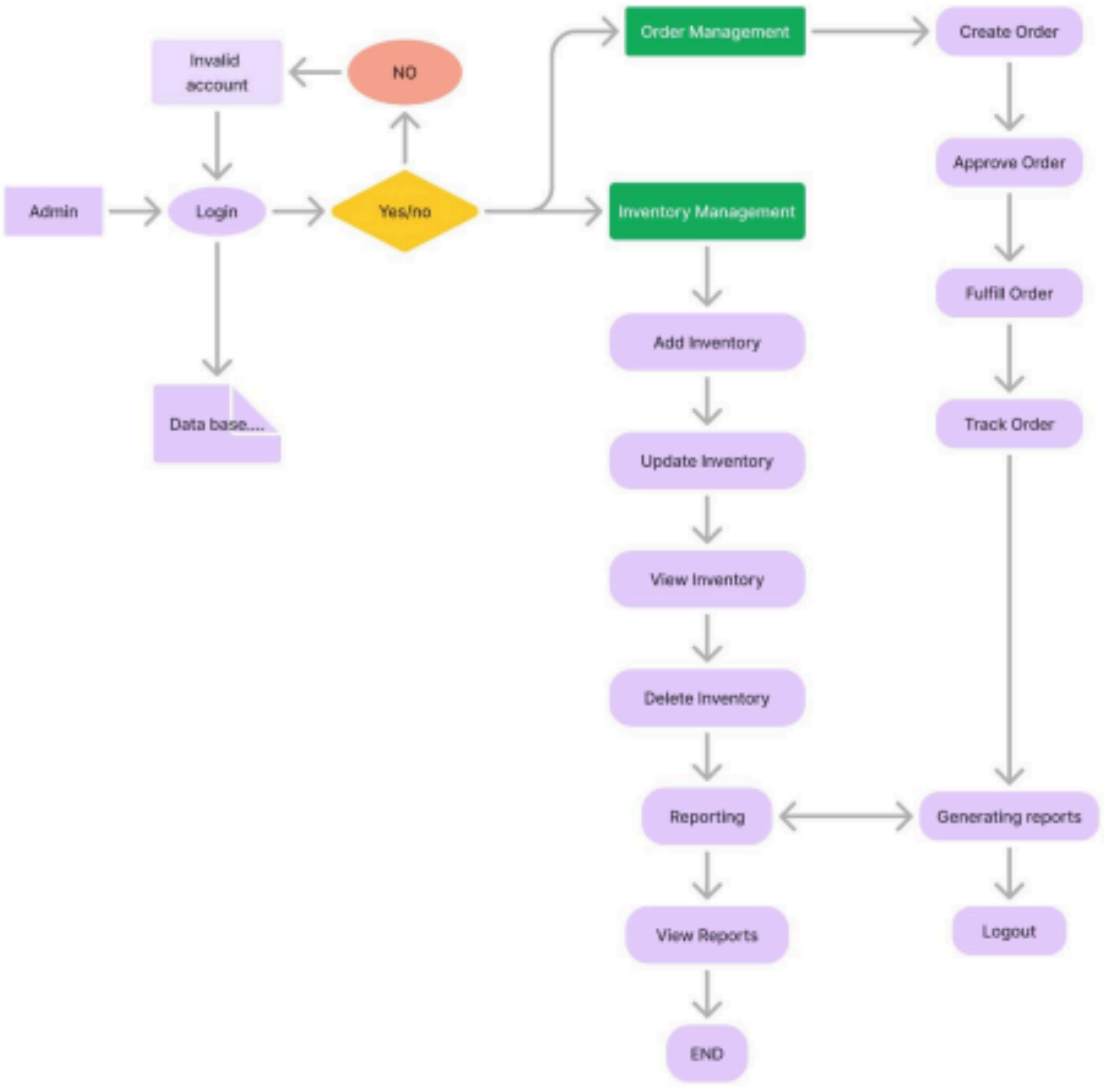
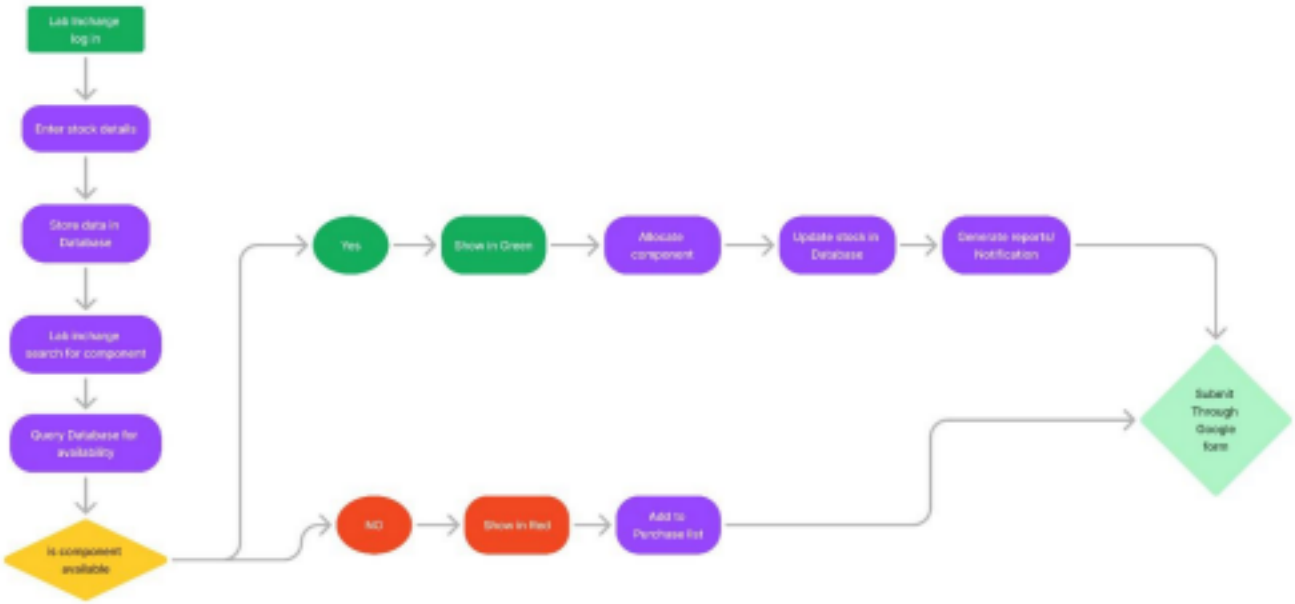
FLOWCHART:

Admin Flowchart:



Staff Flowchart:


Lab Incharge log in
Enter stock details
Store data in Database
Lab incharge search for component
Query Database for availability
Is component available
Yes
Show in Green
Allocate component
Update stock in Database
Generate report/ Notification
NO
Show in Red
Add to Purchase list
Submit Through Google form