Kanban Board Project Week 3 Deliverable

Week 3 Deliverables (August 19 - August 23)

Stage 2: Setup and Basic Implementation (continued) Objective: Continue backend and frontend development, focusing on database integration and initial components.

1. **August 19: Database Integration**
   - **Task 1: MongoDB Connection**
     - Establish a secure connection between the backend application and MongoDB (hosted on Google Cloud Platform).
     - Implement connection pooling and error handling to ensure stability.
   - **Task 2: CRUD Operations**
     - Implement basic Create, Read, Update, and Delete (CRUD) operations for the `Users` and `Projects` collections.
     - Test these operations using Postman or similar API testing tools to ensure they are functioning correctly.
   - **Task 3: Security Measures**
     - Implement security measures to protect the database connection, such as using environment variables for sensitive data like connection strings.
     - Ensure that database operations are only accessible to authenticated and authorized users.
2. **August 20-21: Initial Backend Endpoints**
   - **Task 1: User Authentication**
     - Develop API endpoints for user registration and login.
     - Implement JWT (JSON Web Token) for secure authentication, ensuring that tokens are securely stored and validated.
     - Create middleware for protecting routes that require authentication.
   - **Task 2: Project Management Endpoints**
     - Develop API endpoints for creating, updating, and deleting projects.
     - Implement logic to ensure that only users with the appropriate permissions (e.g., Admin, Project Manager) can perform certain actions.
   - **Task 3: Business Logic and Error Handling**
     - Implement basic business logic for managing projects and users, including input validation and data integrity checks.
     - Implement robust error handling to provide meaningful error messages and prevent system crashes.

1. **August 22-23: Initial Frontend Components**
   - **Task 1: Login Component**
     - Develop the Login component with a user-friendly interface.
     - Implement form validation to ensure that users enter valid credentials.
     - Connect the Login component to the backend API to handle user authentication.
     - Implement error handling for failed login attempts (e.g., incorrect username/password).
   - **Task 2: Dashboard Component**
     - Develop the Dashboard component to display a list of projects for the logged-in user.
     - Fetch project data from the backend API and display it in a user-friendly format.
     - Implement responsive design to ensure the dashboard works well on different screen sizes.
   - **Task 3: Data Fetching and State Management**
     - Implement state management using Redux (or Context API) to handle the application's global state, focusing on user authentication and project data.
     - Ensure that data fetched from the backend is properly stored and updated in the frontend state.
     - Implement loading states and error messages to improve the user experience.

1. **August 19-23: Design Support and Iteration**
   - **Task 1: UI/UX Review**
     - Review the initial frontend components (Login and Dashboard) to ensure they align with the design system.
     - Provide feedback to the frontend team on the usability and aesthetics of the components.
   - **Task 2: Design Adjustments**
     - Make any necessary adjustments to the wireframes/mockups based on the frontend implementation and feedback.
     - Ensure that the designs are responsive and accessible, following best practices.
   - **Task 3: User Experience Enhancement**
     - Collaborate with the frontend team to implement UX enhancements, such as smooth transitions, intuitive navigation, and clear user feedback mechanisms.
     - Conduct a quick usability test (if possible) with a small group of users to gather initial feedback and identify any areas for improvement.

Summary of Week 3 Deliverables:

- **Backend Team:**
  - Successful integration of MongoDB with the application.
  - Implementation of basic CRUD operations for Users and Projects collections.
  - Development of initial API endpoints for user authentication and project management.
  - Implementation of business logic and error handling.
- **Frontend Team:**
  - Development of the Login component with authentication flow.
  - Development of the Dashboard component to display project lists.
  - Successful connection of frontend components with backend APIs for authentication and project data fetching.
- **UI/UX Team:**
  - Ongoing support for the frontend team in implementing designs.
  - Iteration on designs based on frontend implementation and feedback.
  - Enhancements to user experience through design adjustments and usability testing.