MERN Stack Interview Assignment: Multi-Tenant Task Management Platform

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Overview

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You are required to build a **Multi-Tenant Task Management Platform** using the **MERN Stack** (MongoDB, Express.js, React, Node.js). The project will evaluate your full-stack development skills, understanding of multi-tenancy, backend job scheduling, and containerization/deployment practices.

Note: Feature 1 is mandatory but Feature 2 is good to have

Core Features

1. Multi-Tenant User Management

Organization-based Multi-Tenancy:

Ensure that all data is isolated per organization. A user should only have access to data belonging to their organization.

• Role-Based Authentication:

Implement 3 roles within an organization:

- o Admin: Full access to organization and user management
- Manager: Can manage tasks and assign them to members
- Member: Can view and update assigned tasks
- User Registration & Onboarding:
 - Option to create a new organization during registration
 - o Option to join an existing organization via an invite

• Invitation System:

Admins/Managers should be able to invite users to their organization via email or invite link.

Authentication:

- Use JWT for secure session handling
- o Include role-based access control (RBAC) at the API level

2. Task Management with Expiry

- CRUD Operations:
 - o Create, read, update, and delete tasks scoped to the organization
 - Only authorized users can perform these actions based on their roles

• Task Assignment:

Tasks should be assignable to members within the organization

Additional Task Features:

- Task **categories** (e.g., Bug, Feature, Improvement)
- Task priority (e.g., Low, Medium, High)
- Due date for each task

Automated Task Status & Expiry:

- o Task statuses: Todo, In Progress, Completed, Expired
- Implement a background job (e.g., with node-cron) to auto-update task status to Expired once the due date passes

• Overdue Notifications:

Notify assigned users of overdue tasks (in-app notification preferred)

3. Organization Management (BONUS Section)

Dashboard:

 Overview of task statistics: total tasks, overdue, completed, per category/priority

• Member Management:

o Admins should be able to view, invite, remove users, and assign roles

Organization Settings:

o Basic preference configuration like name, theme (optional), etc.

Deliverables

1. Application Code

- Complete MERN stack application
- Multi-tenant architecture implementation
- Task expiry functionality with background jobs
- Role-based access control

2. Containerization

- Docker files for all services
- Docker Compose configuration
- Production-ready container setup

3. Deployment Documentation

- Server setup guide with prerequisites
- CI/CD pipeline configuration
- Environment variables documentation
- Database migration scripts

4. Testing Flow

- Unit tests for critical functions
- API endpoint testing
- Container health checks