

# MERN Stack Interview Assignment: Multi-Tenant Task Management Platform

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## Overview

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:
  - **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
  - 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
- Include **role-based access control (RBAC)** at the API level

## 2. Task Management with Expiry

- **CRUD Operations:**

- 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:**

- 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:**

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

- **Organization Settings:**

- 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