

**Final Project Report – Task Management App**

Course:

Advanced Programming

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Mejdlaya 2025

**Task Management Application - Report**

**Overview:**

The Task Management Application is a platform designed to streamline task and project management across multiple workspaces. It provides role-based functionalities for Admins, Members, and Viewers to efficiently manage workspaces, projects, tasks, comments, tags, and notifications.

**User Roles and Their Permissions:**

1. **Admin:**
   * Full access to manage workspaces, projects, tasks, tags, and users.
   * Can crate, edit, and delete workspaces.
   * Can add or remove users as Members or Viewers.
   * Can create and manage projects, tasks, and subtasks.
   * Can assign tasks and define tags.
2. **Member:**
   * Can create and manage projects and tasks within a workspace.
   * Can assign tags to tasks in a workspace.
   * Can add comments and mention users in comments.
   * Can access workspace notifications but cannot add/remove users.
3. **Viewer:**
   * Can view projects, and tasks but cannot modify them.
   * Can add comments and mention users in comments.

### How It Works - User Story:

As a user, you can create an account and access a personalized dashboard where you can view all the workspaces you are a part of. These workspaces are categorized based on your role: Admin, Member, or Viewer. Additionally, you can create new workspaces, where you will automatically be assigned as the Admin of that workspace.

Within a workspace, Admins have the ability to manage users. This includes adding new users as Members or Viewers, editing their roles, or removing them from the workspace. Members, while they cannot manage users, can still create, edit, and delete projects, tasks, and tags. Viewers, on the other hand, have a read-only access level and cannot perform any actions beyond viewing the content and adding comments.

Projects within a workspace can be managed by Admins and Members. They can create new projects, assign tasks and subtasks to users (only Admins and Members, not Viewers), and edit or delete project details. Tasks can be prioritized, assigned due dates, and tagged with workspace-specific tags.

For notifications, all users receive alerts regarding approaching deadlines, assigned tasks, and mentions. This ensures that everyone is aware of important updates, regardless of their role.

Finally, comments are accessible to all roles. All users can add comments on tasks and mention other users within the workspace, enabling effective communication and collaboration.

**Detailed Functionalities and APIs:**

**1. Authentication & User Management:**

* **Signup (/signup)**: Allows a new user to create an account by providing full name, email, and password. User receives a user\_ID and created\_at timestamp.
* **Login (/login)**: Authenticates a user using email and password, generating a JWT token.
* **Logout (/logout)**: Invalidates the JWT token.

**2. Dashboard:**

* **Fetch Workspaces (/get-workspaces)**: Retrieves all workspaces the user is part of, categorized by role (Admin, Member, Viewer).
* **Workspace Count by Role (/count-workspaces-by-role)**: Provides a count of workspaces categorized by role.
* **Notifications (/get-notifications)**: Displays all notifications for the logged-in user, including mentions, comments, assignment notifications, and task/project deadlines.
* **Unread Notifications Count (/count-not-read-notifications)**: Provides a count of unread notifications.

**3. Workspace Management:**

* **Create Workspace (/create-workspace)**: User create a workspace and he is the admin of it.
* **Add User to Workspace (/add-user)**: Admin can add users as Members or Viewers to the workspace.
* **Get Users in Workspace (/get-users)**: Fetches all users in a workspace along with their roles.
* **Delete Workspace (/delete-workspace)**: Admin can change the status of a workspace to 'removed'.
* **Edit Workspace (/edit-workspace)**: Admin can update workspace details.

**4. Project and Task Management:**

* **Create Project (/create-project)**: Admin or Member can create a project with a start date, deadline, and status.
* **Edit Project (/edit-project)**: Admin or Member can update project details.
* **Delete Project (/delete-project)**: Admin or Member can change the project status to 'removed'.
* **Create Task (/create-task)**: Admin or Member can create a task within a project, with priority, due date, and optional parent task ID.
* **Assign Tag to Task (/assign-tag-to-task)**: Admin or Member can attach predefined tags to a task.
* **Edit Task (/edit-task)**: Admin or Member can update task details and tags.
* **Delete Task (/delete-task)**: Admin or Member can remove a task by changing its status to 'removed'.

**5. Commenting and Mentions:**

* **Add Comment (/add-comment-on-task)**: All roles can comment on a task.
* **Mention User (/mention-user-in-comment)**: Commenter can mention users in the workspace to trigger notifications.

**6. Tag Management:**

* **Create Tag (/create-tag)**: Admin or Member can create tags with a name and color code. Tags are in a workspace and can be reused across tasks.

**7. Notifications:**

* Notifications are automatically generated for:
  + Task assignments
  + Project and task deadlines
  + Comments and mentions