

To-Do Application API - Project Requirements

Project Overview

Build a comprehensive To-Do Application API using FastAPI that allows users to manage their tasks efficiently with features like task organization, task Management, and user Management. Functional Requirements

1. User Management

- User Registration: Users can create accounts with email and password
- User Authentication: JWT-based login system
- Password Security: Secure password hashing using bcrypt algorithm for storage
- Password Management: Change password functionality with current password verification.
- Password Validation: Enforce strong password requirements (minimum 8 characters, uppercase, lowercase, numbers).
- User Roles: Support for three roles - Staff User, Admin, and Superuser
- Profile Management: Basic user profile with name and email updates

2. Task Management

- Create Tasks: Add new tasks with title, description, priority, and due date
- Update Tasks: Edit task details, status, and properties
- Delete Tasks: Soft Delete functionality
- Task Status: Track task states (Pending, In Progress, Completed, Cancelled)
- Task Priority: Set priority levels (Low, Medium, High, Urgent)
- Due Date Management: Set and track task deadlines

3. Task Organization

- Role-Based Task Access Control: Staff users can only view and manage their own tasks, while Admin or Superuser roles have full access to view and manage all tasks across the entire system.
- Task Search: Search tasks by title, description.
- Task Filtering: Filter by status, priority, due date
- Task Sorting: Sort by creation date, due date, priority, or alphabetically

4. Notifications & Alerts

- Due Date Reminders: Email notifications for upcoming deadlines
- Daily Digest: Morning email with today's tasks
- Overdue Alerts: Notifications for overdue tasks
- Task Completion Notifications: Confirmation emails when tasks are marked complete