Task Management System - Project Documentation

# Overview

The Task Management System is a backend-only Spring Boot application that helps users manage and organize tasks. The application will   
allow users to perform CRUD operations on tasks, categorize them, and manage task statuses. Optional advanced features include task   
reminders based on the due date.

# Key Features

1. Task CRUD Operations:  
 - Create a new task with title, description, priority, and due date.  
 - Read all tasks, with the option to filter by priority or due date.  
 - Update task details such as status or description.  
 - Delete a task.  
   
2. Task Status Management:  
 - Manage task statuses: "Not Started", "In Progress", and "Completed".  
   
3. Task Categories:  
 - Categorize tasks (e.g., Work, Personal) and filter by category.  
   
4. Task Deadline Reminder (Optional):  
 - Implement email or notification reminders for approaching due dates.

# Entity Design

1. Task Entity:  
 - id: Auto-increment primary key.  
 - title: Title of the task.  
 - description: Description of the task.  
 - status: Status of the task (Not Started, In Progress, Completed).  
 - priority: Priority level (Low, Medium, High).  
 - dueDate: Task due date.  
 - category: Category to group tasks (Work, Personal, etc.).

# Technology Stack

- Backend: Spring Boot, Spring Data JPA, Hibernate.  
- Database: MySQL.  
- Tools: Maven (for dependency management), Postman (for API testing).

# API Endpoints

1. POST /tasks: Create a new task.  
2. GET /tasks: Retrieve all tasks, with optional filters for status or category.  
3. GET /tasks/{id}: Retrieve a specific task by its ID.  
4. PUT /tasks/{id}: Update the task details (e.g., status, description).  
5. DELETE /tasks/{id}: Delete a task by its ID.  
6. DELETE /tasks: Delete all tasks (optional for testing purposes).

# Future Enhancements

- Implement authentication and authorization using Spring Security.  
- Add support for user-specific task lists (multi-user).  
- Add reminder functionality using a scheduled task to send notifications.