**Assignment: Node Js Development – Task Manager**

**Objective:**

Develop a **REST API** using **Node.js** and **Express.js** with **MySQL** as the database to manage tasks. The API should support **user authentication** and allow each user to perform **CRUD operations** on their own tasks.

**Project Requirements:**

**1. Authentication & User Management**

* Implement **user registration and login** using JWT-based authentication.
* Store user credentials securely (use **bcrypt** for password hashing).
* Only authenticated users can access the task manager.

**2. Task Management (CRUD Operations)**

* Each user can **Create, Read, Update, and Delete** their own tasks.
* Tasks should include the following attributes:
  + id (Auto-incremented Primary Key)
  + title (String, required)
  + description (String, optional)
  + status (Enum: pending, in-progress, completed, default: pending)
  + dueDate (Date, required)
  + userId (Foreign Key – Linked to the authenticated user)
* Users **cannot** access or modify tasks created by other users.

**3. Project Structure & Best Practices**

* Follow a **proper project structure** with separate folders for controllers, routes, models, and middleware.
* Use **environment variables** (.env) for database credentials and secret keys.
* Implement **middleware for authentication and error handling**.

**4. Error Handling & Validation**

* Proper error handling for invalid requests, authentication failures, and database errors.
* Validate input data before processing requests (use **express-validator** or similar libraries).
* Return meaningful **HTTP status codes** (400, 401, 404, 500, etc.).

**5. API Documentation**

* Document the API endpoints using **Swagger (OpenAPI Specification)** or provide a **Postman Collection**.
* Include details such as request parameters, response formats, authentication requirements, and example responses.

**Bonus (Optional for Extra Credit):**

Implement **Pagination** for fetching tasks.  
Allow **Task Filtering** by status (pending, in-progress, completed).  
Enable **Task Reminders** (e.g., Notify users if a task is nearing its due date).

**Deliverables:**

1. **GitHub Repository** with well-structured code and README instructions.
2. **Postman Collection / Swagger API Documentation**.
3. Deployment instructions (if deployed on a cloud platform like **Heroku, Vercel, or AWS**).