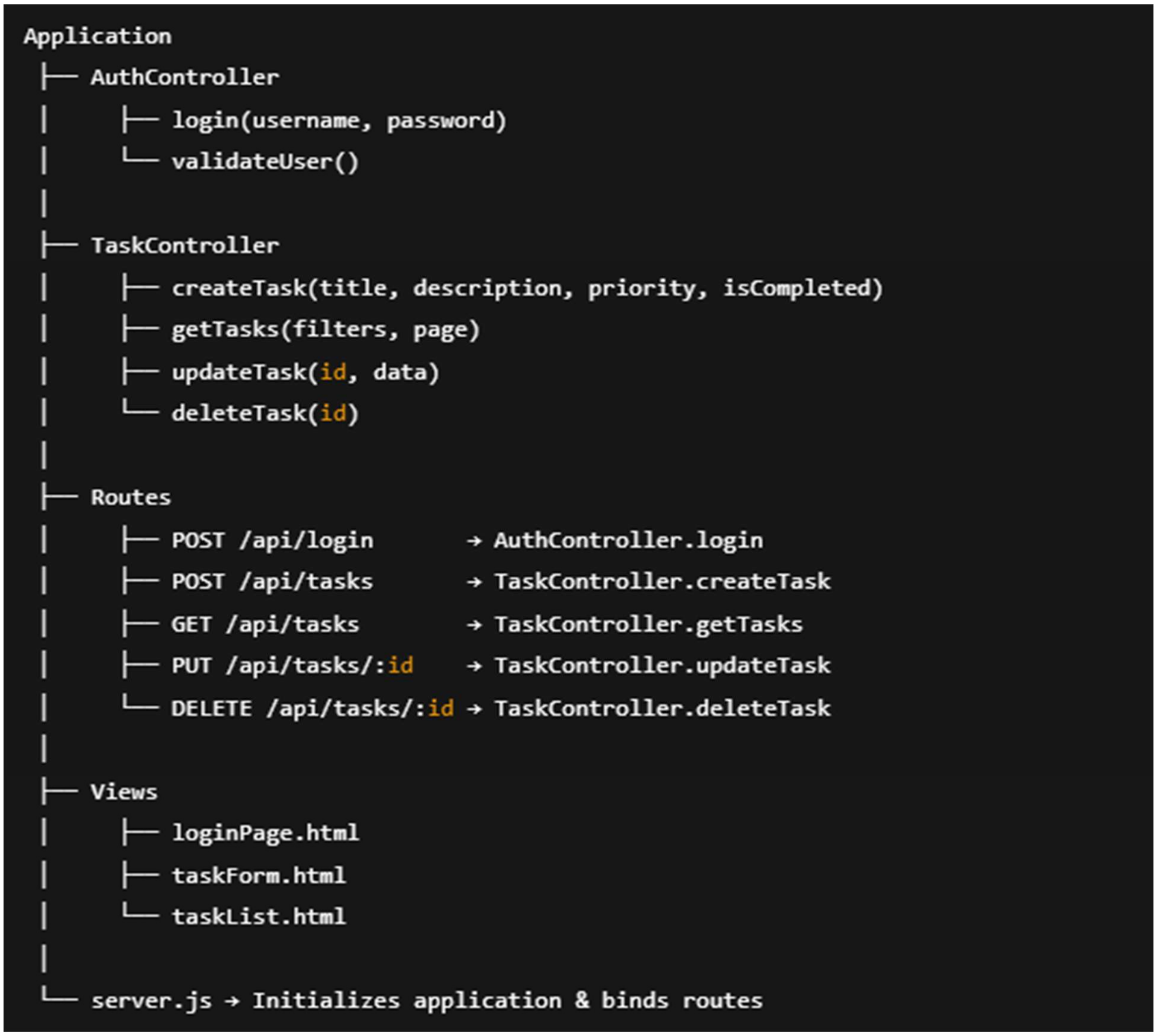
Campus Assessment -Shipsy

1. Schema Design

Object Chosen: Task Manager
Reason: Simple yet demonstrates text, enum, and boolean fields.

Field Name	Type	Description
id	UUID/String	Unique task identifier
title	String	Short title for the task
description	Text	Detailed explanation of the task
priority	Enum	One of [Low, Medium, High]
isCompleted	Boolean	True if task is done
createdAt	DateTime	Automatically set on creation

2. Pseudocode for Module & Class Structure



```
Application
 ├── AuthController
 |      ├── login(username, password)
 |      └── validateUser()
 |
 ├── TaskController
 |      ├── createTask(title, description, priority, isCompleted)
 |      ├── getTasks(filters, page)
 |      ├── updateTask(id, data)
 |      └── deleteTask(id)
 |
 ├── Routes
 |      ├── POST /api/login       → AuthController.login
 |      ├── POST /api/tasks       → TaskController.createTask
 |      ├── GET /api/tasks        → TaskController.getTasks
 |      ├── PUT /api/tasks/:id    → TaskController.updateTask
 |      └── DELETE /api/tasks/:id → TaskController.deleteTask
 |
 ├── Views
 |      ├── loginPage.html
 |      ├── taskForm.html
 |      └── taskList.html
 |
 └── server.js → Initializes application & binds routes
```

3. Test Plan

Test Case	Input	Expected Output
Positive: Create Task	{title: 'Buy milk', priority: 'High'}	201 Created → Task object with ID
Positive: Fetch Tasks	GET /api/tasks	List of tasks with pagination info
Negative: Missing Title	{priority: 'Low'}	400 Bad Request → Error: 'Title is required
Negative: Invalid Priority	{title: 'Test', priority: 'Urgent'}	400 Bad Request → Error: 'Invalid priority
Edge: Title too long	{title: <256 chars>, priority: 'Low'}	400 Bad Request → Error: 'Title too long
Edge: Empty Pagination	GET /api/tasks?page=99	Empty array with total=0

4. Reflection

If given more time, I would: - Integrate JWT-based authentication for security. - Replace in-memory storage with PostgreSQL or MongoDB for persistence. - Add search functionality and advanced filtering. - Write unit and integration tests using Jest. - Implement CI/CD pipeline for automated deployment and testing.

5.AI Prompt History with Reasoning

1. "Generate Node.js Express routes for CRUD operations on a task object" → To speed up development and ensure proper REST structure.

2. "Suggest a schema for a task management system with priority and completion status" → To validate database design.

3. "List edge cases for creating a task in a task manager app" → To improve coverage in the test plan.

4. "Create basic HTML & CSS for a simple login page" → To ensure a clean and responsive design quick