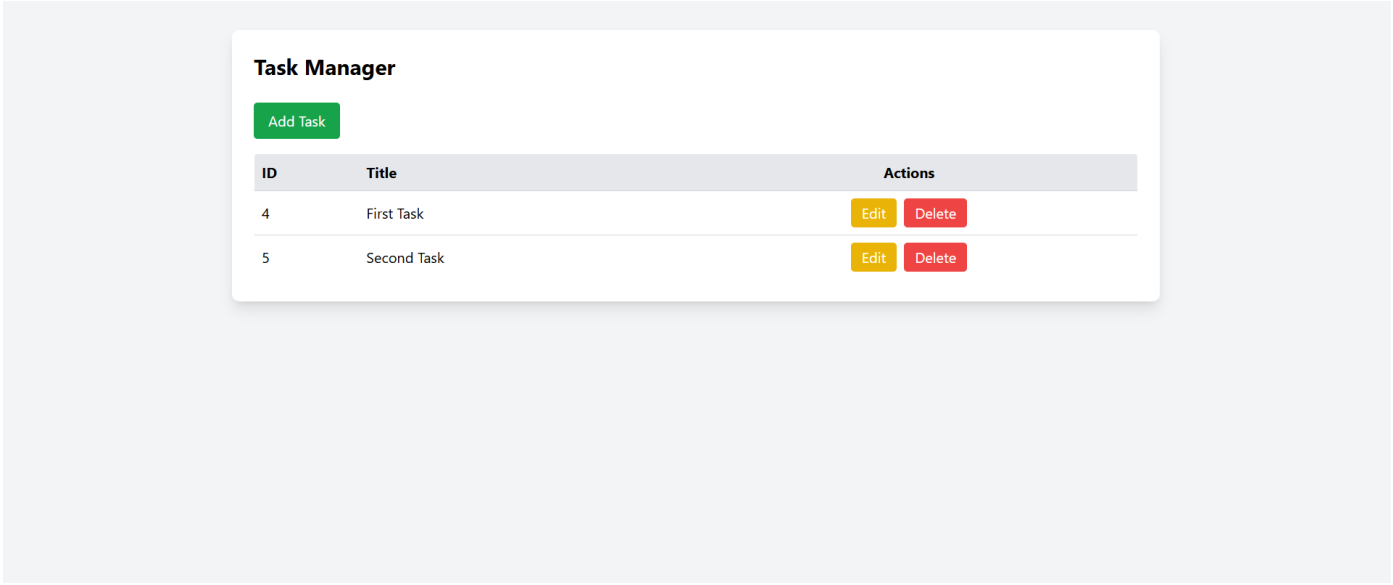
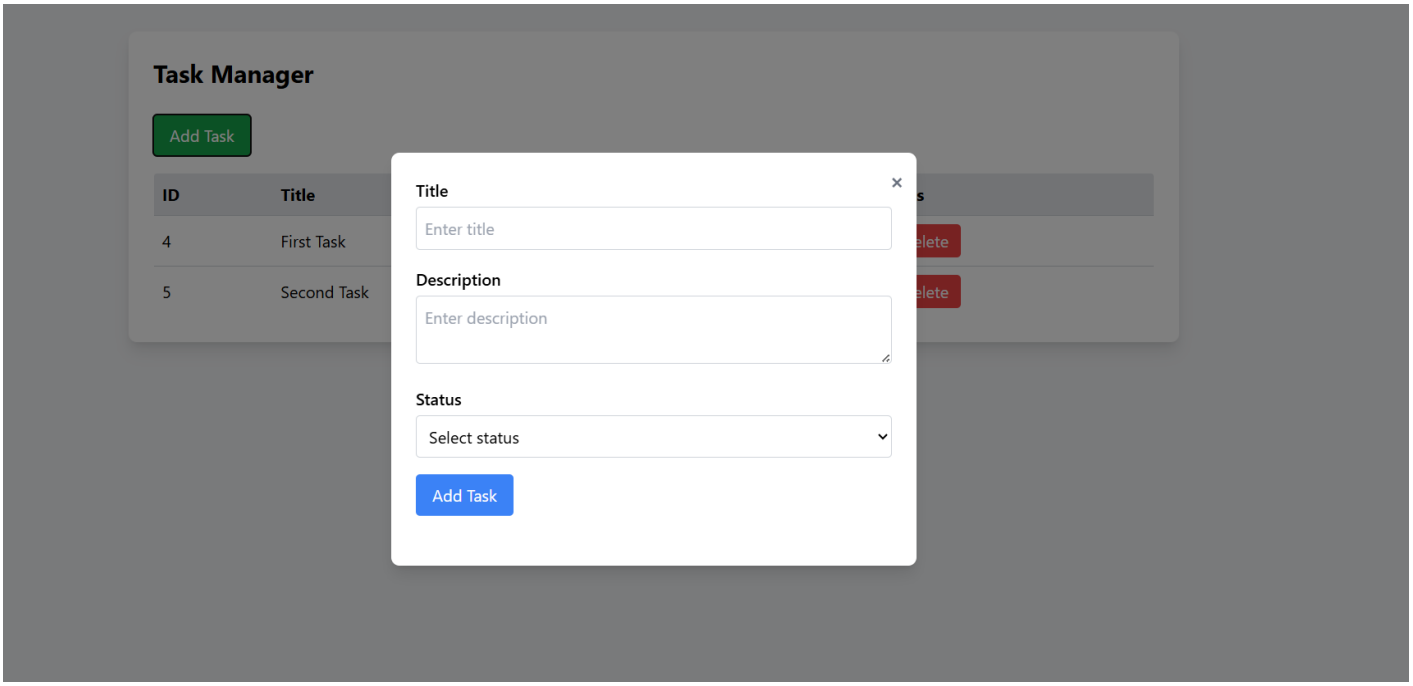
Screenshots of vue.js

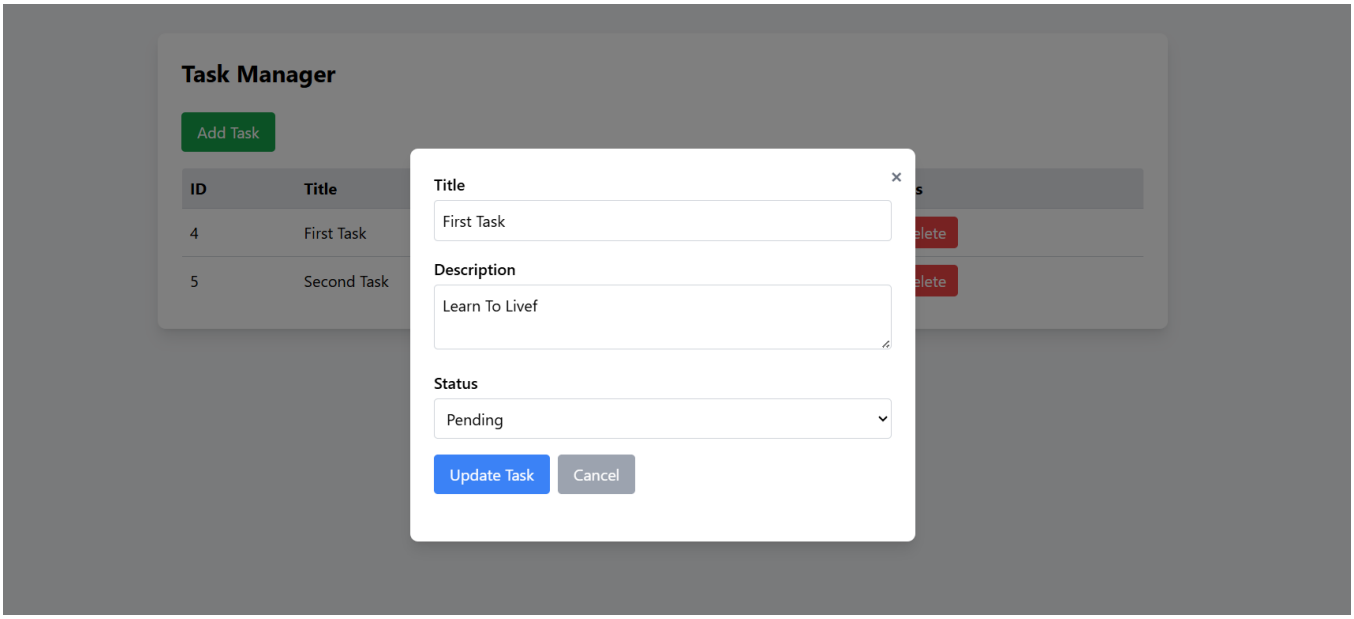
- Show lists all task



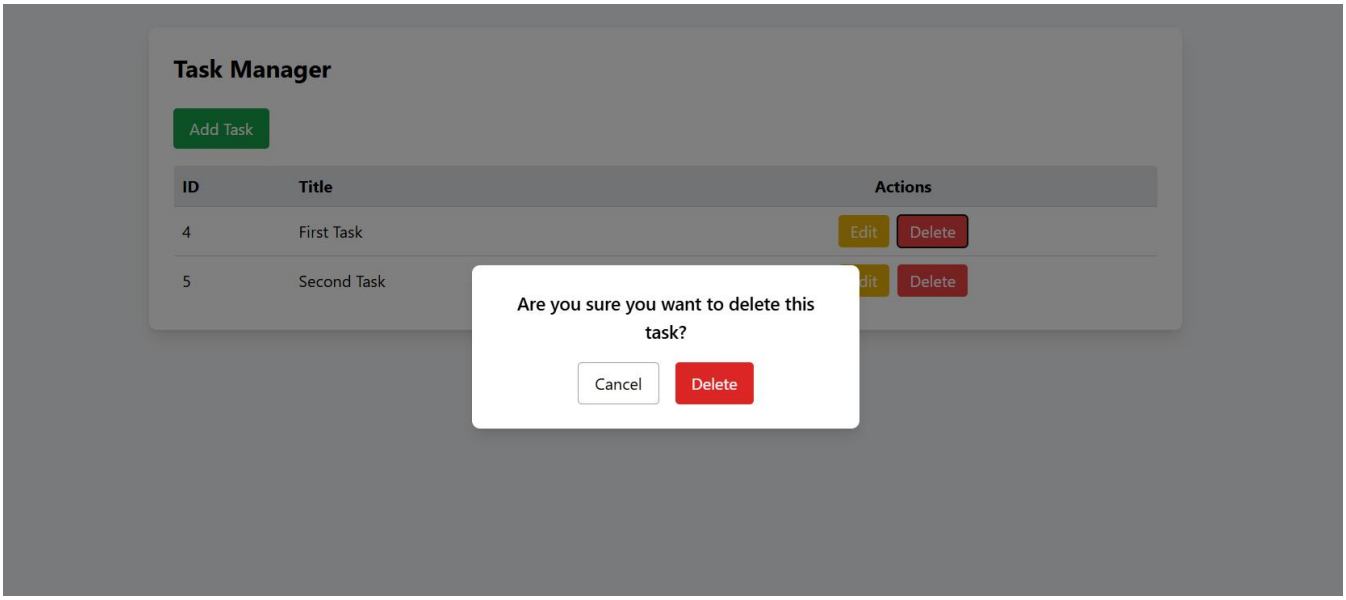
- Add New Task



- Edit task



- Delete task



Assignment 3: SQL Task

1. Count tasks by status (completed, pending, etc.)

SELECT status, COUNT(*) AS task_count FROM tasks GROUP BY status;

2. List users with no assigned tasks

SELECT u.id, u.name, u.email FROM users u LEFT JOIN tasks t ON u.id = t.user_id WHERE t.id IS NULL;

3. Find the most recently updated task

SELECT * FROM tasks ORDER BY updated_at DESC LIMIT 1;

4. Join two tables (e.g., Task and User) to show assignments

SELECT t.id AS task_id, t.title, t.status, u.id AS user_id, u.name AS user_name FROM tasks t JOIN users u ON t.user_id = u.id;

Assignment 4: Short Questions (Theory)

Great job finishing Assignments 1 and 2! Now let's tackle **Assignment 3 (SQL Task)** and

Assignment 4: Short Questions (Theory)

1. Difference between @Component, @Service, and @Repository

- @Component: Generic stereotype for any Spring-managed component.
- @Service: Specialized @Component for service layer; indicates business logic.
- @Repository: Specialized @Component for persistence layer; supports exception translation for DB errors.

2. Explain Spring Boot auto-configuration

Spring Boot auto-configuration automatically sets up Spring application context based on dependencies in the classpath and default configurations, reducing manual setup.

3. What is MyBatis and how does it differ from Hibernate?

- MyBatis: SQL mapping framework that requires explicit SQL queries; maps results to Java objects.
- Hibernate: Full ORM framework that abstracts SQL via entity objects and HQL; automates SQL generation.

4. How does Spring Boot handle dependency injection?

Spring Boot uses the Spring Framework's IoC container to instantiate and inject beans automatically based on annotations (@Autowired, @Component, etc.) or constructor injection.

5. What is CORS and how do you enable it in Spring Boot?

- CORS (Cross-Origin Resource Sharing) is a browser security feature that restricts AJAX calls between different origins.
- Enable in Spring Boot via @CrossOrigin annotation or global configuration using WebMvcConfigurer.

6. How would you secure a REST API?

Common approaches include:

- Use HTTPS to encrypt data in transit.
- Authenticate users via tokens (JWT/OAuth2).
- Authorize access based on roles/permissions.
- Validate and sanitize inputs to prevent attacks.
- Use Spring Security framework for implementation.