Project 1:

To-Do List Application

Description: A simple application where users can create, read, update, and delete tasks, using MySql for data storage.

Key Features:

- Add a new task with a title and description.
- View a list of tasks.
- Mark tasks as complete or delete them.
- Backend: Store tasks in a MySql database.
- Frontend: React components for task input and list display.

Backend (Node.js):

- Use Express.js with the mysql2 library to interact with MySql.
- Create a tasks table:
  ```
  CREATE TABLE tasks (
          id INT AUTO_INCREMENT PRIMARY KEY,
          title VARCHAR(255) NOT NULL,
          description TEXT,
          completed BOOLEAN DEFAULT FALSE,
          created_at DATETIME DEFAULT CURRENT_TIMESTAMP
  ) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
  ```
-
- Implement RESTful APIs with error handling and input validation.

API Endpoints:

1. **POST /tasks** - Create a new task

   Request:
   ```
   {
     "title": "Buy groceries",
     "description": "Milk, eggs, bread"

   }
   ```

Response (201 Created):

```
{
  "id": 1,
  "title": "Buy groceries",
  "description": "Milk, eggs, bread",
  "completed": false,
  "created_at": "2025-04-30T12:00:00Z"

}
```

Error (400 Bad Request):

```
{ "error": "Title is required" }
```

2. **GET /tasks** - Retrieve all tasks

   Request: None

   Response (200 OK):

   ```
   [
     {
       "id": 1,
       "title": "Buy groceries",
       "description": "Milk, eggs, bread",
       "completed": false,
       "created_at": "2025-04-30T12:00:00Z"
     }

   ]
   ```

3. **PUT /tasks/:id** - Update a task

   Request:

   ```
   {
     "title": "Buy groceries",
     "description": "Milk, eggs, bread, butter",
     "completed": true

   }
   ```

   Response (200 OK):

   ```
   {
     "id": 1,
   ```

```
  "title": "Buy groceries",
  "description": "Milk, eggs, bread, butter",
  "completed": true,
  "created_at": "2025-04-30T12:00:00Z"

}
```

Error (404 Not Found):

```
{ "error": "Task not found" }
```

4. **DELETE /tasks/:id** - Delete a task

   Request: None

   Response (204 No Content): Empty

   Error (404 Not Found):

   ```
   { "error": "Task not found" }
   ```

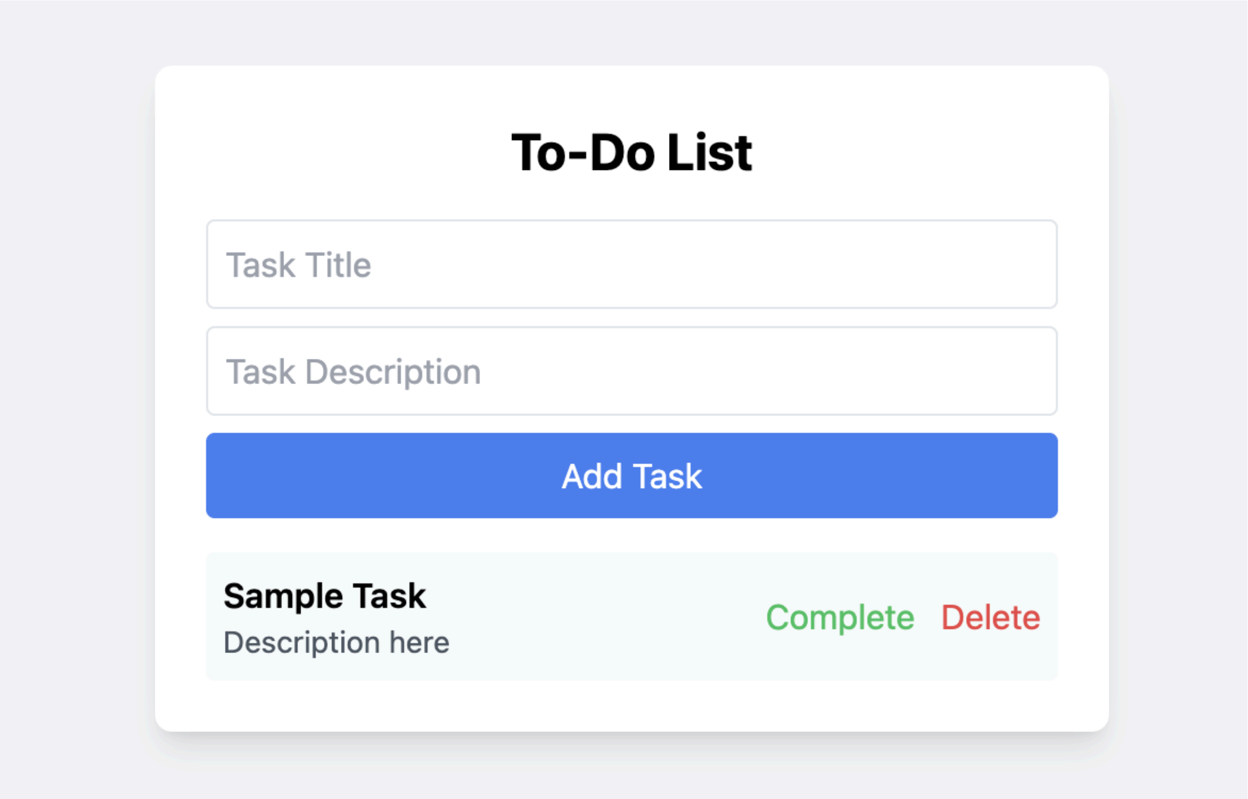
CRUD Queries:

- **Create:** `INSERT INTO tasks (title, description) VALUES (?, ?);`
- **Read:** `SELECT * FROM tasks;`
- **Update:** `UPDATE tasks SET title = ?, description = ?, completed = ? WHERE id = ?;`
- **Delete:** `DELETE FROM tasks WHERE id = ?;`

Frontend (React):

- Create a TaskForm component for adding tasks.
- Create a TaskList component to display tasks with buttons for completing and deleting.
- Use Axios or Fetch to communicate with the backend API.
- Manage state with React hooks (useState, useEffect)

Design:


To-Do List
Task Title
Task Description
Add Task
Sample Task
Description here
Complete
Delete