Building a RESTful API

Objective: by the end of this lab, you will be able to demonstrate how to build a RESTful API using Express.js in a back-end environment.

Step 1: Prepare for the Application

You will create a small RESTful API using .NET Minimal API in Visual Studio Code. This API will allow users to manage a list of tasks. You will use HTTP methods to create, read, update, and delete tasks. Finally, you will test the API using Postman.

Instructions:

1. Open Visual Studio Code.
2. Open a new terminal window.
3. Initialize a new .NET web application: dotnet new web -o MinimalApiDemo cd MinimalApiDemo
4. Remove any existing code in Program.cs to start fresh.

Step 2: Setting Up the API

Now, you will define a basic Minimal API in .NET by creating an endpoint to manage a task list.

Instructions:

1. Open Program.cs
2. Configure the web application builder.
3. Create a simple in-memory task list to store data.
4. Define a GET route to retrieve all tasks.

Step 3: Creating API Endpoints

Now, you will define the necessary API endpoints to Create, Read, Update, and Delete (CRUD) tasks.

Instructions:

1. Define a POST endpoint to add a new task.
2. Define a PUT endpoint to update an existing task.

3. Define a DELETE endpoint to remove a task.
4. Ensure each endpoint returns proper HTTP status codes such as 200 OK, 404 Not Found, and 201 Created.

Step 4: Testing the API with Postman

After implementing the API, you will use Postman to test each endpoint.

Instructions:

1. Open Postman.
2. Test the GET endpoint by sending a GET request to: http://localhost:5000/tasks
3. Test the POST endpoint by sending a POST request with a JSON body: {   "id": 1,   "name": "Learn .NET Minimal API",   "isCompleted": false }
4. Test the PUT endpoint by sending a PUT request with an updated task.
5. Test the DELETE endpoint by sending a DELETE request to remove a task.