Lab 6: Web API

Objectives:

- To create specifications of Web APIs and develop them using Swagger and NodeJS.

Submission:

- Four checkpoints.

Description:

In this lab, you will create web API specifications and then code them using Swagger and NodeJS. Web APIs, essentially, are the veins by which modern RESTful web services (RWS) are provided. Representational State Transfer (REST) is a software architectural style that defines a set of constraints to be used for creating Web services. Web services that conform to the REST architectural style, termed RESTful Web services (RWS), provide interoperability between computer systems on the Internet. RESTful Web services allow the requesting systems to access and manipulate textual representations of Web resources by using a uniform and predefined set of stateless operations.

They are heavily utilised to ensure interactions among different organisations in which different organisations expose their web ends with formal specifications. These formal specifications actually define the stateless operations each end of the organisation supports. This lab will teach you how to create a simple Web API and then code them using two popular technologies: Swagger and NodeJS.

Swagger (swagger.io) is an open-source software framework backed by a large ecosystem of tools that helps developers design, build, document, and consume RESTful Web services. While most users identify Swagger by the Swagger UI tool, the Swagger toolset includes support for automated documentation, code generation, and test-case generation. In this lab, you will utilise the swagger NPM package and the Swagger UI to perform the corresponding tasks.

Thus, this lab will be fundamental to complete your Web API project. Here, you have two tasks with four checkpoints. Complete each checkpoint and show it to your teacher to tick it off.

Task -1: Creating a simple Web API following a tutorial

In this task, you will follow a simple tutorial from the following location:

- https://scotch.io/tutorials/speed-up-your-restful-api-development-in-node-js-with-swagger

Go through the tutorial and try to understand what is being done. Follow the given tutorial up to the **Working with Mocks** section.

Checkpoint – 1 (4 Marks): Edit your app so that it shows this text with the response, (assuming the given name was John): *John is learning how to use Swagger with NodeJS and he is pretty excited about it!*

Checkpoint – 2 (4 Marks): Show the functions implemented during the mocks. Look at the swagger yaml file within the api folder and describe what you have noticed.

Checkpoint – 3 (6 Marks): Complete all the tasks in the tutorial and also update the yaml file to update a movie. The logic is already within the movie.js file. Show the result within Swagger as well as in a separate browser tab(s) using the raw HTTP request.

Task -2: Creating a novel Web API

At the point, you should have good understanding how to create a Web API using Swagger and NodeJS. In this task, you will design a new simple API utilising the knowledge from the task 1.

Checkpoint – 4 (6 marks): Create a API for a car repository to support just two functionalities: get and put based on the ID of an car. When you put a car, you need to add the make, model and owner of the car along with its ID. When you get the car, you return this information based on the id.