National University of Computer and Emerging Sciences

Week 10 Node.JS and Express.JS

for

Web Programming

Spring 2024

FAST School of Computer Science

Today's Agenda

Module 1: Nodemon

Module 2: Create Restful API

Module 3: Express Routers

Module 4: Middlewares

Module 1: Nodemon

Nodemon is a utility tool for Node.js that helps in automatically restarting the Node application when changes are detected in the source code. It is commonly used during development to streamline the development process by eliminating the need to manually stop and restart the server after each code change.

Module 2: Create Restful API

What is restful api?

A RESTful API (Representational State Transfer) is an architectural style for designing networked applications. It's based on a set of principles that define how web standards such as HTTP and URIs should be used. RESTful APIs are designed to be scalable, stateless, and easy to understand and use.

Key principles of RESTful APIs include:

Resource-Based: Resources are the key abstraction in RESTful APIs. Each resource is uniquely identifiable by a URI (Uniform Resource Identifier). Resources can be anything that can be named, such as a document, an image, a collection of data, etc.

Uniform Interface: RESTful APIs use a uniform and consistent interface between clients and servers. This interface typically includes standard HTTP methods like GET, POST, PUT, DELETE, and PATCH to perform CRUD (Create, Read, Update, Delete) operations on resources. URIs are used to identify resources, and HTTP status codes are used to indicate the result of operations.

Statelessness: RESTful APIs are stateless, meaning that each request from a client to a server must contain all the information necessary to understand and process the request. The server does not store any client state between requests. This simplifies the design and scalability of APIs.

Representation: Resources in RESTful APIs are represented in a format such as JSON, XML, HTML, etc. Clients interact with resources by sending requests to URIs and receiving representations of those resources in response.

Self-Descriptive Messages: RESTful APIs use self-descriptive messages, meaning that each message includes metadata that describes how to process the message. This metadata can include HTTP headers, media types, link relations, etc.

HATEOAS (Hypermedia As The Engine Of Application State): HATEOAS is a constraint in RESTful APIs that allows clients to navigate the API dynamically by following hypermedia links embedded in resource

representations. This enables better decoupling between clients and servers and makes APIs more discoverable.

https://restfulapi.net/

Module 3: Express Routers

- Single router
- Dynamic routers
- Similar routers

Module 4: Middleware

https://expressjs.com/en/guide/using-middleware.html

References

sNode.js tutorial. (n.d.). Retrieved March 30, 2022, from https://www.w3schools.com/nodejs/default.asp