**Lab 1: Web\_API\_HandsOn**

**Concepts Overview**

**RESTful Web Services & Web API**

* REST: Architecture style using stateless HTTP communication.
* Web API: Framework to build HTTP-based services.
* Microservices: Small, independent services that communicate via APIs.
* Web API can return JSON, not limited to XML (unlike old Web Services).

**HTTP Request & Response**

* **HttpRequest**: Client sends data to the API (method, URL, body).
* **HttpResponse**: API replies with data and status code (200, 400, etc.).

**HTTP Verbs (Action Methods)**

| **Verb** | **Description** | **Attribute in Code** |
| --- | --- | --- |
| GET | Read data | [HttpGet] |
| POST | Create data | [HttpPost] |
| PUT | Update data | [HttpPut] |
| DELETE | Delete data | [HttpDelete] |

**HTTP Status Codes Used**

| **Code** | **Meaning** |
| --- | --- |
| 200 | OK (Success) |
| 400 | Bad Request |
| 401 | Unauthorized |
| 500 | Internal Server Error |

**Code : ValuesController.cs**

using Microsoft.AspNetCore.Mvc;

using System.Collections.Generic;

namespace FirstWebAPI.Controllers

{

[ApiController]

[Route("api/[controller]")]

public class ValuesController : ControllerBase

{

// GET: api/values

[HttpGet]

public IActionResult Get()

{

var values = new List<string> { "Value1", "Value2" };

return Ok(values); // 200 OK

}

// POST: api/values

[HttpPost]

public IActionResult Post([FromBody] string value)

{

if (string.IsNullOrWhiteSpace(value))

return BadRequest("Value cannot be empty"); // 400 BadRequest

return Ok($"Received value: {value}"); // 200 OK

}

}

}

**GET: api/values**

A person pointing at a black line

AI-generated content may be incorrect.

**POST: api/values**

A screenshot of a cell phone

AI-generated content may be incorrect.