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**Week- 4**

**Mandate HandsOn Question 1:-**

* **Explain the concept of RESTful web service, Web API & Microservice**
  + **Features of REST architecture - Representational State Transfer, Stateless, Messages, Concept of Microservice, Difference between WebService & WebAPI, Not restricted to send XML as response.**

**Ans:** RESTful Web Service (REST API):

1. REST stands for REpresentational State Transfer.
2. It is an architectural style that uses HTTP methods to interact with resources (like data objects).
3. RESTful services return data representations (usually JSON or XML) through stateless interactions.
4. Features of REST Architecture:

* Stateless- No client context is stored on the server. Each request contains all the information needed.
* Resource based- Data is treated as resources.
* Uniform Interface- Uses standard HTTP verbs (GET, POST, PUT, DELETE).
* Representations- Resources can be represented in JSON, XML, etc.
* Client Server- Separation of client and server responsibilities.
* Cacheable- Resources can be cached for efficiency.

WebAPI:

1. A Web API is a framework for building HTTP services that can be consumed by browsers, mobile apps, desktop apps, etc.
2. Example: ASP.NET Web API

Microservice:

1. A Microservice is a small, independently deployable component of an application that does one business function well.
2. It communicates with other services over HTTP or messaging protocols.
3. Often REST APIs are used to expose microservices.

* **Explain what is HttpRequest & HttpResponse.**

**Ans:**  HttpRequest:

1. Carries the data from client to server.
2. Includes: URL, Headers, HTTP method (GET, POST, etc.), Body (Payload).

HttpResponse:

1. Carries the server’s response to the client.
2. Includes: Status code (200 OK, 404 Not Found), Headers, Response body (JSON/XML file).

* **List the types of Action Verbs**
  + **HttpGet, HttpPost, HttpPut, HttpDelete - Meaning of action verbs and how that should be declared as attributes for Web API.**

**Ans:** The types of Action Verbs are:

1. GET- to retrieve data. (Web API attribute: [HttpGet])
2. POST- create a resource. (Web API attribute: [HttpPost])
3. PUT- update an existing resource. (Web API attribute: [HttpPut])
4. DELETE- delete a resource. (Web API attribute: [HttpDelete])

* **List the types of HttpStatusCodes used in WebAPI**
  + **Ok, InternalServerError, Unauthorized, BadRequest - All thru the action result types**

**Ans:** They are:

1. 200 OK- means success.
2. 400 Bad Request- means client sent invalid data.
3. 401 Unauthorized- authentication failed.
4. 500 Internal Error- server crashed or bug occurred.

**OUTPUT:**

**A screenshot of a computer

AI-generated content may be incorrect.**