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Module-6

Topics:

1. **Building Web API**
   I. Understanding HTTP verbs
   II. Implement GET,POST,PUT,DELETE
   III. Understanding JSON structure

1. Building Web API:

1.1 Understanding HTTP verbs

- HTTP defines a set of request methods to indicate the desired action to be performed for a given resource.
- These methods are sometimes referred to as HTTP verbs .
- The primary or most –commonly used HTTP verbs are POST,GET, PUT, DELETE ,PATCH .
- They are correspond to CRUD operation.
- The CRUD stands for create , read, update, and delete.
    - **POST – create**
      When we want to update some data into the list we can use this post method.
      Syntax: variable_name[id] = value;

    - **GET - Read**
      It will return the values assigned in the veriable or methods.we can get all the list of the values or ay specific value by giving id. Or passing parameters.
      Syntax: return variable_name

    - **PUT – Update**
      If we need to add some data in the list then we can use post method.
      Syntax : variable_name.add(value);

    - **DELETE – delete**
      If we want to delete some data from the list we can use delete method.
      Syntax: variable_name.RemoveAt(id);

- There are number of other verbs too, but they are less used.

There are few terms related to the HTTP protocol as given.

- **Request Verbs(GET, POST, PUT, DELETE)**
  - These describe what action should be performed or done with the resource .

- **Request Header**
  - When client send request to the serer it contains a header and body. The request method contains additional information like – what type of response is required ex: in XML format or in JSON format or some other format.

- **Request Body**
  - It contain the data which we want to send to the server. Ex: post request can contain the data for creating a new object or item .
  - It can be in anyformat like XML or JSON.

- **Response body**
  - It is a body that will contain the data which is given by the server in the response to the request made by user.

- **Response Status Codes**
  - These are HTTP status code that give client details through some predefined status code on the status of the request. Some of common status codes are 404 for not found , 204 for No content, 200 for ok etc.

1.2 Implementing HTTP verbs:

- For implementing HTTP verbs we can use different softweres like fiddler , postman etc.
- We can install fiddler on to our machine and then we can monitor this post, put , delete methods in that software and get results.
- There is a built in controller in web api project named value controller .it is inherited from APIController .API controller is an abstract class.
- We can find five methods in the value controller .in this we can create variables and generate post, delete, put methods.

Steps for implement http verbs:

- Build the project solution and run it .
- By default it will run the get method first and if we pass the parameter it will return specific string .
- Now we want to execute other methods for that open the fiddler
- Copy the url from the browser and paste it in fiddler composer tab.
- Now double click on the URL on the left side in fiddler and we can view the result.
- It will also show the type of result and request header details.
- Now if we want particular format in response we can mentioned it in the view also.
- Refresh the broser window and in composer tab select what method you want to perform pass the arguments as per methods and then double click on the left side url to show the result.
- We can show the result of these methods by executing get request it will show all the list of the values so we can verify whether the method has executed correctly or not.

1.3 Understanding JSON structure:

- JSON stands for – **Javascript Object Notation.**
- JSON is text , and we can convert any jvascript object into JSON and send JSON to the server we can also receive the JSON object from the server into Javascript object.
- JSON is a lightweight, minimal ,readable format for storing and structuring and transporting data.
- JSON is often used when data is sent from a server to a web page.
- A common use of JSON object is to read data from a web server , and display the data in a web page.
- It is "self-describing" and easy to understand as well as for write a code.
- It is identical to the code for creating JavaScript objects.because of this similarity we can convert JSON data into the native Javascript objects.
- JSON data is written as name/value pairs,just like JavaScript object properties. Followed by a colon,followed by a value.

We can create JSON object as well as JSON arrays also.

We can store different types of data like

- Array
- Boolean
- Number
- Object
- string

- Syntax of JSON object :
- It is written in curly braces and also have multiple value.

```
{"firstName " : "priya",
"lastName " :  "Gosai"
}
```

- declaring an array:
- JSON arrays are also written inside square brakets.
- It can also contain object like java script.
- “employees” : [
    - { value1}, {value2}, {value3}
        -]

- If we want to send or convert the data into JSON format first we have to write **JSON** or **$** sign .