REST webservices

What are the uses of web services ?

1. web services are used for developing web applications which runs on server. We are using REST and SOAP based web services.

Server does not know programming languages like core java,c,c++. Server knows http only. Server talks to java with http methods and java returns response to server using http methods.

HTTP Methods?

1. GET , POST, PUT, DELETE are the important HTTP methods.

Generally GET is used for get the data from the server.

POST : used for sending some data(json) to the server. It is used for inserting the data into DataBase.

PUT:is used for updating the data(json) at the server. It is used for updating the data into DataBase.

DELETE: is used for deleting the data(json) from server . It is used for deleting the data from DataBase.

Differences between HTTP GET and POST?

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| GET | POST |
| In case of Get request, only **limited amount of data** can be sent because data is sent in header. | In case of post request, **large amount of data** can be sent because data is sent in body. |
| Get request is **not secured** because data is exposed in URL bar. | Post request is **secured** because data is not exposed in URL bar. |
| Get request **can be bookmarked.** | Post request **cannot be bookmarked.** |
| Get request is **idempotent** . | Post request is **non-idempotent.** |

We use GET method for Read operations. But if the response size is large, we use POST method for READ operations. if the response size is large and if we use GET method , it will process the request successfully ,but it will not send response data to front end(java script)

What are the Idempotent and non-Idempotent Http methods in REST?

GET , PUT and DELETE are the Idempotent methods POST is non-Idempotent method. Idempotent methods means if we perform any operations multiple times with same request, it will give same response from the server. here there is no behavior change at server side. This type of methods are called Idempotent methods.

GET : it is read operation, it will always produce same response from the server.

PUT: this is used for updating the data at server/DB. For the first request it will update the data in DB .but if we repeat the request multiple times with same input, there is no behavior change at server side.

DELETE: this is used for deleting the data at server/DB. For the first request it will delete the data from DB .but if we repeat the request multiple times with same input, there is no behavior change at server side.

POST: it is used for inserting Data in DB. For each request(same input) a new entry will be inserted. It means it is changing the behavior at server. That’s why POST is non-idempotent operation.

Differences between PUT and POST?

GET , PUT and DELETE are the Idempotent methods POST is non-Idempotent method. Idempotent methods means if we perform any operations multiple times with same request, it will give same response from the server. here there is no behavior change at server side. This type of methods are called Idempotent methods.

PUT: this is used for updating the data at server/DB. For the first request it will update the data in DB .but if we repeat the request multiple times with same input, there is no behavior change at server side.

POST: it is used for inserting Data in DB. For each request(same input) a new entry will be inserted. It means it is changing the behavior at server. That’s why POST is non-idempotent operation.

HTTP status Codes?

<http://www.restapitutorial.com/httpstatuscodes.html>

HTTP status codes are used for informing the status of the service. We have 4 categories .

**1xx Informational**

**100 Continue:** it is used to refer intermediate response , it means when client receives 100 as response code the response is completed partially.

**2xx Success:**

**200 Ok**: is used when request is processed to successfully

**201 Created**: is used when we insert/create any resource at server side(DataBase)

204 No Content: generally we do not gives this response code. We use this response code when request is processed successfully, but there is no response at server side for the request.

**3xx Redirection:** generally we use this response code very rare conditions. We use 3xx response codes when we are informing client about the given request url is changed to some other url.

## 4xx Client Error: most of this error codes are returned from client, it means the request may not reach to java code.

## 400 Bad Request: is used when we are passing insufficient or incorrect input to the server.

**401 Unauthorized:** we will get this response code when we are passing invalid credentials.

**404 Not Found:** we will get this response code when the request url is Not Found. We also use this code when the requested resource is not present at server.

**405 Method Not Allowed:** we will get this response code when we are giving invalid Http Method in the request.

For Example if we implement REST end point using Http GET method and if we are trying to access the end point using Http POST method, we will get this error code.

**415 Unsupported Media Type :** if we are sending JSON type data and if we do not select “Content-Type:application/json” in request headers, we will get this error code.

**5xx Server Error:** we get this response codes When unhandled exceptions occurred at server

**500 Internal Server Error:** we get this response codes When unhandled exceptions occurred at server

**503 Service Unavailable:** we will get this response code when service(application) is Not Available it means when application is down or server is stoped

REST stands for REpresentational State Transfer.

REST is an architectural style not a protocol.

Differences between REST and SOAP

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| SOAP(**Simple Object Access Protocol**) | REST(**REpresentational State Transfer**) |
| SOAP is a protocol. | REST is an architectural style. |
| SOAP permits XML data format only. | REST permits different data format such as Plain text, HTML, XML, JSON etc. |
| JAX-WS is the java API for SOAP web services. | JAX-RS is the java API for RESTful web services. |
| SOAP can't use REST because it is a protocol. | REST can use SOAP web services because it is a concept and can use any protocol like HTTP, SOAP. |