HTTP Fundamentals

1. What are the basic Features of HTTP

**HTTP is stateless:** The client and server are aware of each other during a current request only. Afterwards, both of them forget each other. Due to the stateless nature of protocol

HTTP is media independent: It specifies that any type of media content can be sent by HTTP as long as both the server and the client can handle the data content.

HTTP is connectionless: It is a connectionless approach in which HTTP client browser initiates the HTTP request and after the request is sent the client disconnects from server and waits for the response.

1. What are request methods in HTTP

GET – for fetching some data from server

POST- for adding some data to the server

PUT – for replacing a data with another

PATCH- for making partial modifications in a data

DELETE – for deleting some data

HEAD – for getting the header data not response body

CONNECT – for establishing a tunnel to server identified by the resource

TRACE - Performs a message loop-back test along the path to the target resource

1. What are the differences between GET and POST methods

While using Get request we will be getting the data which we request

While using POST request is used to send data towards the server

1. What is status code in HTTP

HTTP response status codes indicate whether a specific [HTTP](https://developer.mozilla.org/en-US/docs/Web/HTTP) request has been successfully completed.

Informational responses (100–199)

Successful responses (200–299)

Redirects (300–399)

Client errors (400–499)

Server errors (500–599)

1. What are the header fields in HTTP

HTTP header fields provide required information about the request or response

1. What is URI

A Uniform Resource Identifier (URI) is a unique sequence of characters that identifies a logical or physical resource used by web technologies. URIs may be used to identify anything, including real-world objects, such as people and places, concepts, or information resources such as web pages and books

1. What are Idempotent methods and why do we call them

An idempotent HTTP method is a HTTP method that can be called many times without different outcomes. It would not matter if the method is called only once, or ten times over. The result should be the same

1. Explain HTTP Request & Response Messages

HTTP Requests are messages which are sent by the client or user to initiate an action on the server. The first line of the message includes the request message from the client to the server, the method which is applied to the resource, identifier of the resource, and the protocol version

HTTP Response sent by a server to the client. The response is used to provide the client with the resource it requested. It is also used to inform the client that the action requested has been carried out. It can also inform the client that an error occurred in processing its request.

1. What is Session State in HTTP

Session state is a method to keep track of the user sessions during a series of HTTP requests. Session state allows a developer to store data about a user as he/she navigates through ASP.NET web pages in a .NET web application.

10) What is HTTPS

HTTPS are [authentication](https://en.wikipedia.org/wiki/Authentication) of the accessed [website](https://en.wikipedia.org/wiki/Website), and protection of the [privacy](https://en.wikipedia.org/wiki/Information_privacy) and [integrity](https://en.wikipedia.org/wiki/Data_integrity) of the exchanged data while in transit. It protects against [man-in-the-middle attacks](https://en.wikipedia.org/wiki/Man-in-the-middle_attack), and the bidirectional [encryption](https://en.wikipedia.org/wiki/Block_cipher_mode_of_operation) of communications between a client and server protects the communications against [eavesdropping](https://en.wikipedia.org/wiki/Eavesdropping) and [tampering](https://en.wikipedia.org/wiki/Tamper-evident#Tampering). The authentication aspect of HTTPS requires a trusted third party to sign server-side [digital certificates](https://en.wikipedia.org/wiki/Public_key_certificate)

Introduction to API

1.Explain REST and RESTFUL

Representational State Transfer (REST) is an architectural style for developing loosely coupled web applications .It is popular due to its simplicity and it uses the existing features of the HTTP protocols. Here, the client and server exchange the representation of resources using the HTTP protocols.

A web service is a collection of open protocols and standards used for exchanging data between applications or systems

2.Mention what are the HTTP methods supported by REST

REST supports all the HTTP methods

GET – for fetching some data from server

POST- for adding some data to the server

PUT – for replacing a data with another

PATCH- for making partial modifications in a data

DELETE – for deleting some data

3.Explain the architectural style for creating web API

SOAP and REST architectural style are commonly used soap is the traditional way and rest is the modern way soap is xml based and rest is json based soap is more secure than rest

4.Explain the RESTFul Web Service

**Restful Web Services** is a lightweight, maintainable, and scalable service that is built on the REST architecture. Restful Web Service, expose API from your application in a secure, uniform, stateless manner to the calling client. The calling client can perform predefined operations using the Restful service

5.Explain what is a “Resource” in REST

REST architectural style, data and functionality are considered resources and are accessed using Uniform Resource Identifiers (URIs), typically links on the Web.  In the REST architecture style, clients and servers exchange representations of resources by using a standardized interface and protocol.

6. Which protocol is used by RESTful web services?

HTTP Protocols

7. What is messaging in RESTful web services

RESTFul webservices use HTTP protocols as a medium of communication between the client and server. A client sends a message in form of a HTTP Request and the server responds in the form of HTTP Response. This technique is termed as messaging

8.State the core components of an HTTP Request

HTTP methods like GET, POST, PUT, DELETE, etc.

Uniform Resource Identifier (URI) – to identify the Resource on the server.

HTTP Version – to indicate the version of HTTP

Request Header – It contains metadata for the HTTP Request messages as a key-value pair

Request Body – It is the Representation of the resource or the message content.

9. State the core components of an HTTP Response

**1.** Status Code – Indicates Server status for the resource present in the HTTP request.   
**2.** HTTP Version – Indicates HTTP version,   
**3.** Response Header – Contains metadata for the HTTP response message stored in the form of key-value pairs

**4.** Response Body – Indicates response message content or resource representation.

10.What do you understand about payload in RESTFul web service

Request body of every HTTP message includes request data called as Payload. This part of the message is of interest to the recipient.

11.Explain the caching mechanism

Caching is a process of storing server response at the client end. It makes the server save significant time from serving the same resource again and again.

The server response holds information which leads a client to perform the caching. It helps the client to decide how long to archive the response or not to store it at all.

12.List the main differences between SOAP and REST

SOAP

SOAP is a protocol through which two computer communicates by sharing the XML document

SOAP supports the only XML format

SOAP does not support caching.

REST

 Rest is a service architecture and design for network-based software architecture

 It supports many different data formats.

 It supports caching.

A REST client is just like a browser and uses standard methods. An application has to fit inside it.