**What is API**

API standards Application programming Interface. It will act as an intermediate between two different languages. If you give the request from client, it will take request and it will fetch the response from server.

In this we have different types of Api tools like soap, Rest, swager.

**Soap**

SOAP is standards simple object Access protocol. It has Strict rules and It will support only XML format due it is not lite wait so it is not that much popular

**REST**

REST is very popular because it will support multiple data formator like XML, JSON, Plain Text, HTML so it is lite wait

**JSON**

JSON standard is JavaScript Object Notation. It is very popular language because it is human readable and Machine readable. moreover, it is lite wait and language independent.

**HTTP Protocol**

HTTP is standard Hypertext transfer Protocol. We will send requests by using HTTP protocol. It has different types of Methods like GET, PUT, POST, PATCH, DELETE.

While sending the request it doesn’t interpret the request so it is not secure.

**HTTPS**

HTTPS is standard Hyper Text Transfer Protocol Secure. While sending the request it will interpret the request, so it is secure.

**HTTP Methods**

GET: get method is using for retrieving the data from server

POST: Post method is using for creating the data in server

PUT: Put method is using for Updating the data in server

By using the PUT method we can create the resource also. How means Whenever we are sending the request if the data is present in DB it will not Create the data, If there is data not present in Db it creates the resource.

PATCH: Patch Method is used for Updating the at component level.

DELETE: Delete method is used for Delete the in server.

**Authentication**

We have different types of authentications to validate clients. In this we have Basic Authentication, Api key, Bearer Token, Digest Auth, Jwt Authentication…etc.

**Basic Authentication**

In Basic Authentication normally we will validate by using username and password, so it is not secure.

**Digest Authentication**

It is like Basic Authentication But it is secure because it will interpret the password.

**API key**

Api key is used to one unique key value once enter the key value we can access the data in server.

**Bearer Token**

Bearer Token is most popular Authentication because once request the server it will give one token to client. Client can access the data by using token, it is secure because it will send Alpha numeric value token, manually remembering it not possible . Once Enter the token again it verifies the token in API gate way.

**Status codes**

100 series – Information codes

200 series -Successful codes

201 -created

202-Accepted

204-no Body

300-series redirection

304 -does not update

400-series user error

400-Bad request

401-UnAuthorize

403 – Authorized person But Not access the specified Api

405-method not allowed

500- Server Error

**Types of Protocols**

In Api different type of protocols there like

1.SOAP

2.REST

3.GpaphQL

4.GRpc

5.RPC

1.Simple Object Access Protocol

Simple object access protocol is the oldest protocol. It uses extensible Markup Language. It Strict rules and also it will transmit the data only in XML format

2.REST

Representational state transfer is a very popular protocol .it will support multiple data format languages like XML, JSON, HTML, plain text. Moreover it is lite wait.

3.GraphQL

GraphQL is developed by Facebook in the year 2012. Initially it is open source After 2015 they changed into license Based .GraphQL support all the languages like javaScript, java , python ..etc

4.gRpc

gRpc Standards Google Remote procedure call it is developed by the google in the year 2015. It is open source .it is also using HTTP method for data transferring

**Types of Payouts**

Api support multiple payouts like

1.JSON

2.HTML

3.XML

4.Plain Text

**Headers:**

We have different type of headers are present in Api

1.form-data

2.Raw data

3.Binary

4.www.form-data

1.form-data:

By using form data, we can send File and along with text .

2.Raw data:

By using raw data we can send Any kind of text or any data

3.www-form-data:

Whenever we want to send sensitive data ,we can send by using www-form-data. Here will interpret the data in Machine Understand languages .

4.Binary :

By using Binary we can send the file

Content-type:

With help of content –type we will know which platform there sending the request. So we can restrict the platform