**What is API?**

API stands for Application Programming Interface.

API is a Mechanism by using which One Type Application Can communicate with another

application.

In general API is very Big Topic.

API are used by different Application to data, from one platform to another platform Worldometer.com Corona Virus API.

Any Application A,B,C,D,E,F,G can utilize the API of Worldmeter.com to get live update of corona.

**Interoperability**

Conversion of one type of language to some common language so that data can be exchanged without directly converting the one language to another language.

Interoperability refers to sharing of data, from One Application to Another Application without changing native language, by means of some common Interconversion language.

or

Sharing of data from One App to another App without directly converting the native language is called Interoperability.

**Example :**

Android ---> Json ---> Java

Python ----> JSON ----> java

Python -----> JSON ----> PHP

php ----> JSON ---> SQL

Main Feature of Inter-Operability is platform independent in nature.

PHP --> (Serialization/JSON Encoding) --> JSON --> (Deserialization/JSON Decode) --> SQL

Serialization/JSON encoding : converting One Type PL. to JSON Object

Deserialization/JSON decode : Converting JSON type to One Type of Data-type of PL.

**Example :**

PHP ---> json\_encode() ----> json (Serialization)

Associative Array ----> JSON

JSON ----> json\_decode() ---> Associative Array. (De-Serialization)

**What is Web-service?**

Any Type of Service Access over the Internet is termed as Web-service, it can be any type

of service and can use any protocol.

**What is Web-API?**

The API which can be accessed only via web Interface or Internet as a medium is called

as Web-API

Java Application ---------> Oracle Local DB

localDriver API

Game Application ---------> Sound Driver

Audio API

Every web-API is API but not every API is web-API.

**What is SOAP?**

It is type of web-API which can be used, to transport data/represent the data, in Form

SimpleObject Access Protocol which used XML Data representation.

**Example :**

<xml:nmps="version/xml-document-4">

<xml:Envelope>

<Employee>

<user id="1">

<email>Awi@gmail.com</email>

<password>1234</password>

</user>

</Employee>

</Envelope>

</xml>

Used for Very Heavy Data Transmission.

Soap is highly scalable

Soap is secure, why because you have access nth node for access real data node.

SOAP architecture can very deep that it can be very complex to handle

**What is REST?**

**REST**: Stands for **Representational State Transfer**.

It is Type of Web-API which works under http protocol.

Its representation is always, In JSON Format.

It is very light-weight.

Easy to handle, due to organized data structure in form of Key and value pairs.

REST API works on the basis HTTP methods.

Request : GET

Request : POST

Request : Options

Request : PATCH

Request : PUT

Request : DELETE

Request : LOCK

Request : HEAD

...

...

...

{

"type":"GET",

"version":"1.0.1",

"status":true,

"error":false,

"code":200,

"data":[

{"empid":1001,"name":"ravi","salary":10000},

{"empid":1002,"name":"prabhas","salary":70000},

{"empid":1003,"name":"vidhyut","salary":40000},

{"empid":1004,"name":"rajni","salary":30000},

{"empid":1005,"name":"moksh","salary":20000}

]

"keyword",[],

}

**What is Postman?**

Postman is a client tool to send the pure http request to the server and testing API's.

Postman has set of http method to Intersects the REST API, by using GET,POST,PUT,PATCH,DELETE...

And also has different payloads which can be binded as header, and body content.

**What is difference B/w REST & SOAP?**

1. REST : Representational State Transfer

1. SOAP : Simple Object Access Protocol

2. REST : Uses lower bandwidth.

2. SOAP : Uses higher bandwidth.

3. REST : It’s follows web-standards related http protocol.

3. SOAP : It’s follows xml structure and conventions, based on Envelope and web standards.

4. REST : lower security

4. SOAP : Higher Security

5. REST : Easy to handle, easy to deserialize and serialize.

5. SOAP : Very difficult to handle.

6. REST : data representation is in JSON,YML.

6. SOAP : data representation is in XML

**API Related Terms**

1. http Methods : these are set of method which are defined to perform some unique operation.

**In Rest API**

http Methods are equivalent DB Operation.

C : Create the data HTTP/1.1 POST

R : Read the data HTTP/1.1 GET

U : Update the data HTTP/1.1 PUT AND PATCH

PUT : Full update

PATCH : Partial update

D : Delete the data HTTP/1.1 DELETE

HTTP has two version 1.1 and 2.1.

**Headers**

Headers are the type of payload (information) attached to request before data.

Headers can contain information like, http satus :200, or 404, 500.

Header has content Information like content-type:text/html content-type: application/json, content-type:Image/jpeg all these are called MIME types.

Header has allowed methods : GET,POST,...

Headers can be used to check if request are Authentic or not.

Headers can be used to enable cors policy (content origin request security policy).

**Body Content**

It refers to form data, supplied from form, or any client like postman

**Types of Body data**

1. Formdata : Form

2. Urlencoded data

3. www-encoded data

4. Raw data : JSON