**WebService**: It is a piece of software(program) that is being called by another software/program

over the internet by using the XML based communication.

**API**: It acts as an interface between two programs or two systems. API can be web based, library based,

System based.

A webservice is a kind of API but not all API’s need to be webservices.

**SoapWebservice**:

Soap is platform, language and transport independent

Soap is a standard. It is based on WSDL definitions.

Soap uses XML based communication.

Soap has inbuilt security ws security.

It is heavyweight choice.

**REST APIs:**

REST is language and platform independent. It depends on http protocol.

REST is architecture. It is designed by using http methods for CRUD operations.

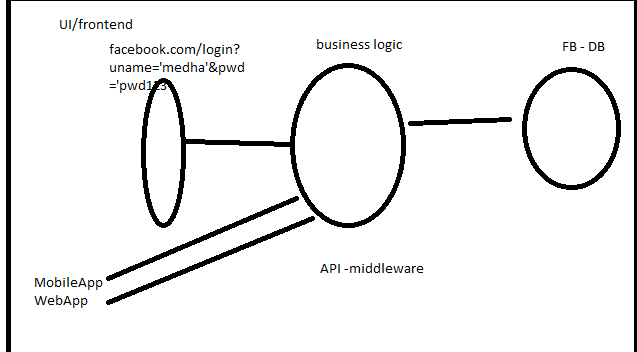
It can communicate through either Xml/JSON/csv/plain text.

It is a light weight choice.

It is easy to learn and understand.

Eg: <http://api.talentscreen.io/candidates?id=456>

Response: candidate name, phone, mail, subject, assignment.



**How to test webservices:**

Tools like **SoapUI**

Plugins like Postman-chrome,RestClient-Mozilla

Frameworks using HttpClient, RestAssured

SoapUI – It is a tool to test webservices. We can test both Soap and Rest webservices using SoapUI tool.

CRUD

Create

Retrieve

Update

Delete

Online Shopping Cart:

Create order id with order details given by customer

Retrieve/get the order details by using orderid

Update the details of exisiting order

Delete the order with order id

StudentPortal:

Create student details with id

Get

Update

Delete

Soap webservice:

Cretae new soap project

Give wsdl url or actual wsdl file

WSDL- web service definition language, it is an xml file with information about webservice.

Types

Messages

Porttype

binding

service – details about endpoint

<soapenv:envelope xmlns:ns1=<http://predic8.com/wsdl/shop/1/>>

<soapenv:header></soapenv:header>

<soapenv:body>

<ns:addToCart>

<cartId>

<articleId>

<quantity>

</ns:addToCart>

</soapenv:body>

</soapenv:envelope>

Response:

Header – statuscode, response message

Content type

Content length

Server

X access level

Payload/Body:

What to test in a webservice:

Functionality Testing:

Test important header information like statuscode, response message, content type, content length

Test for schema compliance(whether response is as per the WSDL standard)

Test for actual response body/payload:

Element present

Element value

Data count

Data order

Data types

EndPoint Testing

SecurityTesting:

AuthenticationTesting

SQL Injection attacks

XSS attacks

PerformanceTesting

TestData: Valid ,invalid, boundary values…