# What Is API ?

API is an acronym for **A**pplication **P**rogramming **I**nterface.

It enables communication and data exchange between two separate software systems. A software system implementing an API contains functions/sub-routines which can be executed by another software system.

API stands for **A**pplication **P**rogramming **I**nterface, which specifies how one component should interact with the other. It consists of a set of routines, protocols and tools for building the software applications.

# Difference between Web-Service and API:

API and Web service serve as a means of communication. The only difference is that a Web service facilitates interaction between two machines over a network. An API acts as an interface between two different applications so that they can communicate with each other. API is used for building applications and WS is used to support interoperable machine to machine interaction over a network.

# Rest and Soap API

## Rest

1. REST is an **architectural style**.
2. REST stands for **Representational State Transfer**.
3. REST **can use SOAP** web services because it is a concept and can use any protocol like HTTP, SOAP.
4. **JAX-RS** is the java API for RESTful web services.
5. REST **permits different** data format such as Plain text, HTML, XML, JSON etc.
6. RESTful web services **inherits security measures** from the underlying transport.
7. REST **more preferred** than SOAP.

## Soap

1. SOAP is a **protocol**.
2. SOAP stands for **Simple Object Access Protocol**.
3. **JAX-WS** is the java API for SOAP web services.
4. SOAP can't use REST because it is a protocol.
5. SOAP **defines standards** to be strictly followed.
6. SOAP **defines its own security**.
7. SOAP permits XML data format only.
8. SOAP is less preferred than REST.

# Status Codes

# 1xx: Informational

It means the request has been received and the process is continuing.

# 2xx: Success

It means the action was successfully received, understood, and accepted.

1. 200: Ok
2. 201: Created
3. 202: Accepted
4. 203: Non-authoritative Information
5. 204: No Content

### 3xx: Redirection

It means further action must be taken in order to complete the request.

1. 301 Moved Permanently

## 4xx: Client Error

1. 401: Unauthorized
2. 402: Payment Required
3. 403: Forbidden
4. 404: Not Found
5. 405: Method Not Allowed
6. 406: Not Acceptable

## 5xx: Server Error

1. 500 Internal Server Error
2. 501 Not Implemented
3. 502 Bad Gateway
4. 503 Service Unavailable
5. 504 Gateway Timeout
6. 505 HTTP Version Not Supported

# Useful Links

<https://confluence.infostretch.com/display/AP/REST+Service>

<https://confluence.infostretch.com/display/AP/QAF+Rest>

Web Service API documentation: <https://microservices-demo.github.io/api/>

Jersey Documentation: <https://github.com/rest-assured/rest-assured/wiki/Usage>

QAF Documentation: <https://qmetry.github.io/qaf/latest/web_services.html>

# Assignments

env.baseurl=<http://qas.qmetry.com/struts2-rest-showcase-2.3.16.3>

* Create scenarios for,
  1. Create 5 New Orders, take data from xml file or randomizer. [POST]
  2. Validate Created Orders and details.
  3. Delete Orders and validate orders are deleted.
  4. View Order details.
* Take any REST API’s with JSON response and perform below requests. Make sure you are validating JSON response after GET request call.
  1. POST
  2. GET
  3. DELETE
  4. PATCH
  5. PUT

<https://confluence.infostretch.com/download/attachments/93986135/98371536/qaf_ws_assignment.txt>