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# To study RESTful services

RESTful Web Services are basically REST Architecture based Web Services. In REST Architecture everything is a resource. RESTful web services are light weight, highly scalable and maintainable and are very commonly used to create APIs for web-based applications. 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. The underlying protocol for REST is HTTP. REST stands for REpresentational State Transfer.

## **HTTP methods**

Following four HTTP methods are commonly used in REST based architecture.

* GET − Provides a read only access to a resource.
* POST − Used to create a new resource.
* DELETE − Used to remove a resource.
* PUT − Used to update a existing resource or create a new resource.

## **RESTful Resources**

REST architecture treats every content as a resource. These resources can be Text Files, Html Pages, Images, Videos or Dynamic Business Data. REST Server simply provides access to resources and REST client accesses and modifies the resources. Here each resource is identified by URIs/ Global IDs.

## **RESTful Messages**

RESTful Web Services make use of HTTP protocols as a medium of communication between client and server. A client sends a message in form of a HTTP Request and the server responds in the form of an HTTP Response. This technique is termed as Messaging. These messages contain message data and metadata i.e. information about message itself. Let us have a look on the HTTP Request and HTTP Response messages for HTTP 1.1.

## HTTP Request

An HTTP Request has five major parts −

* Verb − Indicates the HTTP methods such as GET, POST, DELETE, PUT, etc.
* URI − Uniform Resource Identifier (URI) to identify the resource on the server.
* HTTP Version − Indicates the HTTP version. For example, HTTP v1.1.
* Request Header − Contains metadata for the HTTP Request message as key-value pairs. For example, client (or browser) type, format supported by the client, format of the message body, cache settings, etc.
* Request Body − Message content or Resource representation.

## **HTTP Response**

An HTTP Response has four major parts −

* Status/Response Code − Indicates the Server status for the requested resource. For example, 404 means resource not found and 200 means response is ok.
* HTTP Version − Indicates the HTTP version. For example HTTP v1.1.
* Response Header − Contains metadata for the HTTP Response message as keyvalue pairs. For example, content length, content type, response date, server type, etc.
* Response Body − Response message content or Resource representation.

## **RESTful Addressing**

Addressing refers to locating a resource or multiple resources lying on the server. It is analogous to locate a postal address of a person.

Each resource in REST architecture is identified by its URI (Uniform Resource Identifier). A URI is of the following format −

<protocol>://<service-name>/<ResourceType>/<ResourceID>