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Web Service Testing using SoapUI

Our Students feedback

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Trainer Profile

8+ Yrs Exp
ISTQB, QTP, QC, Loadrunner, CMAT, SoapUI certified
Trained more than 1000 professionals

Web Service:

- Is the type of application or software component which does not provide any GUI for user to interact.
- We can interact that kind of application by passing input to specified xml format and receiving results in XML
- Use HTTP protocol to communicate with web service
- Web services are powered **by XML and three other core technologies: WSDL, SOAP, and UDDI.**

- Before building a Web service, its developers create its definition in the form of a WSDL document that describes the service's location on the Web and the functionality the service provides.
- Information about the service may then be entered in a UDDI registry, which allows Web service consumers to search for and locate the services they need.
- Based on information in the UDDI registry, the Web services client developer uses instructions in the WSDL to construct SOAP messages for exchanging data with the service over HTTP.

UDDI (Universal Description Discovery and Integration)

- UDDI is a specification for creating an XML-based registry that lists information about businesses and the Web services they offer.
- UDDI provides businesses a uniform way of listing their services and discovering services offered by other organizations.
- Registering a Web service in a UDDI registry is an optional step, and UDDI registries can be public or private

UDDI can be defined as directory of web services

Service provider register web service in UDDI
Consumer search service in UDDI and start using services

XML

- Extensible markup Language
- Use to store data, Data is stored in different tags
- We can define our own tag to store data, we should have starting and ending tag both. We can transfer data between system in the form of XML
- XML Namespace: provide method to avoid element name conflict.


```
<SampleXML>
  <Colors>
    <Color1>White</Color1>
    <Color2>Blue</Color2>
    <Color3>Black</Color3>
    <Color4 Special="Light">Green</Color4>
    <Color5>Red</Color5>
  </Colors>
  <Fruits>
    <Fruits1>Apple</Fruits1>
    <Fruits2>Pineapple</Fruits2>
    <Fruits3>Grapes</Fruits3>
    <Fruits4>Melon</Fruits4>
  </Fruits>
</SampleXML>
```

<foo>Hello World!</foo>

Advantage of Web Services

- **Interoperability**

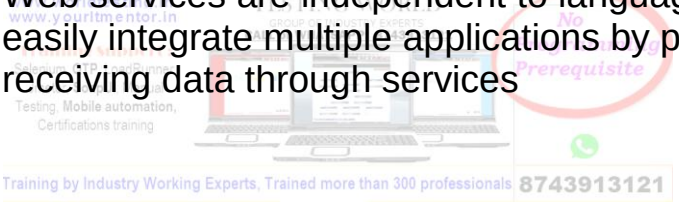
  Web Services are mainly used to interact between different applications over network by passing data through web service.

- **Cost Saving Communication**

  Web services use SOAP over HTTP protocol, so you can use your existing low-cost internet for implementing web services.

- **Easy integrations of application**

  Web services are independent to language, so we can easily integrate multiple applications by passing and receiving data through services



SOAP: Simple Object Access Protocol, communication protocol, it is used to message exchange between service and Application in XML format

SOAP is a wrapper over HTTP protocol, internally it used HTTP protocol to transfer and receiver XML messages

- Standard, Heavy, Conventional.
- Use WSDL (Web Service definition Language)

REST: Restful services use HTTP or other similar protocol. Which uses standard HTTP operations like GET, POST, PUT, DELETE

- New, Light weighted, uses WADL(Web Application Definition language)
- Rest(Representation state transfer)
- REST is set of guidelines which described how a client should interact with server
- Resource: Data and functionality that a client can access from server is called Resource
- Each Resource on server can be access by using its unique URI
- Response = Representation of resource on client
- A response can be in format HTML, XML, plan text, JSON, PDF, HTML etc

Advantage of Rest Web Services

- Resource can be access using URI while in SOAP web service, we need wsdl to access the service
- **Self Descriptive Response:** Response itself will contain info about format of message
- Communication protocol use in rest services is HTTP:- Stateless protocol: Means each request from client to server should be treated as a new request and it require all data which require to start communication
- Restful services uses for main HTTP methods

  GET To Retieve resource

  POST To Create resource

  PUT To Update resource

  Delete To Delete resource

SOAP	REST
SOAP is a protocol.	REST is an architectural style.
SOAP stands for Simple Object Access Protocol.	REST stands for Representational State Transfer.
SOAP uses services interfaces to expose the business logic.	REST uses URI to expose business logic.
SOAP defines standards to be strictly followed.	REST does not define too much standards like SOAP.
SOAP requires more bandwidth and resource than REST.	REST requires less bandwidth and resource than SOAP.
SOAP defines its own security.	RESTful web services inherits security measures from the underlying transport.
SOAP permits XML data format only.	REST permits different data format such as Plain text, HTML, XML, JSON etc.

WSDL(Web Service Description Langauge)

- It is a base Base language which is used to describe web service and how to access them.
- It is written in XML.
- WSDL is the document in XML. Which describe the webservice, the location of that webservice and operations exposed by webservice.
- WSDL is written in simple XML

WSDL Have following major elements

<types> : Describe the data type used by webservice

<message> : Messages used by web service .

<porttype> : Operations performed by webservice .

<binding> : Communication protocols used in webservice