**WebService**

* The standard protocol which makes the communication between the request generator and the request provider is nothing but webservice. E.g. Makemytrip site. Exposed webservices.
* A web service is used to communicate among various applications by using open standards such as HTML, XML, WSDL, and SOAP.( Platform independent communication)

**Basic Working of Webservice:**

* Service provider will develop webservices and make it available on internet : server
* Some who consumes the webservices : Client

2 basic things required for communication:

1. Medium : Http/Internet
2. Format: HTML, JSON, XML and WSDL.

**WSDL and UDDI:**

* **W**eb **S**ervice **D**escription **L**anguage :

An interface which will provide the description of all the attributes of the web services. (XML based for machine readability)

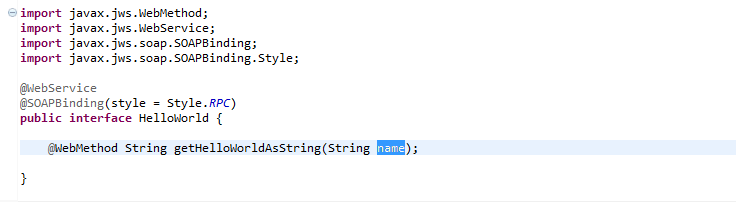
* If the client is known to server, the wsdl is directly handed over to the clients and they can use it.
* In other case, there is online registry or directory which will publish the wsdl for the service provider and those would be **UDDI (U**niversal **D**escription **D**iscovery **and I**ntegration**).**
* Query and get hold of WSDL and then use the webservice.

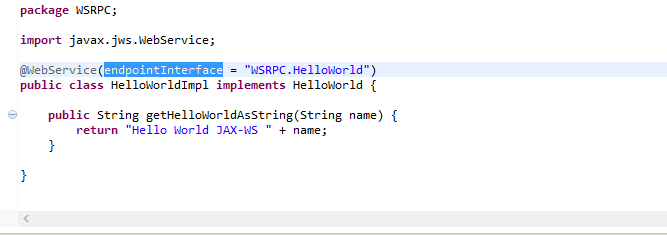
**SOAP :**

* **S**imple **O**bject **A**ccess **P**rotocol basically consist of 3 main things :
  1. **Envelope:** root element of SOAP message which will consist of header and body.
  2. **Header:** Provides the information of the message itself (Authentication, routing information). It is optional to define a header.
  3. **Body:** Contains information to be provided.

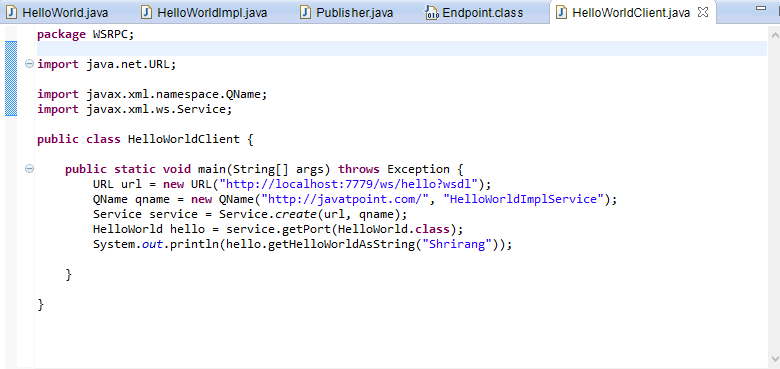
JAX\_WS\_RPC Example

* 3 Server side files and 1 client side files





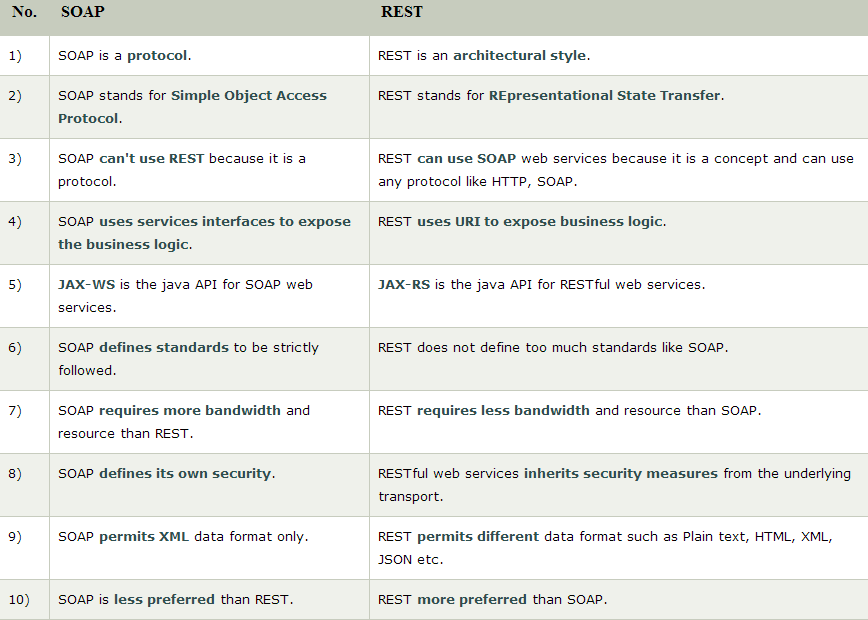




**RESTful Web services**

* REST stands for REpresentational State Transfer.
* REST is an architectural style not a protocol.
* **Fast**: RESTful Web Services are fast because there is no strict specification like SOAP. It consumes less bandwidth and resource.
* **Permits different data format**: RESTful web service permits different data format such as Plain Text, HTML, XML and JSON.

**Difference between SOAP and REST services:**



**Java Web Services Tutorial:**

* Two main java web services api:

JAX-WS and JAX-RS.

* The java web service application can be accessed by other programming languages such as .Net and PHP.

**Java Web Services API:**

1) **JAX-WS**: for SOAP web services. There are two ways to write JAX-WS application code: by **RPC** style and **Document** style.

**Medium:** HTTP (POST)

**Format:** XML

2) **JAX-RS**: for RESTful web services. There are mainly 2 implementation currently in use for creating JAX-RS application: **Jersey** and **RESTeasy**.

**Medium:** HTTP (POST, GET, PUT, DELETE)

**Format:** XML,JSON,HTML,etc

