

## **Java Web Services**

Java web service application performs communication through WSDL (Web Services Description Language). There are two ways to write java web service application code: SOAP and RESTful.

### **Java Web Services API**

There are two main API's defined by Java for developing web service applications since JavaEE 6.

- 1) JAX-WS: for SOAP web services.
- 2) JAX-RS: for RESTful web services.

### **SOAP Web Services**

- SOAP stands for Simple Object Access Protocol.
- SOAP is a W3C recommendation for communication between two applications.
- SOAP is XML based protocol.
- It is platform independent and language independent.
- By using SOAP, you will be able to interact with other programming language applications like Dot-Net and PHP.

### **Advantages of Soap Web Services**

- SOAP defines its own security known as WS Security.
- SOAP web services can be written in any programming language and executed in any platform.

### **Disadvantages of Soap Web Services**

- **Slow:** SOAP uses XML format and hence it is slow and consumes more bandwidth and resource.
- **WSDL dependent:** SOAP uses WSDL and doesn't discover the service.

### **RESTful Web Services**

- REST stands for REpresentational State Transfer.
- REST is an architectural style not a protocol.

### **Advantages of RESTful Web Services**

- **Fast:** RESTful Web Services are fast because there is no strict specification like SOAP. It consumes less bandwidth and resource.
- **Language and Platform independent:** RESTful web services can be written in any programming language and executed in any platform.
- RESTful web services can use SOAP web services as the implementation.
- RESTful web service permits different data format such as Plain Text, HTML, XML and JSON.

### SOAP V/s RESTful

No.	SOAP	REST
1)	SOAP is a <b>protocol</b> .	REST is an <b>architectural style</b> .
2)	SOAP <b>can't use REST</b> because it is a protocol.	REST <b>can use SOAP</b> web services because it is a concept and can use any protocol like HTTP, SOAP.
3)	SOAP <b>uses services interfaces to expose the business logic</b> .	REST <b>uses URI to expose business logic</b> .
4)	<b>JAX-WS</b> is the java API for SOAP web services.	<b>JAX-RS</b> is the java API for RESTful web services.
5)	SOAP <b>defines standards</b> to be strictly followed.	REST does not define too much standards like SOAP.
6)	SOAP <b>requires more bandwidth</b> and resource than REST.	REST <b>requires less bandwidth</b> and resource than SOAP.
7)	SOAP <b>defines its own security</b> .	RESTful web services <b>inherit security measures</b> from the underlying transport.
8)	SOAP <b>permits XML</b> data format only.	REST <b>permits different</b> data format such as Plain text, HTML, XML, JSON etc.