---Webservices Class Notes---

Date : 06-Aug-2018

Hello Friends,
Welcome to Webservices.....

Before starting Webservices course, first let me set the expectations like who should learn this course and who should

not learn, what are the pre-requisites to learn Webservices

and how job opportunities will be there for Webservices and what is the course content etc..

Who Should Learn Webservices

For Freshers - > Webservices are optional

For Experienced/fake experience ppl - > Webservices & Restful Services are mandatory

If i learn Webservices, what is the use ?

Webservices and Restful services are trending technologies in the market.

All most all ppl will learn Spring and Hibernate but very few ppl are learing Webservices.

If you know Webservices along with Spring and Hibernate then getting job opportunities will be multiplied for you.

Even in the industry also, very few ppl knows how to work with Webservices.

Out of 10 members -> max 3-4 ppl only knows webservices.

If you know Spring and Hibernate then you can demand for 5 - 6 lakhs package for 3 years exp.

If we know Spring, Hibernate , Webservices and Restfull services also then we can demand upto 8 lakhs package

(Companies also ready to pay good packages for Webservice developers because need is there). - Demand and Supply

rule.

In Realtime, Applications are tightly coupled with Webservices.

I might also heared, Restfull services are there in almost all applications development.

Feel proud that you are going become Webservices and Restful services developer in another 2 months.

If you mention Webservice and Restfull services in your resume then it will have special weightage (more demand will

be there)

Pre-requisites

You should complete core java first to attend Webservices

If anybody doing core java now, please don't come to Webservices from tomorrow. Even if you come you will not
understand (Time waste and money waste).

First learn Core java properly then come for Webservices.

Core Java

- OOPS
- Exception Handling
- Multi-Threading
- IO Streams
- Annotations
- Generics
- java.net (i will cover basics)
- Swings & AWT & Applets (Not required)
- Collections

Adv Java

- JDBC (Not required)
- Connection Pooling (not required)
- Servlets (Basic knowledge is required)
- WebServer
- ApplicationServer
- Application Deployment process

Frameworks

- Struts (Not required)
- Hibernate (Not required)
- Spring (optional)

Distributed Technologies - Not required

- CORBA
- RMI
- EJB

Course content
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1) Introduction (1 week)

2) Real-time use cases (How Webservices are using)

2) WebServices Architecture (2days)

3) Xml Technologies (XML, DTD, XSD, JAX-P and JAX-B)-(2-3 weeks)

XML - > It is used to represent the data
DTD - > To validate xml structure
XSD - > To validate structure and type of data as well

I am storing some data in xml

<?xml version="1.0" encoding="UTF-8"?>
<books>
  <book>

```
    <id>101</id>
    <name>Spring</name>
    <price>1000.00</price>
  <book>
</books>
```

Can i read the above xml file using Java ? - Yes we can read

IO streams we can use to read this file but io steams will read from starting to ending (it will data and meta data as well)

If I want to read only data we need to write customized logic for every xml (to differentiate meta-data and actual data).

To overcome this problem sun provided jax-p api to parse xml files in xml style. (It ignores meta-data and provides only usefull data to us).

-> jax-p --> java api for xml parsing

-> jax-b -> java architecture for xml binding

Why two apis are there to parse xml ?
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jdbc - textaul data
hibernate - objects data
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jax-p will parse xml data in text format

jax-b will parse xml data in object format

Date : 07-Aug-2018

Post XML Technologies Actual WebServices will start

In java we can develop webservices in 2 ways.

    1) JAX-RPC API(Immutured API)
    2) JAX-WS API

These are 2 apis provided by sun to develop soap based webservices (Big Webservices)

JAX-RPC = > JAVA API FOR XML - Remote Procedural Call

JAX-WS   => JAVA API FOR XML - Web Services

-> We can a write a program for sum of 2 nums using C and using Java also.

-> If i do that program in C and Java -> Output will be same or Different ? - > Output will be same only.

-> But weather to use C or java it depends on programmer choice and it depends on programmer comfort level.

-> Similarly if i develop a Webservice using JAX-RPC OR JAX-WS the result will be Webservice only.

-> JAX-RPC is the first and foremost api given by Sun Micro System to develop Webservices.

-> JAX-WS api came into market later point of time with some additional features to develop Webservices.

-> Using JAX-RPC we need to huge amount of code, if we use JAX-WS code will be reduced (Developer life will be simple).

Now, Can i develop Webservices using these APIs ?

By using only these APIs we can't develop webservices because
APIs are partial they are not complete.

To work with API we need implementations

For Jdbc API we need Implementations like
       - > oracle | mysql | db2 | mongodb etc..

What are the Implementations available for these APIs ?

Its not one Implementation there are several implementations available.

JAX-RPC API Implementations

         - SI (Sun implementation
         - Apache AXIS
         - Oracle Weblogic Webservices
         - IBM Websphere Webservices

JAX-WS API Implementations

         - RI (Reference implementation) - Sun
         - Metro
         - APACHE AXIS2 (j2ee)
         - Apache CXF (Spring)
         - Oracle Weblogic Webservices
         - IBM Websphere Webservices
         - JBoss webservices

-> In Web Application we will have CLient and Server

- > In Webservices we will have Provider and Consumer

-> We can execute a query in 2 ways
        using Statement and Prepared Statemnt

-> Webservices server side we can develop in below 2 ways

        - > Contract First Approach
        - > Contract Last Approach

jax-rpc api - > SI - > Server side - > Contract First
jax-rpc api - > SI - > Server side - > Contract Last

jax-rpc api - > AXIS - > Server side - > Contract First
jax-rpc api - > AXIS - > Server side - > Contract Last

jax-WS api - > RI - > Provider side - > Contract First
jax-ws api - > RI - > Provider side - > Contract Last

jax-WS api - > AXIS 2 - > Provider side - > Contract First
jax-WS api - > AXIS 2 - > Provider side - > Contract Last

jax-WS api - > CXF - > Provider side - > Contract First
jax-WS api - > CXF - > Provider side - > Contract Last

Consumer side Programming
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jax-rpc consumer development

We can develop JAX-RPC consumer in below 3 ways

 - STUB based consumer
 - DP (Dynamic proxy)
 - DII (Dynamic Invocation Interface)

JAX-WS API Consumer development

We can devlop jax-WS consumer in below 2 ways

    - STUB BASED Consumer
    - DP (Dynamic Proxy)

SOAP UI - Webservice Testing tool
WSDL - Contract
Security
Spring Integration with Soap webservices

What Webservices you are using in your project ?

JAX-RPC API
SI Implementation
Server Side (Provider)
Contract First Approach

JAX-RPC API
SI Implementation
Client Side (Consumer)
STUB Based client

--------------------------RESTful services--------------------

Introduction
Diff soap and Rest
Rest Architecture
Rest Principles
JSON (Jakson & Gson)
Restfull services

JAX-RS (2.0) - api
     - Jersy (Sun)
     - RestEasy (JBoss)

Spring with Rest (2 days)
Rest Security
POSTMAN (restfull services testing) - chrome plugin
OAUTH (will not be covered)
Swagger(documentation)
WADL (Web application description language)

Before jumping into Webservices , first tell me what is your opinion on Webservices ? - Anyone can answere

Your Answeres

It is used to communicate with 2 applications which are devleoped in 2 diff technologies

To share business services from one app to another app

Both are correct..........

What is Web-service ?

My definition -

Webservice is one of the forms of Distributed technologies which is used to develop distributed applications.