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| **Prg/Yr/Sem:** B.Tech(I.T.)/4th /7 | **Batch:** A3 |
| **Date of Experiment:** 9/8/2014 | **Date of Submission:** 23/8/2014 |

**Aim**: Implementing a Client Web Service to consume an online Weather Forecast Web Service.

1. **Design Scenario –**

Create a Client Web Service which uses the online wsdl document (http://www.webservicex.com/globalweather.asmx?wsdl) for weather forecast and accesses the method GetWeather with input as country name and GetCitiesByCountry with input as city name and country name.

1. **Detailed steps for completing the practicals –**

*Steps –*

1. Start NetBeans 7.0 by clicking on it and start a new project File->New Project.
2. Select the New Project as Java -> Java Application. Call the Project WeatherApp.
3. Create a Web Service Client by selecting the WeatherApp project and right clicking on it.
4. Then select New->Web Service Client.

1. Enter the WSDL URL

http://www.webservicex.com/globalweather.asmx?wsdl

1. The WSDL URL is referenced online and this adds the Web Service References

globalweather with methods GetWeather.

1. This method will be used in the practical to display the temperature details of given city and country.
2. Select the method GetWeather and drag it into WeatherApp.java to add the method.
3. Also add the code in main function to declare a zip code and display the maximum & minimum temperature. Run the project.
4. **Questions –** 
   1. **Explain SOA and Web Service.**

Ans: Service-oriented architecture (SOA) is an evolution of distributed computing based on the request/reply design paradigm for synchronous and asynchronous applications. An application's business logic or individual functions are modularized and presented as services for consumer/client applications. What's key to these services is their loosely coupled nature; i.e., the service interface is independent of the implementation. Application developers or system integrators can build applications by composing one or more services without knowing the services' underlying implementations.

Web Service - A software system designed to support interoperable machine-to-machine interaction over a network.

* 1. **Explain WSDL, SOAP, UDDI**

Ans: WSDL – WSDL is an XML format for describing network services as a set of endpoints operating on messages containing either document-oriented or procedure-oriented information. The operations and messages are described abstractly, and then bound to a concrete network protocol and message format to define an endpoint. Related concrete endpoints are combined into abstract endpoints (services). WSDL is extensible to allow description of endpoints and their messages regardless of what message formats or network protocols are used to communicate, however, the only bindings described in this document describe how to use WSDL in conjunction with SOAP 1.1, HTTP GET/POST, and MIME.

SOAP – SOAP provides a simple and lightweight mechanism for exchanging structured and typed information between peers in a decentralized, distributed environment using XML. SOAP does not itself define any application semantics such as a programming model or implementation specific semantics; rather it defines a simple mechanism for expressing application semantics by providing a modular packaging model and encoding mechanisms for encoding data within modules. This allows SOAP to be used in a large variety of systems ranging from messaging systems to RPC.

UDDI – The Universal Description, Discovery and Integration (UDDI) specifications define a registry service for Web services and for other electronic and non-electronic services. A UDDI registry service is a Web service that manages information about service providers, service implementations, and service metadata. Service providers can use UDDI to advertise the services they offer. Service consumers can use UDDI to discover services that suit their requirements and to obtain the service metadata needed to consume those services.

1. **Printouts –**

***CODE:***

/\*

\* To change this template, choose Tools | Templates

\* and open the template in the editor.

\*/

/\*\*

\*

\* @author admin

\*/

public class weather {

/\*\*

\* @param args the command line arguments

\*/

public static void main(String[] args) {

// TODO code application logic here

System.out.println("Weather Report" + getWeather("Melbourne","Australia"));

System.out.println("Weather Report" + getCitiesByCountry("Australia"));

}

private static String getCitiesByCountry(java.lang.String countryName) {

net.webservicex.GlobalWeather service = new net.webservicex.GlobalWeather();

net.webservicex.GlobalWeatherSoap port = service.getGlobalWeatherSoap();

return port.getCitiesByCountry(countryName);

}

private static String getWeather(java.lang.String cityName, java.lang.String countryName) {

net.webservicex.GlobalWeather service = new net.webservicex.GlobalWeather();

net.webservicex.GlobalWeatherSoap port = service.getGlobalWeatherSoap();

return port.getWeather(cityName, countryName);

}

}

***OUTPUT:***

Compiling 1 source file to C:\Documents and Settings\admin\My Documents\NetBeansProjects\Experiment1(Weather)\_A042\build\classes

compile:

run:

Weather Report<?xml version="1.0" encoding="utf-16"?>

<CurrentWeather>

<Location>Melbourne Airport, Australia (YMML) 37-40S 144-50E 141M</Location>

<Time>Aug 02, 2014 - 02:00 AM EDT / 2014.08.02 0600 UTC</Time>

<Wind> from the SSE (150 degrees) at 7 MPH (6 KT):0</Wind>

<Visibility> greater than 7 mile(s):0</Visibility>

<SkyConditions> partly cloudy</SkyConditions>

<Temperature> 50 F (10 C)</Temperature>

<DewPoint> 33 F (1 C)</DewPoint>

<RelativeHumidity> 53%</RelativeHumidity>

<Pressure> 30.42 in. Hg (1030 hPa)</Pressure>

<Status>Success</Status>

</CurrentWeather>

Weather Report<NewDataSet>

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<City>Amberley Aerodrome</City>

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</NewDataSet>

BUILD SUCCESSFUL (total time: 6 seconds)

1. **Conclusion –** Thus we have learnt on how to connect to web services online, connect to various services and display information through servers using JAVA. We have implemented our first program on weather forecast around the globe and displayed the temperature, city, and date&time.