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DEPARTMENT OF COMPUTER SCIENCE AND TECHNOLOGY

Unit V- Introduction to AJAX and Webservices

Describing Web Services: WSDL

- The WSDL is a Web Service Descriptor Language which is based on XML.

- The purpose of this file is to describe the web service and the method of accessing it.

- WSDL is a W3C recommendation.

- It contain various definitions. Following elements are described in WSDL file.

Elements	Description
types	It specifies the data types of the symbols used by the web service.
messages	It specifies the messages used by the web service.
portType	It specifies the name of the operation(function) defined by the web service
binding	It specifies the name of the protocol of the web service, typically it is SOAP.

1.Types

If we declare and use some variable in the web service then their data types can be specified.

For example -

```
<?xml version="1.0" encoding="UTF-8"?>
<definitions  name="SimpleCalculator"  targetNamespace="http://tempuri.org/wsdl"
>
 <types>
```

```
<schema targetNamespace="http://tempuri.org/types">
 <import namespace="http://schemas.xmlsoap.org/soap/encoding/"/>
 <complexType name="CalciClass">
  <sequence>
   <element name="operator1" type="double"/>
   <element name="operator2" type="double"/>
   <element name="operation" type="String"/>
  </sequence>
 </complexType>
</schema>
</types>
```

2. Messages

The messages define the **part** of the element along with the data types. The message name specified the name of the function.

For example -

```
<?xml version="1.0" encoding="UTF-8"?>
<definitionsname="SimpleHelloMessage"
targetNamespace="http://tempuri.org/wsdl" >  <types/>
 <message name="MyInterface_HelloFun">
  <part name="String_1" type="xsd:string"/>
 </message>
 <message name="MyInterface_HelloFunResponse">
  <part name="result" type="xsd:string"/>
 </message>
```

3.PortTypes

This is an important element of the WSDL file. It defined various **operations** that can be performed by the web service.

Various operation types are -

Elements	Description
one-way	This operation will send the message but it will not get any response.
request-response	This operation will send a message and will receive a response.
Solicit-response	This operation will send a message and will wait for a response.
Notification	This operation will send a message and will not wait for a response.

The messages in portTypes define the name of the operation along with the prefix **tns** where tns stands for TypeNamespace.

4.Binding

The binding defines the message format and details of the protocol.

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

<definitionsname="SimpleHelloMessage"

targetNamespace="http://tempuri.org/wsdl" >

…

…

<binding name="MyInterfaceBinding" type="tns:MyInterface">

　　<soap:binding   transport="http://schemas.xmlsoap.org/soap/http"
　　style="rpc"/>

　　<operation name="HelloFun">

…

…

…

There are three main elements -

binding

The binding defines **name** which defines the name of the binding and **type** attributes specifies the port which is typically the name of the interface file.

soap:binding

The soap:binding defines **transport** and **style** attributes. The style is remote procedure call which allows the distributed clients to access the web service.

5.operation

The operations defines the port operations. Each operation contains the **soap:operation, input** and **output** elements. The **soap:body** element provides the communication details such as whether or not the associated message is encoded and if it is encoded then the **encodingStyle** is specified.

6.Service

The service element specifies the name for overall web service.

```
<?xml version="1.0" encoding="UTF-8"?>
<definitionsname="SimpleHelloMessage"
targetNamespace="http://tempuri.org/wsdl" >
 <types/>
…
…
….
 <service name="SimpleHelloMessage">
  <port name="MyInterfacePort" binding="tns:MyInterfaceBinding">
   <soap:address  location="REPLACE_WITH_ACTUAL_URL"/>
</port>
</service>
</definitions>
```