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”
**WSDL 2.0 Document**

*types*: kinds of messages that the service will send and receive

*interface*: what abstract functionality the Web Service provides

*binding*: how to access the service

*service*: where to access the service
Types

- **Data Structure or Data Type Definition**
- **Uses XML Schema (XSD in earlier versions)**
- **Wire-protocol-neutral**

```xml
<types>
  <xs:schema
      xmlns:xs="http://www.w3.org/2001/XMLSchema"
      targetNamespace="http://greath.example.com/2004/schemas/resSvc"
      xmlns="http://greath.example.com/2004/schemas/resSvc">
    <xs:element name="checkAvailability" type="tCheckAvailability"/>
    <xs:complexType name="tCheckAvailability">
      <xs:sequence>
        <xs:element name="checkInDate" type="xs:date"/>
        <xs:element name="checkOutDate" type="xs:date"/>
        <xs:element name="roomType" type="xs:string"/>
      </xs:sequence>
    </xs:complexType>
    <xs:element name="checkAvailabilityResponse" type="xs:double"/>
    <xs:element name="invalidDataError" type="xs:string"/>
  </xs:schema>
</types>
```
Interfaces

- Set of abstract operations with their appropriate messages
- Operations are “methods” and messages are “arguments”

```xml
<interface name = "reservationInterface" >

  <fault name = "invalidDataFault"
    element = "ghns:invalidDataError"/>

  <operation name="opCheckAvailability"
    pattern="http://www.w3.org/ns/wsdl/in-out"
    style="http://www.w3.org/ns/wsdl/style/iri"
    wsdlx:safe = "true">
    <input messageLabel="In"
      element="ghns:checkAvailability" />
    <output messageLabel="Out"
      element="ghns:checkAvailabilityResponse" />
    <outfault ref="tns:invalidDataFault" messageLabel="Out"/>
  </operation>

</interface>
```
Bindings

- Defines message format and protocol details for operations and messages
- **Protocols for binding**: SOAP 1.2 and HTTP 1.1

```xml
<binding name="reservationSOAPBinding"
    interface="tns:reservationInterface"
    type="http://www.w3.org/ns/wsd1/soap"
    wsoap:protocol="http://www.w3.org/2003/05/soap/bindings/HTTP/">
  <operation ref="tns:opCheckAvailability"
    wsoap:mep="http://www.w3.org/2003/05/soap/mep/soap-response"/>
  <fault ref="tns:invalidDataFault"
    wsoap:code="soap:Sender"/>
</binding>
```
Service

- Single interface with a list of endpoint location
- Each endpoint must also reference a previously defined binding
- Permitted only to have one interface

```xml
<service name="reservationService"
    interface="tns:reservationInterface">
    <endpoint name="reservationEndpoint"
        binding="tns:reservationSOAPBinding"
        address ="http://greath.example.com/2004/reservation"/>
</service>
```
WSDL 2.0 Infoset

Source: W3C