UNIT II

BUILDING XML- BASED APPLICATIONS

1. What is DOM?

The DOM defines a standard for accessing and manipulating documents: "The W3C Document Object Model (DOM) is a platform and language-neutral interface that allows programs and scripts to dynamically access and update the content, structure, and style of a document."

2. Mention the need of DOM

1. Attributes defined in the IDL do not imply concrete objects which must have specific data members - in the language bindings, they are translated to a pair of get()/set() functions, not to a data member. (Read-only functions have only a get() function in the language bindings).
2. DOM applications may provide additional interfaces and objects not found in this specification and still be considered DOM compliant.
3. Because we specify interfaces and not the actual objects that are to be created, the DOM cannot know what constructors to call for an implementation.

3. Write the steps in parsing XML document using DOM

Steps to Using DOM

1.Import XML-related packages.

2.Create a DocumentBuilder.

3.Create a Document from a file or stream.

4.Extract the root element.

5.Examine attributes.

6.Examine sub-elements.

4. Mention about DOM Levels

- DOM4
- Document Object Model Level 3
- Document Object Model Level 2
- Document Object Model Level 1
- Others

5. What is Core DOM?

The DOM Core API also allows population of a Document object using only DOM API calls; creating the skeleton Document and saving it persistently is left to the product that implements the DOM API.

6. What is Range? List out the range Interfaces

This is the actual range of values. The "UNITS" attribute permits the specification of integer/real numbers. The "min" and "max" attributes specify the lowest and highest values that are part of the range. The "minExclusive" and "maxExclusive" attributes specify values that are immediately outside the range. This is an empty element consisting only of its attributes.

7. Write the disadvantages of DOM?

Disadvantages of XML DOM• Resource intensive Since the XML structure is resident in memory, the larger the XML structure is, the more memory it will consume.• Relative speed In comparison to SAX, DOM can be much slower due to its resource usage/ needs

8. Difference between DOM and SAX?

1) DOM parser loads whole XML document in memory while SAX only loads a small part of the XML file in memory.

2) DOM parser is faster than SAX because it access whole XML document in memory.

3) SAX parser in Java is better suitable for large XML file than DOM Parser because it doesn't require much memory.

4) DOM parser works on Document Object Model while SAX is an event based XML parser.

9. What is SAX?

SAX (Simple API for XML) is an event-driven online algorithm for parsing XMLdocuments, with an API developed by the XML-DEV mailing list. SAX provides a mechanism for reading data from an XML document that is an alternative to that provided by the Document Object Model (DOM).

10. What is XERCES?

Xerces-C++ is a validating XML parser written in a portable subset of C++. Xerces-C++ makes it easy to give your application the ability to read and write XML data. A shared library is provided for parsing, generating, manipulating, and validating XML documents using the DOM, SAX, and SAX2 APIs.

11. Write the disadvantages of SAX

- SAX is similar to a one-pass compiler. After it reads part of the document, it cannot navigate backward to reread the data it has processed, unless you start all over again.
- Because SAX does not store the data that it has processed, you cannot modify this data and store it back in the original document.
- Because SAX does not create an in-memory document structure, you cannot build an XML document by using a SAX parser.

12. What is XSLT?

- XSL (EXtensible Stylesheet Language) is a styling language for XML.
- XSLT stands for XSL Transformations.
- This tutorial will teach you how to use XSLT to transform XML documents into other formats (like transforming XML into HTML).

13. What is JAXB?

Java Architecture for XML Binding (JAXB) provides a fast and convenient way to bind XML schemas and Java representations, making it easy for Java developers to incorporate XML data and processing functions in Java applications. As part of this process, JAXB provides methods for unmarshalling (reading) XML instance documents into Java content trees, and then marshalling (writing) Java content trees back into XML instance documents. JAXB also provides a way to generate XML schema from Java objects.

14. How XSLT works?

XSLT is a language for transforming XML documents. “Data Model”, the XSLT processor is concerned with three XPath data model trees: the source tree, the stylesheet tree, and the result tree. The stylesheet and source trees are fed to the XSLT processor, which then produces the result tree.

15. Where XSLT can be used?

XSLT is used to transform an XML document into another XML document, or another type of document that is recognized by a browser, like HTML and XHTML. Normally XSLT does this by transforming each XML element into an (X)HTML element.

With XSLT you can add/remove elements and attributes to or from the output file. You can also rearrange and sort elements, perform tests and make decisions about which elements to hide and display, and a lot more. A common way to describe the transformation process is to say that **XSLT transforms an XML source-tree into an XML result-tree**.

16. What is XSL:if ? give example for it.

To put a conditional if test against the content of the XML file, add an <xsl:if> element to the XSL document.

Syntax

```
<xsl:if test="expression">
  ...some output if the expression is true...
</xsl:if>
```

17. Write the steps in creating JAXB solution

Step 1: Writing XSD for findbugs. We will create an xsd mapping to *findbugs.xml*. A simple snapshot of the xsd is shown. Detailed xsd is attached.

Step 2: Open Eclipse and create a Java project.

Step 3: Create a folder named XML within the project and copy the *findbugs.xml* which is generated after analysis.

Step 4: Open command prompt and go to the above created xsd folder. Execute the following xjc command:

Step 5: Create a Main class and write the following unmarshall method:

Step 6: Code in the main method of Main class.

Step 7: On executing the above code, we will get output displaying project name, bugs as well as timestamp.

18. How to develop a DAO?

Data Access Object Pattern or DAO pattern is used to separate low level data accessing API or operations from high level business services. Following are the participants in Data Access Object Pattern.

- **Data Access Object Interface** - This interface defines the standard operations to be performed on a model object(s).
- **Data Access Object concrete class** - This class implements above interface. This class is responsible to get data from a data source which can be database / xml or any other storage mechanism.
- **Model Object or Value Object** - This object is simple POJO containing get/set methods to store data retrieved using DAO class.

19. Write the steps involved in creating database in XML

Any database can store text, so the immediate option would be to store the xml as text. But some databases have added an XML data type in order to allow for storing the XML, checking that the schema validates (proper structure, not a fragment), and retrieving values from the XML stored in the database with XPATH/XQUERY syntax