***CHAPTER 22***

43. What is xml?

Ans: xml is a language for describing data that is to be communicated from one computer to another. Data is described in the form of text that contains the data plus markup that defines the structure of data.

44. What is xml document?

Ans: xml document is a Unicode text file that contains data together with markup that defines the structure of data.

45. What is JAXP?

Ans: JAXP stands for Java API for xml Processing. It is a collection of classes that supports xml processing.

46. How many parts do have an xml document basically?

Ans: An xml document basically consists of two parts. They are: i) prolog ii) document body

47. What is prolog?

Ans: prolog is an optional part of an xml document. It provides necessary information for the interpretation of the contents of the document body.

48. What is document body?

Ans: document body is the main part of an xml document. It specifies an external document type definition (DTD) that identifies the markup declarations for the element used in the body of the document or explicit markup declarations or both.

49. What is DTD?

Ans: DTD stands for Document Type Declaration. It identifies the markup declarations for the element used in the body of the document or explicit markup declarations or both.

50. What are the benefits of DTD?

Ans: i)With a DTD, each of your XML files can carry a description of its own format.

ii) With a DTD, independent groups of people can agree to use a standard DTD for interchanging data.

51. What is the root element?

Ans: The element which contains all other elements is called root element. Every xml document must have a root element.

52. What is PI?

Ans: PI stands for Processing Instruction. It indicates how an xml document should be processed.

53. What is a well-formed xml document?

Ans: The xml document which conforms to the rules for writing xml as defined by the xml specification.

54. What is an xml processor?

Ans: An xml processor is a software module that is used by an application to read an xml document and gain access to the data and its structure.

55. What is the difference between a well-formed xml document a valid xml document?

Ans:

|  |  |
| --- | --- |
| Well-formed xml document | Valid xml document |
| 1. It may contain an associated DTD. | 1. It must contain an associated DDT. |
| 2. A well formed xml document may not be valid. | 2. A valid xml document must be well-formed. |

56. What is Entity?

Ans: Entity is a block of parsed character data which is to be used in the body of a document repeatedly. It is decleared within DTD.

57. What is general entity?

Ans:General entity is declared in a DTD when we want to repeat text within the document body.

58. What is the difference between general entity and parameter entity?

Ans: The form for a general entity and parameter entity is similar except that a % character appears between ENTITY and entity name separated by a space.

<!ENTITY copyright "(c) 2004 jon david">

<!ENTITY % copyright "(c) 2004 jon david">

59. Define Tag rules.

Ans: i) Each element name must immediately follow the opening tag in case of start tag, and end with </ in this case of end tag.

ii) It does not allow any space between the opening < and the element name or between the / and > marking end of the tag.

60. Define Name Rules.

Ans: Element’s name must begin with a letter or an underscore and can include digits,periods and hyphens.

61. Write the advantages of DOM.

Ans: i) After creating document object model (DOM) we can navigate through the elements in the document tree starting with the root element by its methods.

ii) DOM allows us to modify existing documents or create new ones. It is the unique advantage over SAX.

62. What is cardinality operator?

Ans: The sign by which we can indicate how many times an element may be appeared in an xml document is called cardinality operator. These are: i) + ii) \* iii) ? iv) |

63. Write the cardinality operator and its indication.

|  |  |
| --- | --- |
| Operator | Indication |
| 1. + | At least Once but may be more. |
| 2. \* | Zero or more. |
| 3. ? | May be once or not at all. |
| 4. | | Left operand or Right operand but not both. |

64. What is parameter entity?

Ans: A parameter entity identifies a block of parsed text by a name that you can used to insert the text at various places with a DTD.

65.Write the rules for a well-formed document.

Ans: i) If the xml declaration appears in the prolog, it must include the xml version. ii) If the document type declaration appears in the prolog, the DOCTYPE name must match that of the root element. iii) The body of the document must contain at least one root element. iv) Elements in the body of the document must be consistent with the markup declaration identified by the DOCTYPE declaration.

66. What is namespace? When is it called a default namespace?

Ans: An XML namespace defines a set of names qualified by a prefix that corresponds to a URI. When a name space is defined in the root element for the whole document without any prefix then this namespace is called default namespace.

67. Why do we use namespace?

Ans: Normally we use only one dtd file in a xml document. But When we want to use two or more dtd file in a xml document. That time a problem may arise to differentiate between elements that share a common name. That’s why we use namespace.

68. What is XSD? How can we declare it?

Ans: XSD stands for XML Schema Definition Language.

<?xml version=”1.0”?>

<sxd:schema xmlns:xsd=”http://www.gora\_goru.org/2001/XMLSchema”>

69. Write the benefit rule of Schema?

Ans: i) It is easier to describe allowable document content and to validate the correctness of data. ii) It is easier to work with data from a database and to convert data between different data types.

70. What is instance document?

Ans: A document that has been defined in accordance with a particular schema is called an instance document for that schema.

71. What is XML parser?

Ans: XML parser is nothing but an XML processor. It parses the elements of the document and makes the elements together with their attributes and content.

72. What is API?

Ans: API stands for Application Programming Interface. An application accesses the content of a document through it provided by XML parser.

73. How many API does support Java and what are they?

Ans: Java supports two APIs. They are : i) SAX ii) DOM

74. What is SAX?

Ans: SAX stands for Simple API for XML. It uses and event-based process for reading an XML document.

75. What is DOM?

Ans: DOM stands for Document Object Model. It uses object-based process for reading an XML document.

76. How many kinds of parser for reading an XML document?

Ans: i) SAXParserFactory ii) SAXParser iii) DocumentBuilderFactory iv) DocumentBuilder

77. Write 5 overloaded method of parse() ?

Ans: i) parse(File afile, DefaultHandler haldler)

ii) parse(String uri, DefaultHandler handler)

iii) parse(InputStream input, DefaultHandler handler)

iv) parse(InpusStream input, DefaultHandler handler, String SystemID)

v) parse(InputSource source, DefaultHandler handler)

78. What is DefaultHandler?

Ans: DefaultHandler is a class of org.xml.sax.helpers package which contain a specific set of public methods and it provides a default do-nothing implementation of each of the callback methods.

79. Write the names of interfaces implemented by DefaultHandler class:

Ans: i) ContentHandler ii) EntityResolver iii) DTDHandler iv) Error Handler

80. What is Attributes?

Ans: Attributes is an interface which declares methods you can call for the object to obtain details of each attribute name, its type and its value.

81. Write the difference between HTML and XML?

|  |  |
| --- | --- |
| XML | HTML |
| 1. XML stands for Extensible Markup Language. | 1. HTML stands for Hypertext Markup Language. |
| 2. It is designed to describe data. | 2. It is designed to display data. |
| 3. XML tags are not predefined. | 3. HTML tags are predefined. |

82. What is element content and element normal?

Ans: When an element has no element then the element is called element normal and when an element contains one or more attribute then the element is called element content.

83. How can we declare a DTD internally? / Define the internal subset and external subset.

Internal DTD Declaration:

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

<!DOCTYPE address

[

<!ELEMENT address (buildingnumber, street)>

<!ELEMENT buildingnumber (#PCDATA)>

<!ELEMENT street (#PCDATA)>

]>

External DTD Declaration:

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

<!DOCTYPE proverb SYSTEM "proverb.dtd">

<proverb>

A Little Knowledge is a dangerous thing

</proverb>

84. What is the difference between PCDATA and CDATA?

Ans: If an element of an xml document contain some illegal characters such as “<” and “&” and it is defined as PCDATA then this illegal character will generate an error whereas if it is defined as CDATA no error will be generated.

**Notes:**

XML is also a meta-language because you can use XML to create new languages for defining and structuring data.

❑ Markup consists of XML elements that may also include attributes, where an attribute is a name-value pair.

❑ The structure and meaning of a particular type of document can be defined within a Document Type Definition (DTD). A DTD can be defined in an external file or it can be part of a document.

❑ A DTD is identified by a DOCTYPE declaration in a document.

❑ The Schema Definition language provides a more flexible alternative to DTDs.

❑ An XML namespace defines a set of names qualified by a prefix that corresponds to a URI.

❑ The SAX API defines a simple event-driven mechanism for analyzing XML documents.

❑ A SAX parser is a program that parses an XML document and identifies each element in a document

by calling a particular method in your program. The methods that are called are those defined by the SAX API.

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84. What is DocumentBuilderFactory?

Ans: DocumentBuilderFactory is a parser residing in the document Builder Class that makes an object through newInstance() method for creating xml document.

85. What is parsing?

Ans: To parse means to break down into smaller components (pieces) of the  
whole. It is to read the value of one object to convert it to another type for making name/value pairs by parse() method.

86. Write the advantage of getNodeType() method?

Ans: We can test for the node type using a switch statement with the constants in the preceding table as case value which makes it easy to farm out processing for nodes of various types to separate methods.

87. Write the three methods of DOM implementation(Data Write).

Ans: i)createDocument(String namespaceURI,

String qualifiedName, DocumentType doctype)

ii) createDocumentType(String qualifiedName, String publicID, String SystemID)

iii) hasFeature(String feature, String version)

88. What is Error Handler?

Ans: ErrorHandler is an object of ErrorHanlder class object that deals with parsing error by its ErrorHandler() method.

Notes:

❑ An object of type DocumentBuilder encapsulates a DOM parser.

❑ You create an object encapsulating a DOM parser by using a DocumentBuilderFactory object that you obtain by calling the static newInstance() method that is defined in the DocumentFactoryBuilder class.

❑ You can parse an XML document by passing the document as an argument to the parse() method for a DocumentBuilder object.

❑ A DOM parser creates a Document object that encapsulates an entire XML document as a tree of Node objects.

❑ The DOM API defines the methods of a Document object that enable you to analyze an XML document by navigating through the nodes in the Document object.

❑ The DOM API also defines methods for creating a new XML document encapsulated by a Document object.

❑ When you want to create a new XML document that includes a DTD, you should use the createDocument() method for a DOMImplementation object, rather than the newDocument() method for a DocumentBuilder object.

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89. What is JDBC?

Ans: JDBC stands for Java Database Connectivity. It is a Java database connectivity technology from Oracle Corporation. This technology is an API for the Java programming language that defines how a client may access a database. It provides methods for querying and updating data in a database.

90. What is ODBC?

Ans: Open Database Connectivity (ODBC) is an open standard application programming interface (API) for accessing a database. By using ODBC statements in a program, you can access files in a number of different databases, including Access, dBase, DB2, Excel, and Text.

91. What is the difference between JDBC and ODBC?

Ans:

|  |  |
| --- | --- |
| JDBC | ODBC |
| 1. It can be used by only Java Application. | 1. It can be used by any application. |
| 2. It is a Data API developed for Java programming language. | 2. It is a middleware between an application and a database. |

92. What is database engine?

Ans: A database engine (or storage engine) is the underlying software component that uses a database management system (DBMS) to create, read, update and delete (CRUD) data from a database.

93. Write some example that you might access by JAVA API?

Ans: i) A remote relational database on a server- e.g. SQL Server.

ii) A local relational database on your computer- e.g. Personal Oracle or Ms Access. iii) A text file on your computer iv) A spreadsheet

94. Define attribute, field and tuple.

Ans: Attribute: A value in a table cell is called attribute.

Field: A column of a table is called field.

Tuple: A row in a table is called tuple.

95. What is datadictionary?

Ans: A datadictionary is nothing but a metadata of a database. It contains all information about the database.

96. What is catalog?

Ans: a *catalog* is a directory of information about *data* sets, files, or a database . A *catalog* usually describes where a *data* set, file or database entity is located and may also include other information.

[For MCQ]

Ans:

|  |  |
| --- | --- |
| **SQL Data** | **Type Description** |
| CHAR | Fixed-length string of characters |
| VARCHAR | Variable-length string of characters |
| BOOLEAN | Logical value—true or false |
| SMALLINT | Small integer value, from -127 to +127 |
| INTEGER | Larger integer value, from -32767 to +32767 |
| NUMERIC | A numeric value with a given **precision**—which is the number of decimal digits in the number—and a given **scale**—which is the number of digits after the decimal point. For example, the value 234567.89 has a precision of 8 and a scale of 2 |
| FLOAT | Floating-point value |
| CURRENCY | Stores monetary values |
| DOUBLE | Higher precision floating-point value |
| DATE | Date |
| TIME | Time |
| DATETIME | Date and time |
| RAW | Raw binary data (can be used to store objects in a streamed binary format) |

97. What is the difference between char and varchar?

Ans: char is a fixed length variable datatype whereas varchar is a variable length variable datatype.

98. What is intersection table?

Ans: The table which links between two or more tables is called intersection table.

100. What is JDBC driver?

Ans: A JDBC driver is a [software](https://en.wikipedia.org/wiki/Software) component that enables a [Java](https://en.wikipedia.org/wiki/Java_%28programming_language%29) application to interact with a [database](https://en.wikipedia.org/wiki/Database). It translates API calls into operations for a specific data source.

101. What is Driver Manager?

Ans: DriverManager is a software component that loads database drivers and manages the connection between the application and the driver.

102. What is JTable?

Ans: JTable is a component provides an easy and convenient way to display the result of database queries.

103. What is table model?

Ans: A table model is an object of a class that implements the TableModel interface. It can provide the data to be displayed by a JTable component.

104. What is ResultSet?

Ans: ResultSet is a logical set of columns and rows of data returned by executing a statement.

105. Write the sequence of writing a JDBC program.

Ans: i) Import the necessary classes ii) Load the JDBC driver iii) Identify the data source iv) Allocate a Connection object. v) Allocate a Statement

vi) Execute a query using the statement object viii) Retrieving data from the returned ResultSet object ix) Close the resultSet x) Close the Statement Object xi) Close the connection Object

106. How many flavour driver implementation come in?

Ans: Driver implementations come in four flavours:

i) JDBC-ODBC Bridge driver ii) Nativ

e API/ partly java iii) Net protocol all-java-client iv) Native protocol all-java.

107. What is JDBC-ODBC Driver?

Ans: The *JDBC*-*ODBC Bridge* allows a Java application to use the *JDBC* API with many existing *ODBC drivers*. The *Bridge* is itself a *driver* based on *JDBC* technology ("*JDBC driver*") that is *defined* in the class sun.*jdbc*.*odbc*.JdbcOdbcDriver.

108. What is Native API/Partly Java Driver?

Ans: Native API/partly java driver is quite similar to JDBC-ODBC driver. It consists of java code that access data through native methods typically calls to a particular vendor library.

110. What is Net Protocol All-Java Client Driver?

Ans :This class of driver is implemented as “middleware” with the client driver completely implemented in java. This client driver communicates with a separate middleware component (usually through TCP/IP) which translate JDBC request into database access calls.

111. What is Native Protocol all-java driver?

Ans: This class of driver communicates directly to the database server using the server’s native protocol. There is no translation step that converts the java-initiated request into some other form.

112. Write the difference between three java statements.

Ans: Statement: It is used to implement simple SQL statements with no parameters.

PreparedStatement: It is used for pre-compiling SQL statements that might contain input parameters. See [Using Prepared Statements](https://docs.oracle.com/javase/tutorial/jdbc/basics/prepared.html) for more information.

CallableStatement: It is used to execute stored procedures that may contain both input and output parameters. See [Stored Procedures](https://docs.oracle.com/javase/tutorial/jdbc/basics/storedprocedures.html) for more information.

113. Write the methods of ResultSet?

Ans: i) getAsciiStream() ii) getBoolean() iii) getDate()

iv) getInt() v) getShort iv) getShort() v) getTimestamp() vi) getTime()

114. Write the methods of ResultSetMetaData Interface.

Ans: i) getTableName() ii) getColumnLabel iii) getPrecision() iv) getScale() v) isSigned() vi) isCurrency vii) isNullable() viii) isWritable()

115. Write the fundamental classes of JDBC.

Ans: i) DriverManager ii) Connection iii) Statement iv) ResultSet

146. What is relational database?

Ans: Relational Database means a database where tables are related among each other with a relational integrity. It is a way of handling data from one table to another table.

117. How many ways are there to connect to a database?

Ans: There are three overloaded (ways) getConnection() methods to connect to JDBC(database). They are:

i) Connection databaseConnection=DriverManager.getConnection(source);

ii) Connection databaseConnection=DriverManager.getConnection(source URL, myUserName, myPassword);

iii) Connection databaseConnection=DriverManager.getConnection(source URL);

118. How can we implement the table model interface?

Ans:

We can implement the table model interface extending the AbstractTableModel which includes the last six method among the 9 methods and defining of the first three methods.

JTable table=new JTable(model)

119. Write down the six methods of Abstract table model.

i) getColumnClass(int column) ii) getColumnName(int column)

iii) getValueAt(Object value, int row, int column)

iv) isCelEditable(int row, int column)

v) addTableModelLIstener(TAbleModelListener tml)

vi) removeTableModelListener(TableModelListener tml)

120. Which three model of interface must be defined to implement interfaceTableModel?

Ans: i) getColumnCount() ii) getRowCount()

iii) getValueAt(int row, int column)

121. Write the names of different conceptual components relating JDBC to ODBC?

Ans: i) Driver Manager ii) Driver iii) Connection iv) Statement

v) Metadata vi) Result

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122. What is the difference between execute query and update query?

|  |  |
| --- | --- |
| executeQuery | executeUpdate |
| 1. It expects only an SQL statement that generate results. | 1. It is to execute statements that change the contents of the database rather than return results. |
| 2. It returns the resultSet. | 2. It returns the number of rows affected by the operations. |

123. What is placeholder?

Ans: Placeholder are tokens that appear in the SQL statement and replaced by actual values before the SQL statement is executed.

124. What do you mean by error handling?

Ans: Error handling means to handle error throwing exception or try-catch

block so that the program will not come out of the system. We need to take some extra steps in our JDBC application to handle condition that generates warnings or errors.

125. Draw the chain of sqlException?

Ans: A chain of SQL exception objects can be linked together.We can access successive object in the chain by calling the getNextException() for each SQLException Object in the chain.

Detail Message

SQLState

VendorCode

Next Object

Detail Message

SQLState

VendorCode

Next Object

Detail Message

SQLState

VendorCode

Next Object

null

126. What is JTree Component?

Ans: The JTree class defines a component that displays data organized in a

tree-like structure.

127. What is node and root ?

Ans: Each element in a JTree is called node. The base node of a tree is referred as

root node.

128. What s leaf node?

Ans: Leaf node is such a node which has no child.

129. Write the methods of Tree Nodes.

Ans: i) getParent() ii) getChildCount() iii) getChildAt(int index) iv) children()

iv) getIndex(TreeNode node) v) getAllowsChildren() vi) isLeaf()

130. What is TreeNode?

Ans: TreeNode is an interface provided for navigating JTree by its methods.

131. What is TreeModel?

Ans: Like a JTable component the JTree component works with an underlying model object that supplies the data that is to be displayed in the tree.

132. What is calling Procedures?

Ans: We can obtain a CallableStatement reference corresponding to a stored procedures are called by prepareCall() method for a connection object. This procedure is referred to calling procedures.

133. How do you deal with the problem to mapping objects to relational data models?(Draw the level SQL-to –Simple Object Mapping Diagram).

Ans: The mapping task consists simply of matching the data types of the database with those of Java.

Application

JDBC

Database

Table

Table Object

Call JDBC method to specify ResultSet Object

SQL SELECT statement

SQL SELECT Table Data