

Assignment-3

Q.1. What do you mean by XML parser? Explain the types of parser's with their advantage and disadvantage with the help of a diagram.

Ans XML stands for Extensible Markup language.

The XML DOM (Document Object Model) defines the properties and methods for accessing and editing XML. However before an XML document can be accessed, it must be loaded into an XML DOM object. All modern browsers have a built-in XML parser that can convert text into XML DOM object.

Types of XML Parser

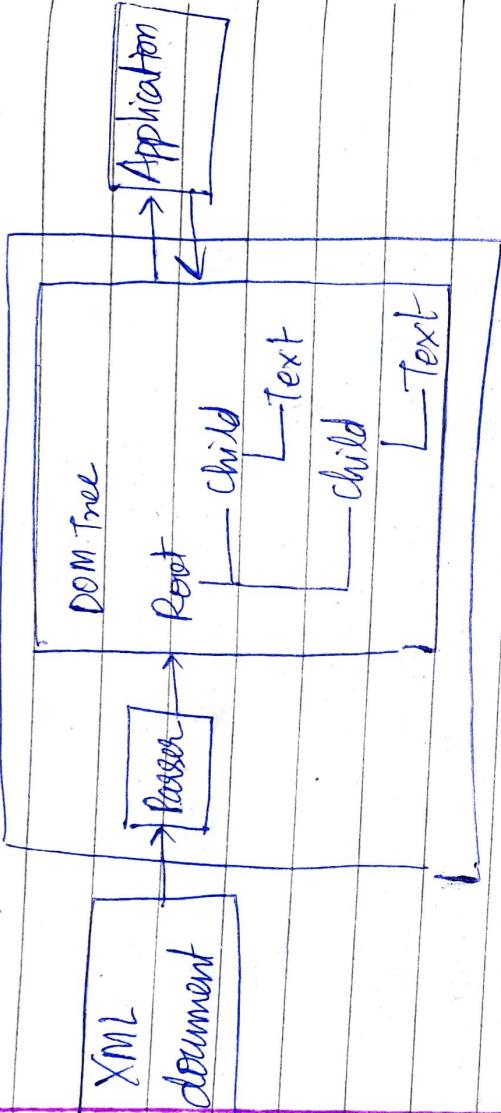
1. DOM
2. SAX

1. Document Object Model
A DOM document is an object which contains all the information of an XML document. It is composed like a tree structure.

The DOM parser creates an internal structure in memory which is DOM document object and

the client applications get the information of the original document by invoking methods on this document object.

→ It has a tree based structure



Advantages:

1. It supports both read and write operations
2. API is very simple to use
3. It is preferred when random access to widely separated parts of document is required

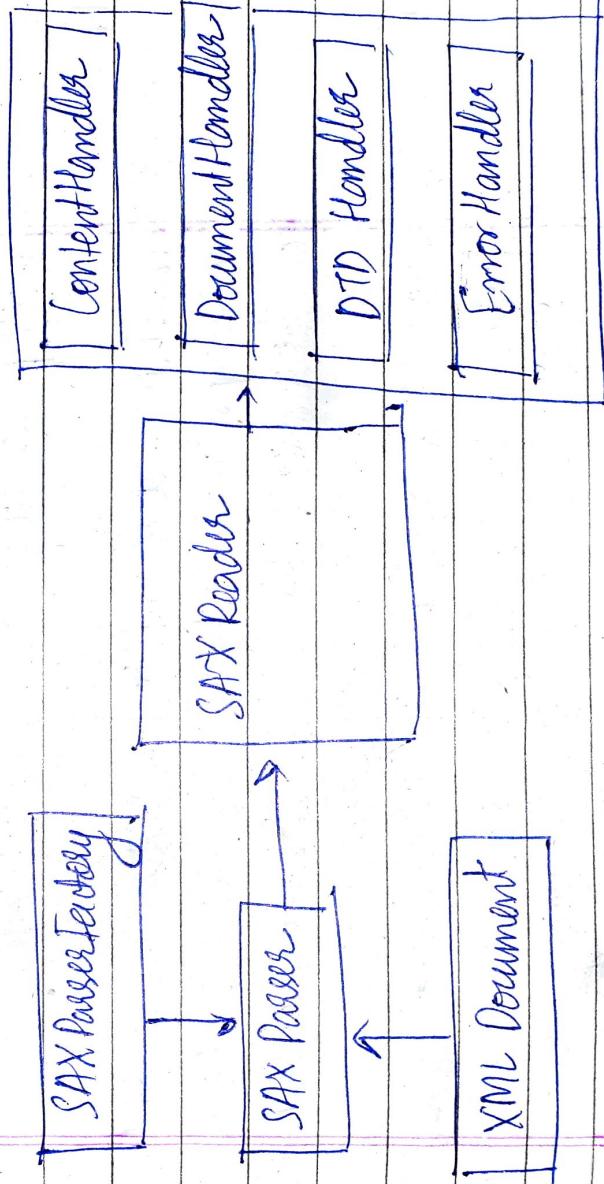
Disadvantages:

1. It is memory inefficient
2. It is slower than other parsers

SAX (Simple API for XML)

- 2. → A SAX Parser implements SAX API. This API is an event based API and less intrusive.
- It does not create any internal structure.
- Client does not know what methods to call, they just override the methods of API and place their own code inside method.
- It is an event based parser, it works like an event handler in Java.

→ If is an event based parser, if works like an event handler in Java



Advantages

1. It is simple and memory efficient.
2. It is very fast and works for huge document.

Disadvantage

1. It is event based So its API is less intuitive
2. Clients never know the full information because the data is broken into pieces.

Q.2 - What is the difference between XML and HTML

Aw XML

XML

- | | |
|---|---|
| 1. Stands for Hyper Text Markup Language | 1. Stands for Extensible Markup Language |
| 2. HTML was designed to display data with focus on how data looks | 2. XML is used to transport and store data , with focus on what data is |
| 3. HTML is a markup language | 3 . Provides a framework for defining markup languages . |
| 4. It is a presentation language | 4. It is neither a presentation language • nor programming language . |

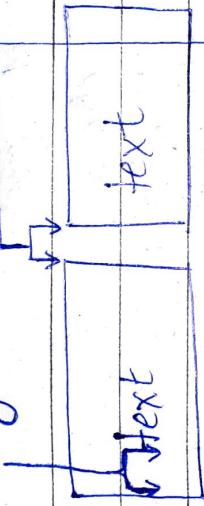
Q.3. What is the difference between ~~cell padding~~

- (a) Cell Padding & cell Spacing
- (b) Singular tag and paired tag.

Ansl. Cell Padding

Cell Spacing

- 1. Space between cell wall
- 1. Space between two cell
and content is cell
padding



- 2. Meant for single cell
- 2. More than one cell

- 3. <table cellpadding="10">
- 3. <table cellspacing="10">

Singular Tag

Paired Tag

- 1. Does not have a closing tag
- 1. Has an opening and closing tag.

- 2. eg:-
,
- 2. eg:- <p> </p>, <h1></h1>

- 3. Does not form a container
- 3. Contents of the container is what is b/w the opening and closing tag.

Q.4. What are the various advantages of XML?

Ans.

1. XML is platform independent and programming language independent. Thus can be used with any system.
2. XML supports Unicode.
3. The data stored and transported using XML can be changed at any point of time without affecting the data presentation. Generally HTML is used for data presentation. If HTML gets data from XML and display it on GUI, once data is updated in XML, it does reflect in HTML without making any change in HTML GUI.
4. XML allows validation using DTD and Schema. This validation ensures XML document is free from syntax errors.
5. XML simplifies data sharing between systems.

Q.5. What is DHTML?

Ans. DHTML stands for Dynamic HTML, it is totally different from HTML. The browsers which support the dynamic HTML are some versions of Netscape Navigator and Internet Explorer of version higher than 4.0.

- The DHTML is the combination of HTML, CSS, JS and DOM.
- It helps in making dynamic content.
- DHTML is used to create interactive and animated webpages that are generated in real time also known as dynamic webpages

Q.6. Define HTML DOM ?

Ans. The HTML DOM is an Object Model for HTML and API for JavaScript.
It defines HTML elements as objects

- properties for all HTML elements
- methods for all HTML elements
- events for all HTML elements.

when a web-page is loaded, the browser creates a DOM of the page.
The HTML DOM is constructed as a tree of object.

Q.7. what do you mean by markup language?

Ans. A markup language is a computer language that uses tags to define elements within a document. It is human readable meaning markup files contain Standard words, rather than typical programming syntax.

Q.8. The two most popular are HTML and XML
HTML \Rightarrow used for creating web pages
XML \Rightarrow used for storing structured data

Q.9. What are XML? Also mention the applications of XML.

Ans. XML is used to describe data. The XML standards is a flexible way to create information formats and share structured data via public internet.

\rightarrow It is developed by W3C (World Wide Web Consortium)

- XML provides a standard way, which is also simple to encode data and text such that the content could be exchanged across different hardware, OS, and applications with little human intervention.
- It is a language of such
 - Its a markup language
 - Tags are basic building blocks whereas we can create custom tags unlike HTML.
 - XML is used basically to transport data b/w application and database.
 - XML is about carrying information hence dynamic.

APPLICATIONS OF XML

1. Database application
2. Document markup with HTML
3. Mathematical markup language (MATHML)
4. Messaging b/w different business platforms
5. Channel definition format (CDF)
6. Meta content definition
7. Platform for internet context Selection
8. Scalable Vector Graphics

Q.9. Write short note on the following

- (a) DOM (b) DTD (c) XML Schema

Ans DOM

- The DOM is a W3C standard. It defines standards for accessing documents like HTML and XML.
 - DOM is an API for HTML and XML document. It defines the logical structure of documents and the way a document is accessed and manipulated.
 - DOM defines the objects and properties and methods to access all XML elements.
- It is separated into 3
- (i) Core DOM - Standard model for any Structured document.
 - (ii) XML DOM - " " XML document
 - (iii) HTML DOM - " " HTML document

(b) DTD (Document Type Definition)

- An XML document may have an optional DTD which defines the document grammar defined by the DTD
- we can use a XML parser to check that if an XML document conforms to the grammar defined by the DTD
- A DTD can be declared inside the XML document or as an external reference

1) Integrated DTD

- A "valid" XML document is "Well Formed" as well as it conforms to the rules of DTD.

- The purpose of DTD is to define the structure and legal elements and attributes of an XML document.

example: - <!DOCTYPE note

[

Note.dtd

<!ELEMENT note (to, from, heading, body)>
<!ELEMENT to (#PCDATA)>
<!ELEMENT from (#PCDATA)>
<!ELEMENT heading (#PCDATA)>
<!ELEMENT body (#PCDATA)>

file name

]>

PCDATA → Parseable Characters Data

XML Document with an external DTD

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE note SYSTEM "Note.dtd">
<note>
<to> Sourabh </to>
<from> Shalom </from>
<heading> Reminder </heading>
<body> Don't forget the Assignment </body>
</note>
```

(c) XML Schema

- It is also called as XSD (XML Schema Definition)
- It is used to describe and validate the structure and content of XML data .
- XML schema defines the elements , attributes and data types
- XML Schema is a language which is used for expressing constraint about XML document
- It is used to define the structure of an

XML document. It is like DTD but provides more control on XML structure

Example

[employee.xsd] ← file name

```
<?xml version="1.0" >

<xsd:Schema xmlns:xsd="http://www.w3.org/
targetNamespace = "http://janatpoint.com"
xmlns = "http://janatpoint.com"
element formDefault = "qualified" >

<xsd:element name="employee">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="firstname" type
      = "xsd:string" />
      <xsd:element name = "lastname" type
      = "xsd:string" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
```

```
</xsd:sequence>
</xsd:complexType>
</xsd:element>
</xsd:Schema>
```

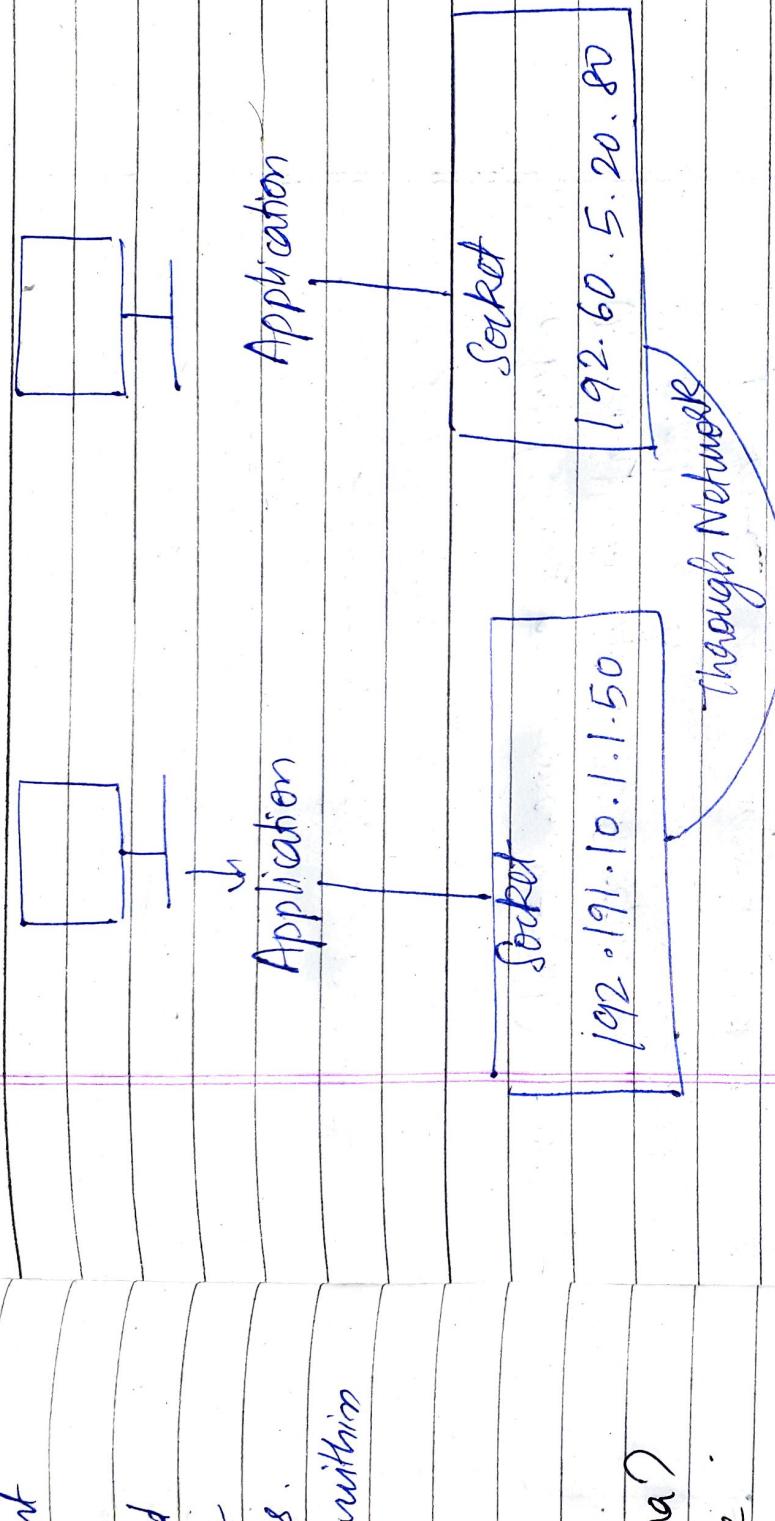
Q.10. What is XML syntax rules?

- Ans.
1. All XML must have a root element
 2. All tags must be closed
 3. All tags must be properly nested
 4. tag name are case sensitive
 5. tag name cannot contain spaces.
 6. Attribute values must appear within quotes (" ")
 7. White spaced is preserved

Q.11. what is Socket Programming in Java?
Explain its various types with the help of suitable diagrams.

- Ans.
- Socket programming in Java is very important topic and concept of network programming
- A socket identifies the endpoint in a network
The socket communication takes place via a protocol.
→ A socket can be used to connect Java TCP/IP system to other programs that may reside either on many machines on the internet or on the

local machine



Application

within

Socket

192.168.1.50

192.60.5.20.80

or

through Network

TCP/IP Sockets :

Network

reliable
bidirectional,
stream based
connections
between host
on the internet.
via a

They are used to implement point to point
reliable, bidirectional, stream based connections
between host on the internet.

There are 2 types of TCP sockets

1. TCP/IP Client Socket
2. TCP/IP Server Socket

many
in the

(a)

TCP/IP Client Socket

The `Socket` class is for the Client `Socket`. It is designed to connect to `Server Sockets` and initiate protocol exchange.

There are two constructors used to create client `Sockets` type objects.

(a) `Socket (String host-name, int port)` throws `UnknownHostException` if it creates a `Socket` that is connected to the given `host-name` and `port-number`.

(b) `Socket (InetAddress ip, int port)` throws `IOException`

if it creates a `Socket` using a pre-existing `InetAddress` object and a `port number`.

(b)

TCP/IP Server Socket

The `ServerSocket` class is for the `Server`. It is designed to be `listener` which waits for clients to connect before doing anything and that listen

for either local or remote client programs
to connect to them on given port.

when you create ServerSocket it will
register itself with the system as having
an interest in client connection

Syntax :

ServerSocket (int port) throws IOException

rate

std
mt

b

existing
msg

in
of
listen