

Ans- Throw keyword.

- i) Java throw keyword is used to throw an exception explicitly in the code.
- ii) Using throw keyword we can declare both checked and unchecked exceptions.
- iii) It is used within the method.

Syntax:- throw new I/O exception("Point")

Throws keyword

- i) Throws keyword is used in the method signature to declare an exception.
- ii) It is used with the method signature.
- iii) we can declare multiple exception using throws keyword

Syntax:-

Public static int abc (Parameter) throws I/Oexception { }

Ans:-

ArrayList

- i) It ~~is~~ is used when searching is more frequent operation than add and remove operations. It provides constant time for search operation. So it is better to use ArrayList for search operation. ArrayList have time complexity  $O(1)$  to access element via get ~~& x~~ set method.

Linked list.

Linked list is used when adding & removing is more frequent operation than searching the element. Because it implements `Double ended` so if it is better to use Linked list for data manipulation.

Ans:- Advantages of JSP are:-

- i) It is suitable for both java & non-java programmers
- ii) It takes care of exception handling
- iii) It increases readability of code because of tag
- iv) It allows tag based programming so extensive java knowledge is not required.
- v) It is easy to learn & apply
- vi) Allows us to use separate presentation logic.

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Ans :-

Get Method

Post Method

- |   |  |
|---|--|
| i) limited amount of data can be sent                                     | i) large amount of data can be sent            |
| ii) The request can be bookmarked   | ii) It can not be bookmarked                   |
| iii) Get request is not secure because data is exposed in URL Bar         | iii) It is secured because data is not exposed |
| iv) It is idempotent. Second request is ignored until first is completed. | iv) It is non-idempotent                       |
| v) It is more efficient   | v) It is less efficient                        |

Ans:-

Working of Service() Method.

- i) The servlet container calls the service method to handle request coming from the client.
- ii) The server receives the request from browser.
- iii) The server spawns a new thread and calls service().
- iv) The service() method checks http request type.
- v) And then it calls doGet(), doPost(), doPut(), doDelete().

Syntax.. ~~public~~ void service (ServletRequest request, ServletResponse response)  
throws ServletException, IOException { }

Ans .	Abstract Class	Interface
i)	It have abstract & non-abstract method	i) It have only abstract Methods
ii)	It doesn't support Multiple inheritance	ii) it supports Multiple inheritance
iii)	It can provide implementation of interface	iii) It can't provide implementation of Abstract class
iv)	Abstract keyword is used for declaration	iv) Interface keyword is used for declaration
v)	It can have static, non-static field & non-final Variables	v) It can only have final & static Variable.

Ans:- Types of Wrapper Class are:

- i) Boolean      ii) Character      iii) Byte      iv) Short
- v) Short      vi) Integer      vii) Long      viii) Float
- ix) Double

e.g. Public class Main {  
 Public static void main (String args []) {  
 int a = 20;  
 Integer i = new Integer (2);  
 System.out.println ("i");  
 g  
 g}

Ans:-

The Servlet Container is the part of Web-server which can be run in a separate process.

functions:-

- i) Life Cycle Management
- ii) Multi-threaded Support
- iii) Object Pooling
- iv) Security etc.

Ans:-

There are three Methods in a life-cycle of Servlet

- i) init () Method :- This Method can only be called once. It can be called only when the Servlet is ~~created~~. Created.

Syntax:- `public void init() throws ServletException {  
 // initialization code ...  
}`

- ii) The destroy () Method :- This Method is called only once at the end of life cycle of a servlet. It gives chance to clear data base connections.

Syntax:- `public void destroy() {  
 // finalizing code  
}`

- iii) Service () Method :- Done before

Ans:-

Web - Server: It is a computer program that accepts the request for data and send the specific document.

Application Server: This server ~~does~~ organizes the run atmosphere for enterprise application.

<u>Web - Server</u>	<u>Application Server</u>
i) Contains Web Container	i) Contains web / EJB Container
ii) Multithreading is not supported	ii) Multithreading is supported
iii) It consumes less resource like CPU, Memory	iii) It consumes more resource
iv) eg Apache web server	iv) eg - Web logic, JBoss

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5 Marks

Ques 1:- Difference b/w before.

Program: Interface A &

```
Void a();  
Void b();  
Void c();
```

3

Abstract class B implements A {  
Public void c() { System.out.println ("I am C"); }  
3

Class M extends B {

```
Public void a() { System.out.println ("I am a"); }  
Public void b() { System.out.println ("I am b"); }  
3
```

Class Test {

```
Public static void main (String args[]) {  
A a = new M ();  
a.a ();  
a.b ();  
a.c ();  
3}
```

out:

```
I am a  
I am b  
I am c
```

Ans 2.

JDBC (Java Database Connectivity) API (~~Abstraction Programming~~)  
~~Driver~~ has 4 Components.

### JDBC API Components

1) Driver Manager :- It manages the JDBC drivers and establishes the ~~connected~~ connection to the database. It uses the JDBC URL to establish the connection to the database. It returns the Connection object on a successful database connection.

2) Connection :- The Connection object represents the session to the connected database. The `createStatement()` method creates a Statement object to send SQL statements to the database.

3) Statement :- The Statement object is used for executing the SQL statements and returns the SQL query results.

Eg:- `stmt.executeQuery(sqlQuery)`.

4) ResultSet.

The ResultSet object is the SQL query result table. The ResultSet object maintains a ~~cursor~~ cursor pointing to the current row of the query result table. We can use a while loop to iterate through the resultset.

In a Type-4 driver, a pure Java-based driver communicates directly with the vendor's database through socket connection. This is the highest performance driver available for the database and is usually provided by the vendor itself.

This kind of driver is extremely flexible. You don't need to install special software on the client or server. Further, these drivers can be downloaded dynamically.

Ans.

### ~~Don't~~ Need of JSP Directive.

These directives provide directions and instructions to the Container, telling it how to handle certain aspects of the JSP processing.

Directives can have a number of attributes which you can list down as key-value pairs and separated by commas.

#### Include Action

- 1) Include the resource at request processing time
- 2) It supports static & dynamic resources
- 3) If any changes are done in the JSP that are change frequently
- 4) It shows runtime error if the file does not exist
- 5) We can pass parameters

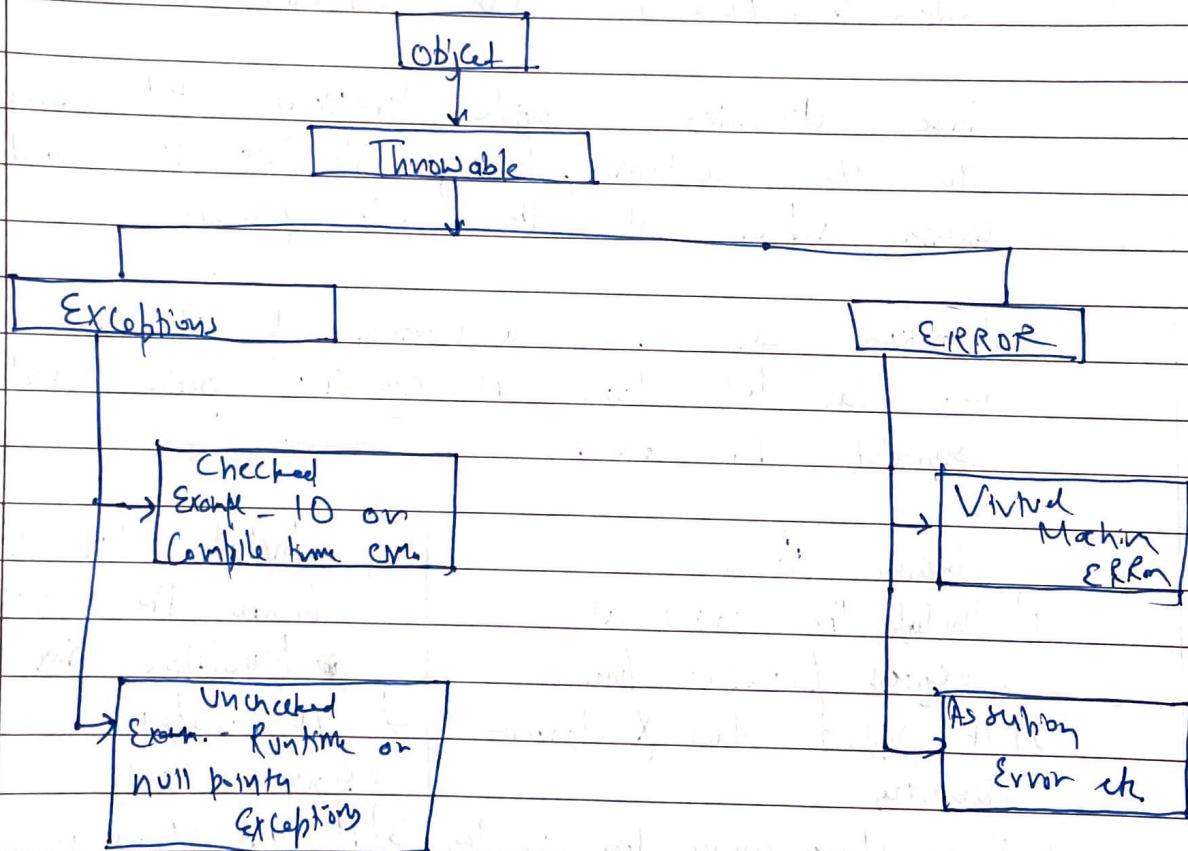
#### Include Directive

- 1) Include the resources at translation time
- 2) If supports static resources only
- 3) If any changes are done in the JSP that are not frequently changed
- 4) It shows compile time error if file does not exist
- 5) we can use for parameters

Ans -

## Exception hierarchy

All exception and error types of class Throwable which is the base class of the hierarchy. One branch is headed by Exception. This class is used for exceptional conditions that user programs should catch. Another branch, Error is used by the java run-time system (JRM) to indicate errors having to do with the Java run time environment (JRE).



eg

```

public class Main {
    public static void main (String args[]) {
        try {
            int data = 100 / 0;
        } catch (ArithmaticException e) {
            System.out.println("Exception in Thread Main " + e);
        }
    }
}

```

Out:- Exception in Thread Main java.lang.ArithmaticException  
200

Rest of the Code... .

Ansl - 1) ~~Register for~~ Steps involved in JDBC

- 1) Register the driver class:- The `ForName()` method of `Class` is used to register the driver class.
- 2) Create the Connection object:- The `getconnection()` method of `DriverManager` class is used to establish connection with the database.
- 3) Create with statement object:- `GetStatement()` method of `Connection` interface is used to create statement.
- 4) Execute the Query :- The `executeQuery()` method of `Statement` interface is used to execute query in the database.
- 5) Close the connection object:- The `close()` method of `Connection` interface is used to close the connection.

Code:-

```

class Main {
    public static void main (String args []) {
        try {
            Class.forName ("com.mysql.jdbc.Driver");
            Connection con = DriverManager.getConnection (
                "jdbc:mysql://localhost:3306 /saurav", "user", "password");
                (Step - 1)
                (Step - 2)

            Statement stmt = con.createStatement ();
            ResultSet rs = stmt.executeQuery ("Select * from emp ");
                (Step 3)
                (Step 4)

            while (rs.next ())
                System.out.println (rs.getInt (1) + " " + rs.getString (2));
                (Step 5)

            rs.close ();
            con.close ();
        } catch (Exception e) {
            System.out.println (e);
        }
    }
}

```

Ans :-

XML Parsing is the process of reading an XML document and providing an interface to the user application for accessing the document. An XML parser is software that accomplishes such tasks. In addition, most XML parser check the well-formedness of the XML document and many can also validate the document with respect to DTD or XML Schema. Through the parsing interface, the user application can focus on the application logic itself, without dwelling on the technical details of XML.

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A Dom parser allows you to represent your XML document as a tree of nodes in your program. The DOM provides a common way of accessing general data structures from structural documents. A Dom parser can be used to process an XML file in Smalltalk.

### Dom interface

- 1) Attr
- 2) Comment
- 3) Document
- 4) Element
- 5) Entity
- 6) Node

### Ques Significance of DTD (Document type Definition)

- 1) It defines the document structure with a list of legal elements.
- 2) It can be declared inline in your XML document.
- 3) Its purpose is to define legal building block of an XML document.

Ans: ~~Ques~~ <?XML Version = "1.0"?>  
<?xml version="1.0"?>  
<!DOCTYPE note [  
  <!ELEMENT note (to,from,heading,body)>  
  <!ELEMENT to (#PCDATA)>  
  <!ELEMENT from (#PCDATA)>  
  <!ELEMENT heading (#PCDATA)>  
  <!ELEMENT body (#PCDATA)>  
]>

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<note>

<to> Tom </to>

<from> Joni </from>

<heading> Reminder </heading>

<body> Don't forget me this weekend! </body>

</note>