

# 1 What is Java?

Java is high level object Oriented platform independent programming language.

## 2. Explain how java works has platform independent?

### Explain R WORA architecture

After successful compilation byte code gets generated. This byte code is

independent or common for all different platforms.

The JRE of JVM interprets the bytecode & converts the bytecode



## 3. What is bytecode?

It is the instruction generated by the compiler after successful compilation.

It is an intermediate code.

## 4. Explain java Compilation.

Compilation is two step process

1. Check the syntax

2. If java program is syntactically correct byte code gets generated

## 5. Diff b/w JDK, JRE, JVM.

(control, regulation)

JVM is specification for JRE.

JRE is a physically program of JVM.  
(Implementation)

JDK is a <sup>form of</sup> SDK internally containing the ~~all~~ Java compiler, JRE, the necessary resources to develop as well as to execute java programs or applications.

## 6. Components of JDK

JRE, APIs, libraries

platform dependent, bcoz it depends on hardware & software.

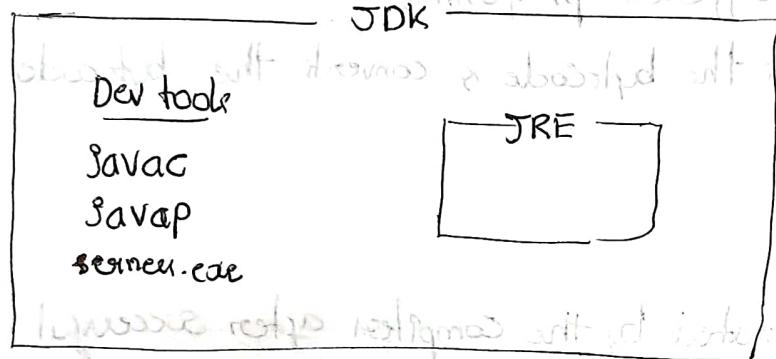
7. Is JRE platform dependent or independent

platform dependent, bcoz it is different for different platforms.

8. Is JDK platform dependent or independent

The developmental tools of the JDK are <sup>platform</sup> independent. whereas

9. ~~JDK is platform dependent bcoz its internal contains JRE.~~



10. What are the Object Oriented concepts?

Class, Object, Inheritance, polymorphism, Encapsulation, Abstraction & Aggregation

11. What are Object Oriented principles?

Inheritance, polymorphism, Encapsulation, Abstraction

12. Is java 100% object oriented programming language?

NO, Because of the primitive datatypes, but primitive are supported with wrapper classes in java.

13. What is Variable? what are the types?

It is a container or placeholder which is used to store data.

Local & Global

Instance      Static  
(non-primitive)      (class)

### 13. How do you initialize instance Variables?

<sup>At the time</sup>

1. ^ declaration
2. Using object reference
3. Using Constructors
4. Using block
5. By using methods (getter methods)

### 14. Diff b/w local & global Variables.

#### Local

- \* Have limited scope

\* Local Variable is declared within the local scope i.e. within the method, Constructor, block, etc., ~~precedence of variables~~

\* Local Variables can only be accessed within the local scope

\* Local Default initialization is not applicable for local variables.

\* Access modifiers are not applicable for local variables.  
(final can be applicable)

\* Local variables can't be static.

\* Local variable can't be inherited.

\* Local Variable can't be accessed using this keyword or variable with same name.

\* Local Variables are stored in stack memory.

Stack memory is part of heap memory.

#### Global

- \* Having larger scope.

\* Global Variable is declared within the global scope i.e., within the class & outside the local scope.

\* Global Variable can be accessed within the same class, outside the class & even outside the package.

\* Default initialization is applicable for global variables.

\* Access Modifiers are applicable for global Variables.

\* Global variables can be static.

\* Global variable can be inherited.

\* Can be accessed using this keyword.

\* Global Variables are stored in heap memory.

(Class area / static pod is also part of heap memory) from JDR 1.8

15. Diff b/w static global variables & Non-static global Variables?

- \* Static variable belong to the class.
- \* static global variable represents data which is common to all the objects of the same class.
- \* static global variable will have only one copy in the memory.
- \* static global variable is accessed using the class name.
- \* It is loaded at the time of class loading.
- \* Non-static variable belongs to the object.
- \* Non-static global variable so called instance variable represents the object specific data (state of an object).

\* Non-static global variable will have multiple copies depends on the objects.

- \* Is accessed using object reference.
- \* Is created in memory at the time of object creation.

16. Is default initialization applicable for static Variable? → YES

17. What are the types of method?

1. Concrete method
2. Abstract method

18. Diff b/w final method & private method.

Final method can be inherited but cannot be overridden

19. Diff b/w static & Non-static method.

- \* If the behaviour is polymorphic in nature then method should be non-static method.

- \* private method can't be inherited.
- \* When the behaviour is same for different objects then it should be static method.
- \* When there are mathematical calculations.

- \* Non-static method can be inherited.
- \* Non-static method can be overridden.
- \* Non-static method can't be invoked using class name.
- \* Nonstatic method gets loaded into memory when we invoke the method.
- \* static method can't be overridden.
- \* static method can be invoked using class name.
- \* static method gets loaded into memory at the time of class loading.

## 20. Explain Constructor with real time Example.

Constructor is one of the member of class where, constructor name is same as class name, which is used for the initializing the resources.

Example: Constructors in ArrayList, LinkedList, Vector

## 21. what are the different way to invoke a constructor?

1. Using new keyword
2. Using this() & super()
3. Using super()

How we call A constructor in C class?  
 class A  
 {  
 A()  
 }

IS-A  $\Rightarrow$  Inheritance

HAS-A  $\Rightarrow$  Association

$\rightarrow$  Aggregation

$\rightarrow$  Composition

not having part of whole

subprocess and not both M

both M and not both M

parent and child M

Class B extends A

B()

}

Class C extends B

C()

new A()

We can't use super()  
for calling A()

both M and not both M

both M and not both M

Q2. What is Constructor Overloading & give real time example.

Having multiple Constructors with change in the signature.

Ex's Arraylist, Vector, LinkedList.

Q3. Can the Constructors be inherited? Why?

NO.

Because Constructor name should be same as the class name, If the constructor is inherited to subclass then it creates confusion, the subclass name & constructor is different.

NOTE: But we can invoke the superclass constructor from the subclass constructor by using constructor chaining using super().

Q4. Diff b/w Constructor & a Method.

### Constructor

- \* Constructor name should be same as className.
- \* Constructor can't have returnType.
- \* Constructor can't be inherited.
- \* Constructor can't be static & final.
- \* Constructor can be invoked using new keyword, this() and super().
- \* purpose of constructor is initialize Variables or resources.
- \* Constructors can't be overridden.
- \* Constructors can't be abstract.

### Method

- \* Method name can be anything.
- \* Method must have returnType.
- \* method can be inherited.
- \* Method can be static or final.
- \* Method can't be invoked using new keyword using className object reference, method name.
- \* purpose of method is to perform some functionality.
- \* Method can be overridden.
- \* Method can be abstract.

\* There is a default constructor generated by compiler.

\* There is no default method generated by Compiler.

Q5. Which is the most used Object Oriented principle? Inheritance

Inheritance, because every class we write inherits the Object class.

Q6. Where do we find Object classes with predefined functionality?

Part of

Inside the JRE library as java.lang package.

Q7. Where do we find all the inbuilt class & interface of java?

(jar file) <http://java.sun.com/j2se/1.4.2/docs/api/java/lang/package-summary.html>

Q8. Diff b/w Open Source & Free Software

Free Software

Open Source

\* Source code is not available

\* we get the source code.

Q9. Can we convert bytecode into java program code.

Yes, using decompiler

Q10. Why to set environment variable after installation of java?

(path)

To locate java resources.

Q11. Is it possible to import two different classes with the same name but from different packages?

No, not possible

import inbox.Email;

class Test{

    void doSomething(){

        Email e1 = new Email();

        Email e2 = new Email();

        draft.Email e3 = new draft.Email();

        Email e4 = new Email();

inbox

draft

Email.java

Email.java

32. Can you name few inbuilt packages of Java?

java.util, java.lang, java.io, java.sql, java.math

33. Default package of Java → java.lang (comes from class & object de)

34. What is Inheritance, Explain with real time Example.

The process of acquiring the properties of one class to another class.

35 Why is Inheritance?

→ To code reusability

→ To achieve generalization

→ To avoid code duplication

→ Indirectly helps to achieve polymorphism.

\* Every class is example for single level because inherit Object class.

\* NullPointerException Example of multilevel inheritance.

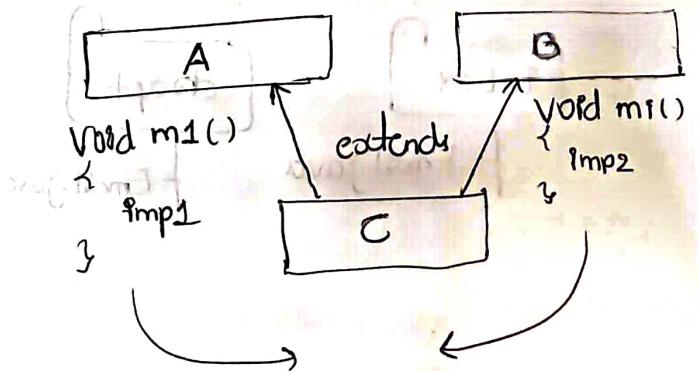
36. Is multiple inheritance possible in Java?

By using interface it is possible, but not using class.

37. Why multiple inheritance is not possible in Java?

\* Ambiguity while method binding.

\* Ambiguity while Constructors chaining



C obj = new C();

obj. m1();      method call

A() prints abc bca

B() prints abc bca

C() prints abc bca

(Method.print) win=89 leonard

(Method.print) win=49 leonard

38. How do you avoid inheritance in a class? Passes parabodiesvo bottom
1. make a class has final so that it can't inherit.
  2. Write a private constructor in superclass. So that, subclass can't invoke using super().

39. Why Constructor chaining? / How constructor chaining helps/why is it important?
- \* To enhance code readability.
  - \* To avoid code duplication.

40. What is method overriding? Explain with real time Example.
- \* changing the method implementation of inherited method.

Covariant return type:

↳ return type of derived type (Subclass type)

Example: overriding toString(), hashCode(), equals() (getMessage(), printStackTrace()). are methods defined in throwable class and overridden in all its subclasses.

41. Diff b/w Method Overloading & Method Overriding.

- \* For overloading inheritance is not mandatory.
- \* We ignore return type in overloading. (name & signature is considered)
- \* Overloading demonstrates compile time polymorphism.
- \* Static method can be overloaded.
- \* private method can be overloaded.
- \* For overriding inheritance is mandatory.
- \* Return type is also considered.
- \* Overriding demonstrates run time polymorphism.
- \* static method can't be overridden.
- \* private method can't be overridden.

\* method overloading doesn't have any annotation. 6/10/23

Q2. Explain Method Overloading with real-time Example.

Having multiple methods in a class with the same name but different signatures is called Method Overloading.  
↳ no of arguments, change in datatypes, sequence or order of datatypes.

Method overloading presents different forms of doing the same activity. Hence, method name must be same. ↳ no distinction between both with prefixes.

Realworld Ex: ① class Website

```
void login(String Username, String pwd)
```

```
{
```

```
}
```

```
void login(long ContactNum, int otp)
```

↳ both methods do same thing but with different parameters.

② Opening the phone in different ways like pattern, pin, face lock, fingerprint.

Realtime Ex: 1. Sort method in List a collections

```
public static void sort(List<T> list) { }
```

```
public static void sort(List<T> list, Comparator<T> c) { }
```

a. public boolean add (<E> element)

b. public void add(int index, <E> element)

3. println()

```
println(String val)
```

```
println(int val)
```

```
println(boolean b)
```

H3. Can we Overload abstract method?

Yes we can overload

H4. Can we overload one constructor & one method together?

NO

H5. Is overloading possible in two different class?

YES

H6. What is the difference b/w this & either ( ) & Super ( )

\* this is a keyword

\* which is invoke method & variable of same class

\* Super is a keyword which is use to invoke the super class variables & methods.

\* this is not a keyword

\* this is use to invoke overloaded constructor of the same class

with return

\* Super() is use to invoke the super class constructor

H7. Why main() is static?

There are three reasons why main method is static

1. Main() doesn't exhibit polymorphic behaviour.

2. Main() is the first method that should be executed, hence it must be loaded first. So, main() is static because it hence get loaded at the time of class loading

3. JVM can't invoke the main() without creation of object

H8. Why main() gets String[] as argument?

To accept the command line arguments

(For main() arguments can be passed using command prompt by providing space)

Command line arguments:

The multiple data that we can pass to the main method as an argument through the command prompt.

String can take any type of data.

Command prompt

javac Demo.java

java Demo abbs. anoop true 25 828.56

Class Demo

PSVM(String args){  
System.out.println("Length of string "+args.length());  
System.out.println("S.O.P(args.length()); "+args.length());}

[abbs] anoop [true] 25 [828.56] } off stackoverflow in primitve type conversion E.g. 25  
0 1 2 3 4

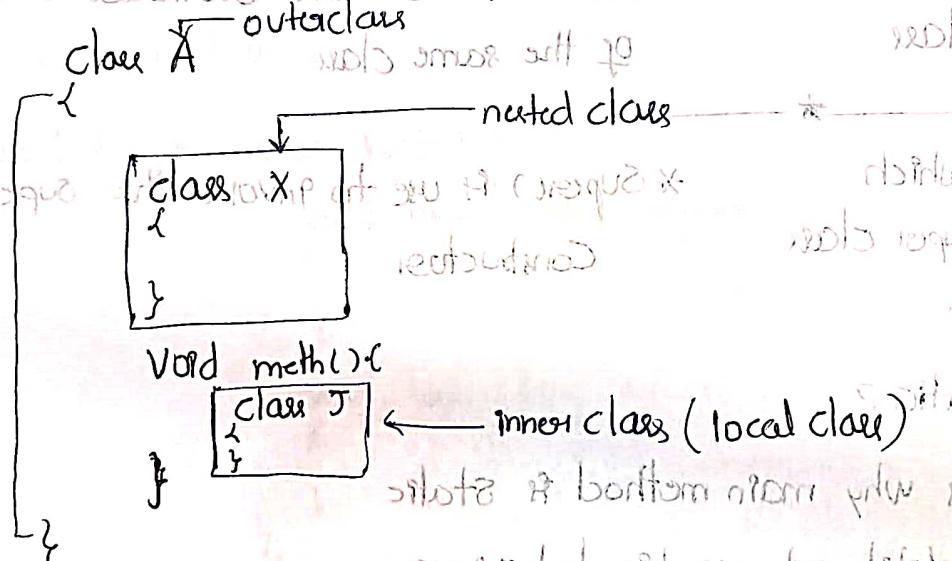
Q9. If we don't pass command line argument that what is the value of args?

It's an empty array but not null. & will work with a folder path

(size of array 0)

breakpoint to run it

Q10. What are access modifiers apply for a class?



\* Outer class can be either default or public but nested class can be either public or private or default or protected

\* Access modifier can't be applicable for any local class members so can't applicable for inner class.

Q1. Explain System.out.println

public class Demo{

public static void main (String args){

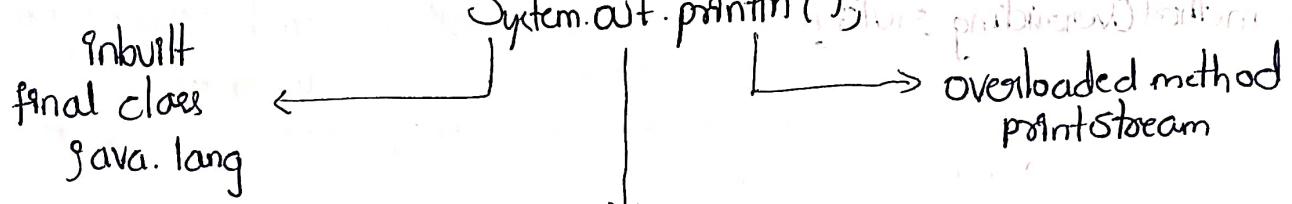
System.out.println();

}

is from user to application layer via OS

is from user to kernel layer via OS

is from user to application layer via OS



52. `System.out.println(null);` → Compilation error

```

class PrintStream{
    println(char[] param)
    {
        // no op or has had
    }
}
  
```

`println(String param)`

```

System.out.println(null); // Compilation error
}
  
```

`String s = null;`

`println(s);`

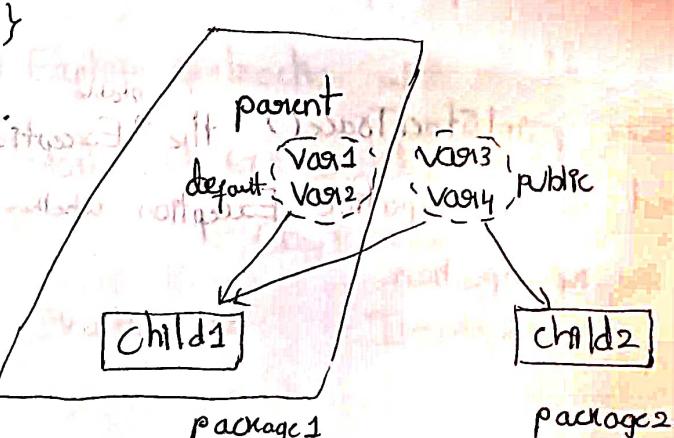
→ `println` is overloaded method which accepts `char[]` & `String` as parameters.  
 when we pass `null` in `println` statement it creates ambiguity during method calling so, it leads to `Compilation error`.

53. `meth(pen|p);`

```

    (1) Help pen
    (2) pen()
    (3) Help p
  
```

// always subclass & gets performed over the superclass.



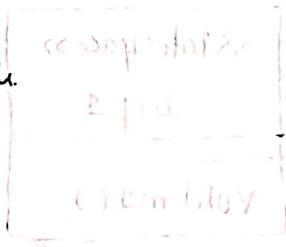
55. Explain method Overriding rules?
- Both methods have same name and signature
- ↳ If we call the method from child class, it will be called parent class
- ↳ static methods can't be overridden
56. What type of methods can't be overridden?
- static method
  - final method
57. Can we overload main method?  $\Rightarrow$  YES  
(but not a good practice)
- ↳ (overloading) allows two methods with same name but different parameters
58. Can we override main method?  $\Rightarrow$  NO (because it is static)
- ↳ (overriding) allows two methods with same name and same parameters
59. Can we explicitly invoke main method?  $\Rightarrow$  YES
- ↳ (overriding) allows two methods with same name and same parameters
60. What are access modifiers that can be used with Constructors?
- public, private, protected, default
61. What possible exception that we can except at the time of downcasting?
- ↳ ClassCastException
62. Explain polymorphism with types of abstract class  $\Rightarrow$  RealWorld & EnterButt keyword.
- RealWorld Exe ① Collection Col = new ArrayList();  
↳ Col.add(" ");
- ↳ Arraylist();  
↳ Hashset();  
↳ Linkedlist();  
↳ TreeSet();
- ↳ Col.add(" ");
- ② try
- $\rightarrow$  IOException
  - $\rightarrow$  SQLException
  - $\rightarrow$  NullPointerException
- Catch (Exception e){  
    e.printStackTrace();  
    e.getMessage();
- When we invoke printStackTrace() the Exception get executed to the respective Exception whether to SQL, NPE exception.

63. Explain Encapsulation. Explain

level of Encapsulation → by making default getter & setter methods.

64. How to make your object immutable

→ final keyword (final variable)



Realtime Ex of Encapsulation:

Java Bean class is best Ex for Encapsulation. In MVC (model view controller) architecture we use Java Bean object to carry the data from backend to frontend.

65. Diff b/w Abstract class and Interface.

Abstract class →  
- abstract method  
- concrete method

Interface →  
- no body  
- no implementation  
- no inheritance

(multiple inheritance - MRO) → interface implement

66. can we define a constructor inside a interface ⇒ NO

purpose of constructor is to initialise static final variables

The data members of interface are automatically public, static, final hence constructor is not required to initialise.

67. can an abstract class have constructor? ⇒ YES

to initialise abstract variables.

68. How can you invoke constructor of abstract class?

Using super() of superclass by subclass constructor.

69. Explain Abstraction with realtime & realworld Example.

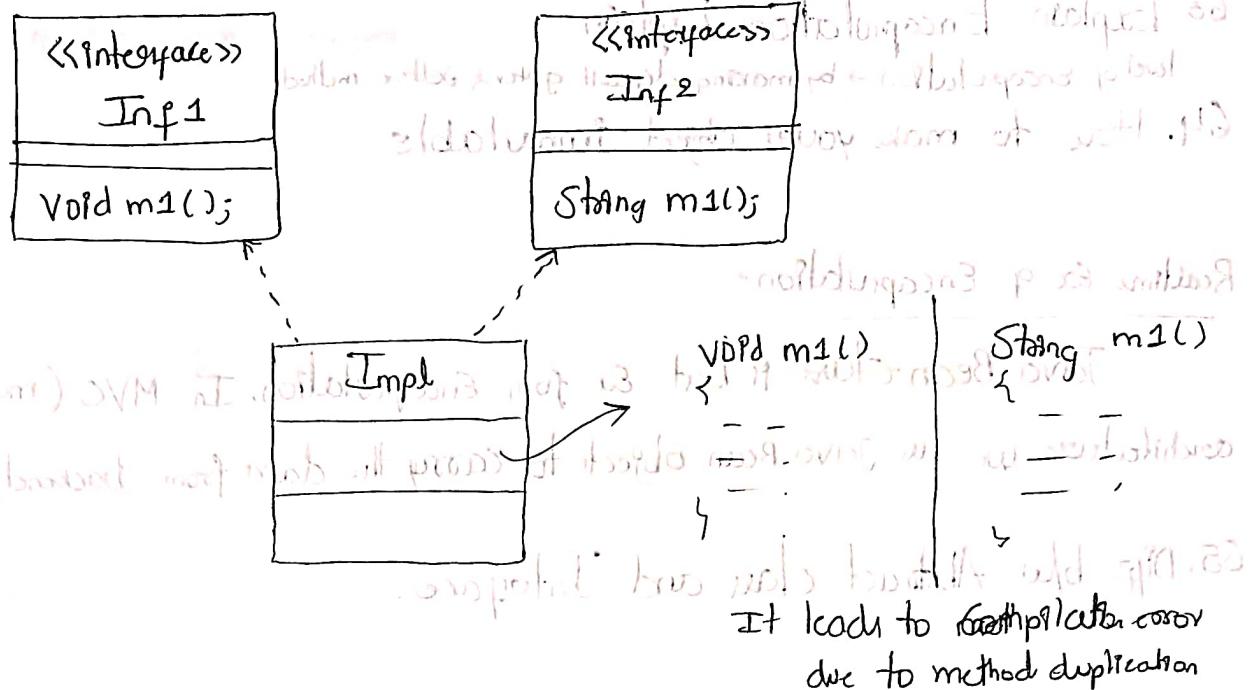
realworld exs watch, mouse  
with key

(key is intermediate b/w watch & human)

realworld exs keyboard

realtime ex : Iterator ex

mixing upto which we



70. What are the types of interface?

1. Regular interface
2. Marker interface
3. Functional interface (SAM - single abstract method)

Interface which doesn't make any method → Marker Interface.

Ex: RandomAccess, Serializable, Comparable, Runnable, Comparable, EventListener

71. Can we name marker interfaces in java?

Serializable, Comparable, RandomAccess, Runnable, EventListener

72. Functional interfaces of java

Comparable, Runnable

Question related to Exception Handling: 10/10/23

1. What is Exception?

It's a runtime interruption which stops program execution (or) a runtime error which stops program execution.

Q. Can an exception occur at Compile Time?

NO, exception never occurs at Compile Time.

3. Diff b/w Exception & error

- \* Exception occurs at Runtime.
- \* JVM is responsible for throwing Exception.
- \* Exception occurs because of runtime interruption or sometimes because of logical mistakes.
- \* Exceptions can be handled.

\* Error occurs at Compile Time.

\* Compiler is responsible for errors.

\* Error occurs because of syntactical mistakes.

\* Error can't be handled.

4. What are the types of Exception?

1. Unchecked Exception

2. Checked Exception

5. Name few exception that you experience in your project.

NULLPointerException, ClassNotFoundException, IOException, SQLException, FileNotFoundException

6. Write the Exception hierarchy

java.lang.Object --> java.lang.Throwable --> java.lang.Exception --> java.lang.Error

7. How do you handle an Exception? using try & catch block

\* Using throws we can propagate the Exception to the caller.

8. Explain NullPointerException

If we try to invoke either variable or method on the null reference then we get NullPointerException.

pen p = null;      1. pen p = new pen();  
P. Var      X not possible to assign the second reference  
P. method

9. How do you handle NullPointerException → By conditional check

pen p=null;  
if (p!=null){  
P.Var;  
P.method;  
else{  
System.out.println("pen is null");  
}

so it will be unable to assign a  
new reference if MVC  
is implemented

10. Diff b/w checked & uncheckedException

checked exception has no notification  
unchecked exception has notification  
example: IOException

11. Diff b/w throw & throws

throw is used in the code  
throws is used in the declaration

throw is associated with object  
declaration.

throws is associated with method  
declaration or constructor method

throws is used in the customException →

throws is used in the declaration

12. In what situations we write only one catch & multiple catch block.

If the handling scenario is same for multiple exceptions then we write only one catch block.

If the handling scenarios are different for different exceptions then we write separate catch block & put particular handling code in each catch block.

13. Is it possible to handle multiple exceptions in single catch block.

YES

Catch (IOException | SQLException | ArithmeticException)

multiple inheritance by own name

14. What exceptions are called as Unchecked Exceptions? Why?

Any exception category classes which extends ~~Runtime Exception~~ <sup>RuntimeException</sup> is

called unchecked exception.

postponed till later or ignored

\* After the throw the lines of code will be not executed.

System.exit(0); → forcefull way to terminate the JVM

15. In what situations finally block will not get executed?

In some situations when in JVM shut down that is abrupt

terminations of JVM finally block will not executed.

or

System.exit(0);

abnormal termination

forceful shutdown

void meth()

{

    try

        do something

    catch (Exception e)

        handle exception

    finally

}

    }

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5. How do you create a custom Exception as checked or unchecked?  
checked exception  
If the customException class extends throwable or Exception; then it belongs to checkedException.

If the customException class extends Runtime Exception then it belongs to Unchecked Exception category.

7. Explain steps to create custom/undefined Exception.

8. What are the Imp methods are used to debug an exception (p. 407)

1. getMessage()
  2. printStackTrace()

29. Diff b/w final, finally, finalise

final

Keyword used which class,  
variable, method

finally

block used in the case of exception handling

It is a method present in object class which executes by JVM just before Garbage Collection.

# String

## 1. What is String?

String is a non-primitive datatype, final class, set of characters.

2. What are the different ways of String Object creation?

1. Using new keyword & string constructor
  2. Using double quotes

3. Explain how String is immutable?

String is immutable means when we create a string object then the contents of the string object can't be changed. If we try to change the content of string object then, another new object gets created (2 objects get created).

String s = new String("Rama");  
(2 objects get created)

existing object will not get changed.

String s = new String("Rama");

s.concat("seetha");

s.o.p(s); // Rama

String Constant Pool

"Rama"

"seetha"

heap  
Object of class String  
Rama

H. Diff b/w String, String Builder, String Buffer

String

String is immutable

ThreadSafe  
(Single Threaded)

String is slower

String Builder

String Builder is mutable

Not ThreadSafe  
(Multi Threaded)

String Builder is faster

String Buffer is mutable

ThreadSafe

JDK 1.5

present since JDK 1.0

we can't use Concat operator

Scp not applicable

Scp not applicable

Scp applicable

Two ways of object creation

only one way

only one way

5. How do you create your own immutable Object?

1. Define a final class

2. Declare all the data members as final & initialize at the time of declaration itself. so that the object's state can't be modified.

- Diff b/w == & equals()
  - ==
  - \* Its an Operator.
  - \* Used with primitive to check the values
  - \* It checks the references
  - equals() for this holds primitive  
equals()
  - (String) equals() method
  - \* Used with only non-primitive  
("Object") holds .
  - \* It checks the Content.

7. When an object is eligible for garbage collection?

When an object has lost all its references then it is eligible for garbage collection.

8. Can we explicitly invoke garbage collector? [Hint: print, public, and final]

YES System.gc(); rebuild graph

9. Name some final inbuilt classes of Java?

String, System, & all wrapped classes  
primitive to (String → Gincos)

10. How do you convert String to primitive datatype?

By Using wrapper classes methods.

CLCIT 2012 Final year

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II. How do you convert primitive-data into String?  
There are two ways

double point = 9154.2;

$$\text{String } S = \text{prmd} + "j_0$$

~~String s = Double.toString(1.0)~~

~~object bcoz it  
doesn't parameter~~

1. Concatenate the primitive with empty string Ex

2. Using static method called `toString` present in wrapper classes.

`String s = Integer.toString(33);` primitive-data

String s = Long.toString(694981669569); ~~also built-in method~~

so must all be selected so long as medium exists till the weather is

*Chrysanthemum coronarium* L. var. *luteum* (L.) Benth. (yellow-flowered chrysanthemum)

## Wrapper Classes

Every primitive datatype in java has a corresponding non-primitive class, which is called as **Wrapper Class**.

Eg: int → Integer, short → Short, etc.

There are mainly two uses of wrapper classes.

1. Converting primitive data into non-primitive using its auto boxing.

2. Converting String into primitives.

\* We can convert the string data into an appropriate primitive data using parse method of the wrapper class.

\* All the wrapper classes except the Character class has the parse method.

Syntax: public static xxx parseXXX(String Stringrepresentation)

Ex: public static int parseInt(String str) → Integer class

public static double parseDouble(String str) → Double class

public static long parseLong(String str) → Long class

public static boolean parseBoolean(String str) → Boolean class

int i = Integer.parseInt("25");

primitive 25

int i = Integer.parseInt("hello");

String 25, `NumberFormatException (NFE)`

class Demo

PSVM(String[] args){

System.out.println(Boolean.parseBoolean("hello")); // false

System.out.println(Boolean.parseBoolean("1")); // false

System.out.println(Boolean.parseBoolean("TRUE")); // true

System.out.println(Boolean.parseBoolean("TRUE")); // true

Case insensitive

# Collections

marks: 10/10

- Diff b/w Array & Collection. A set of objects, containing group.
- Write Collection Hierarchy.
- What is the Super Interface of Collection Hierarchy  
~~Collection~~ interface, which extends ~~Iterable~~ & Map
- Diff b/w Collection & Collections
- Diff b/w Set & List
- Use of Generics  
Type (datatype) Safety.
- How do you make Collection homogenous. If types needs to be same.  
By using generics.
- Diff b/w ArrayList & LinkedList
- Diff b/w ArrayList & Vector
- How do you convert LinkedList to ArrayList. / How do you convert one Collection to another Collection. By using overloaded constructor  
import java.util.ArrayList;  
import java.util.LinkedList;

Class Main{ int arrayReport = 1 }

(or) int arrayReport = 1

LinkedList<String> ll = new LinkedList<String>();

equivalency

ll.add("Red"); ll.add("blue"); ll.add("orange");

Normal way

ArrayList<String> al = new ArrayList<ll>;

s.o.p(al);

Output: [Red, blue, orange]

- }
11. Explain the data structure used in TreeSet & ArrayList.

Resizable/Growable Array.

- 12. Diff b/w add() & Set() (Set has no add method)
- 13. Diff b/w iterator & for loop (iterator has a pre-increment operator)
- 14. Diff b/w for & forEach loop (enhanced for loop) (enhanced for loop has a post-increment operator)

### ListIterator

listIterator() cursor points to the beginning of the list

```

ListIterator< > litr = list.listIterator();
litr.next(); or litr.size();
litr.listIterator(11); cursor points to the end of list
while(litr.hasNext())
{
    ltrs.previous();
}

```

- \* When adding a data to the ArrayList we should make sure that the previous data is filled or atleast null. We can't add in the middle.
  - al.add(3, "TOM");
  - al.add(5, "JERRY");

- \* If the methods are not synchronized in the superclass, those can be made synchronized in the subclass while implementation.

- 15. Diff b/w HashSet & LinkedHashSet
- 16. Datastructure of TreeSet → BinaryTree (now implemented and tested)
- 17. How do you make a TreeSet to store duplicate data.
- 18. How do you make TreeSet heterogeneous. YES, possible.
- 19. Diff b/w Comparable & Comparator.
- 20. What is Map?

Q1. Name the methods present in entry interface  
getKey() and getValue()  
entrySet() → method which is used to fetch both key & value from a map.

Q2. Diff b/w HashMap & LinkedHashMap

Q3. Diff b/w HashMap & Hashtable

↳ SingleThreaded

↳ slow when compared to the HashMap

JDBC

17/10/23

1. What is JDBC?

2. Explain JDBC steps

3. Diff b/w JDBC API & JDBC Driver. tells to tell a driver

4. Which type of JDBC Driver we have used?

Type IV Driver

5. Can you name Driver class?

com.mysql.jdbc.Driver

6. Superinterface of all the Driver class

java.sql.Driver

7. What are different ways of loading & registering the driver?

1. Using class.forName

2. Creating an object of Driver class & registering the Driver with DriverManager using registerDriver method.

8. What are two important methods of DriverManager?

1. getConnection } static methods  
2. getDriver

- ~~few important interfaces of JDBC API~~
- Driver, Connection, PreparedStatement, CallableStatement, Statement  
ResultSet, Date
10. Where all the drivers are registered?  $\Rightarrow$  DriverManager
11. What are types of statement available in JDBC?
1. Statement
  2. PreparedStatement
  3. CallableStatement
12. Diff b/w Statement & Callable Statement (Refer pdf notes)
13. Why CallableStatement are used?  
To stored procedures
14. What is the ResultSet implements?  
Represents the processed data (after execution of) SQL queries.
15. What are the types of ResultSet?  
Bidirectional  
1. ~~Read Only~~ ResultSet (Forward Only)  
2. Forward Only ResultSet
16. Name few execute() available in JDBC
1. execute()
  2. executeUpdate()
  3. executeQuery()
17. Diff b/w execute, executeUpdate, executeQuery.
18. Name few important methods of ResultSet.  
next(), absolute, getXXX()
19. Name methods to set the data to placeholder.

Q. Explain JDBC Architecture.

A. JDBC Architecture consists of three layers: Application Layer, JDBC API Layer, and Database Layer.

The Application Layer interacts with the JDBC API Layer through interfaces like Connection, Statement, and ResultSet. The JDBC API Layer provides the interface between the Application Layer and the Database Layer. The Database Layer contains the actual database management system (e.g., MySQL, Oracle).

Import java.sql.Connection; // Statement, PreparedStatement, ResultSet, etc.

Import java.sql.DriverManager; // Database framework to get new build DB

public final class DBSingleton{

private DBSingleton(){

} (String url) framework added a framework and add URL

private static Connection ONLY\_ONE; // how we can make it available for all

static{

try{

Class.forName("com.mysql.jdbc.Driver");

ONLY\_ONE= DriverManager.getConnection("jdbc:mysql://localhost:3306","root","root");

} Catch (Exception e){

e.printStackTrace();

}

}

public static Connection getCon(){

return ONLY\_ONE;

}

}



- Can we create our own generics? YES
- What are different ways to create an object in Java?  
Six ways =
  - new keyword & the Constructor
  - Array
  - By using cloning & clone method
  - By using static literals
  - At the time of deserialization
  - Using new instance

10. How do you create your own immutable object? (Repeated)

## Multithreading :-

- Explain Thread Lifecycle
- Diff b/w notify() & notifyAll()
- Explain Deadlock situation
- How do you create a thread?