**INTERVIEW PREPRATION**

Site = full stack cafe

Link=https://snowdream.github.io/115-Java-Interview-Questions-and-Answers/115-Java-Interview-Questions-and-Answers/en/rmi.html

Que) Tell me about yourself?

Ans :- MY name is Shubhanshu Rajneesh jain ,I am from a city which is famous for it’s **corn ,** so it is also known as corn city. The current chief minister of Madhya Pradesh Mrs Kamalnath ji is from my city , chhindwara .

I live in a joint family, there are total 22 members living together happily. My father occupation is Advocate. My mother is housewife. I have one elder brother, he is doing job in Bangalore.

I had completed my 10th from saket public school, gondia maharashta in 2013 with 9.4 cgpa.

I had completed my 12th from First step higher secondary school chhindwara in 2015 with 79.6%

I am have pursued BE in computer science and engineering from rajiv Gandhi college of engineering and research, Nagpur in 2020 .

My hobbies are:-

Learning new things like new Languages, different recipe.

Ready to go travelling & exploring new area.

Active in playing carom, cricket.

Interacting with people.

Ques) storage class in c?

Ans:- there ares 4 types of storage class.

1. Auto 2.Register 3.Static 4.Extern.

Ques) how to change two variable without using third variable?

Ans :- logic

Int a=5 ,b=6;

A=a+b; (11)

B=a-b; (5)

A=a-b; (6)

Ques) explain abs and fabs?

Ans:- abs( ) function in C returns the absolute value of an integer. The absolute value of a number is always positive. Only integer values are supported in C.

* “stdlib.h” header file supports abs( ) function in C language. Syntax for abs( ) function in C is given below.

**int abs ( int n );**

#include <stdio.h>

#include <stdlib.h>

int main()

{

int m = abs(200); // m is assigned to 200

int n = abs(-400); // n is assigned to -400

printf("Absolute value of m = %d\n", m);

printf("Absolute value of n = %d \n",n);

return 0;

}

#### ****OUTPUT:****

|  |
| --- |
| Absolute value of m = 200 Absolute value of n = 400 |

**Fabs :-**

The fabs() function takes a single argument (in double) and returns the absolute value of that number (also in double).

1. include <stdio.h>
2. #include <math.h>
3. int main()
4. {
5. double x, result;
6. x = -1.5;
7. result = fabs(x);
8. printf("|%.2lf| = %.2lf\n", x, result);
9. x = 11.3;
10. result = fabs(x);
11. printf("|%.2lf| = %.2lf\n", x, result);
12. x = 0;
13. result = fabs(x);
14. printf("|%.2lf| = %.2lf\n", x, result);
15. return 0;
16. }

**Output**

|-1.50| = 1.50

|11.30| = 11.30

|0.00| = 0.00

Ques) to find the biggest of the three number?

Ans: logic

If(a>=b && a>=c)

Print =a

If(b>=c && b>=a)

Print =b

If(c>=a &&c>=b)

Print =c

Ques)to find leap year?

Ans:- logic

Int x;

If(x%400==0)

{ Printf(“leap year”);

}

Else

{ If(x%100==0)

{ Printf(“not leap year”);

}

Else

{ If(x%4==0)

{ Printf(“ leap year”);

}

Else

Printf(“ not leap year”);

Q. output of the program is

#include <stdio.h>

int main()

{

int a=2,b=5,c=2;

if(a<b<c)

printf("b is between a and c");

else

printf("b is not between a and c");

return 0;

}

Ans:- **b is between a and c**

Q. output of the program is

#include <stdio.h>

int main()

{

int i;

for(i=0;i<5;i++)

{

int i=10;

printf("%d",i);

}

return 0;

}

Ans:- **1010101010**

Q. output of the program is

#include <stdio.h>

int main()

{

int i;

for(i=0;i<5;i++)

{

i=10;

printf("%d",i);

}

return 0;

}

**Ans:- 10**

Q. what is link list explain?

Ans=A linked list is a linear data structure, in which the elements are not stored at contiguous memory locations. The elements in a linked list are linked using pointers as shown in the below image:  


In simple words, a linked list consists of nodes where each node contains a data field and a reference(link) to the next node in the list.

**Q)Why Linked List?**  
Ans=Arrays can be used to store linear data of similar types, but arrays have the following limitations.  
**1)** The size of the arrays is fixed: So we must know the upper limit on the number of elements in advance. Also, generally, the allocated memory is equal to the upper limit irrespective of the usage.  
**2)** Inserting a new element in an array of elements is expensive because the room has to be created for the new elements and to create room existing elements have to be shifted.

For example, in a system, if we maintain a sorted list of IDs in an array id[].

id[] = [1000, 1010, 1050, 2000, 2040].

And if we want to insert a new ID 1005, then to maintain the sorted order, we have to move all the elements after 1000 (excluding 1000).  
Deletion is also expensive with arrays until unless some special techniques are used. For example, to delete 1010 in id[], everything after 1010 has to be moved.

**Advantages over arrays**  
**1)** Dynamic size  
**2)** Ease of insertion/deletion

**Drawbacks:**  
**1)** Random access is not allowed. We have to access elements sequentially starting from the first node. So we cannot do binary search with linked lists efficiently with its default implementation. Read about it [here](https://www.geeksforgeeks.org/binary-search-on-singly-linked-list/).  
**2)** Extra memory space for a pointer is required with each element of the list.  
**3)** Not cache friendly. Since array elements are contiguous locations, there is locality of reference which is not there in case of linked lists.

Ques :- Trim() method in java?

# Ans :- Trim (Remove leading and trailing spaces) a string in Java

Given a string, remove all the leading and trailing spaces from the string and return it.

Examples:

Input : str = " Hello World "

Output : str = "Hello World"

Input : str = " Hey there Joey!!! "

Output : str = "Hey there Joey!!!"

* We can eliminate the leading and trailing spaces of a string in Java with the help of **trim()**.
* trim() method is defined under the String class of java.lang package.
* It does not eliminated the middle spaces of the string.
* By calling the trim() method, a new String object is returned.
* It doesn’t replace the value of String object. Therefore if we want the access to the new String object, we just need to reassign it to the old String or assign it to a new variable.

Ques:- purpose of jdk ,jvm & jre in java?

Ans:-

1. **JDK**

Java Development Kit aka JDK is the core component of Java Environment and provides all the tools, executables, and binaries required to compile, debug, and execute a Java Program.

JDK is a platform-specific software and that’s why we have separate installers for Windows, Mac, and Unix systems.

We can say that JDK is the superset of JRE since it contains JRE with Java compiler, debugger, and core classes.

### JVM

### JVM is the heart of Java programming language. When we execute a Java program, JVM is responsible for converting the byte code to the machine-specific code.

JVM is also platform-dependent and provides core java functions such as memory management, garbage collection, security, etc.

JVM is customizable and we can use java options to customize it. For example, allocating minimum and maximum memory to JVM.

JVM is called **virtual** because it provides an interface that does not depend on the underlying operating system and machine hardware.

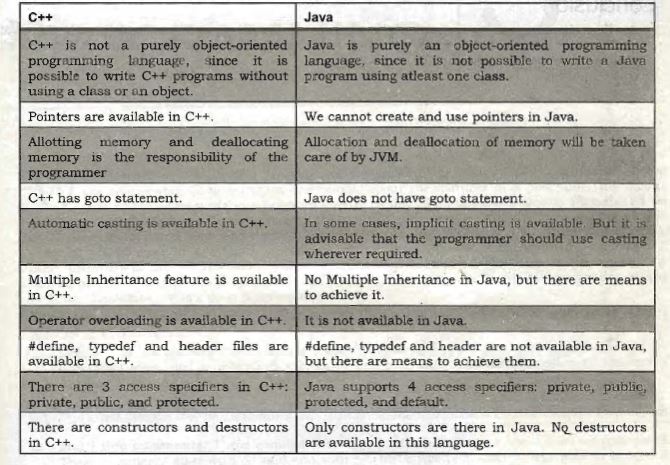
This independence from hardware and the operating system makes java program write-once-run-anywhere.

### 3. JRE

JRE is the implementation of JVM. It provides a platform to execute java programs. JRE consists of JVM, Java binaries, and other classes to execute any program successfully.

JRE doesn’t contain any development tools such as Java compiler, debugger, JShell, etc.

If you just want to execute a java program, you can install only JRE. You don’t need JDK because there is no development or compilation of java source code is required.



Ques :-without jdk will our program compile or not?

Ans :- no our program will not compile.

Ques :- if our system has only jre than?

Ans :- it will execute our program but it will not compile our program.

Yes, you can execute Java program with out JDK. But to do that you need JVM. JDK is basically used to compile your code. Once you have .class file of your .java program you don’t need JDK. You simply run your code with JVM.

**Ques :- what is native library?**

**Ans:**  A native library is a library that contains "native" code. That is, code that has been compiled for a specific hardware architecture or operating system such as x86 or windows

"Native Library" generally means a non-Java library that's used by the system (so C/C++, etc). Think normal DLLs or libs.

**PROGRAM TO REVERSE A STRING**

**Reverse a string in C/C++ using strrev**

#include <stdio.h>  
#include <string.h>

int main()  
{  
   char s[100];

   printf("Enter a string to reverse**\n**");  
   gets(s);

   strrev(s);

   printf("Reverse of the string: %s**\n**", s);

   return 0;  
}

WITHOUT ANY FUNCTION

#include <stdio.h>

int main()  
{  
   char s[1000], r[1000];  
   int begin, end, count = 0;

   printf("Input a string**\n**");  
   gets(s);

*// Calculating string length*

   while (s[count] != '**\0**')  
      count++;

   end = count - 1;

   for (begin = 0; begin < count; begin++) {  
      r[begin] = s[end];  
      end--;  
   }

   r[begin] = '**\0**';

   printf("%s**\n**", r);

   return 0;  
}

**IN JAVA**

**1.**

import java.lang.\*;

import java.io.\*;

import java.util.\*;

// Class of ReverseString

class ReverseString {

    public static void main(String[] args)

    {

        String input = "GeeksForGeeks";

        // convert String to character array

        // by using toCharArray

        char[] try1 = input.toCharArray();

        for (int i = try1.length - 1; i >= 0; i--)

            System.out.print(try1[i]);

    }

}

**2.**

import java.lang.\*;

import java.io.\*;

import java.util.\*;

public class Test {

    public static void main(String[] args)

    {

        String str = "Geeks";

        // conversion from String object to StringBuffer

        StringBuffer sbr = new StringBuffer(str);

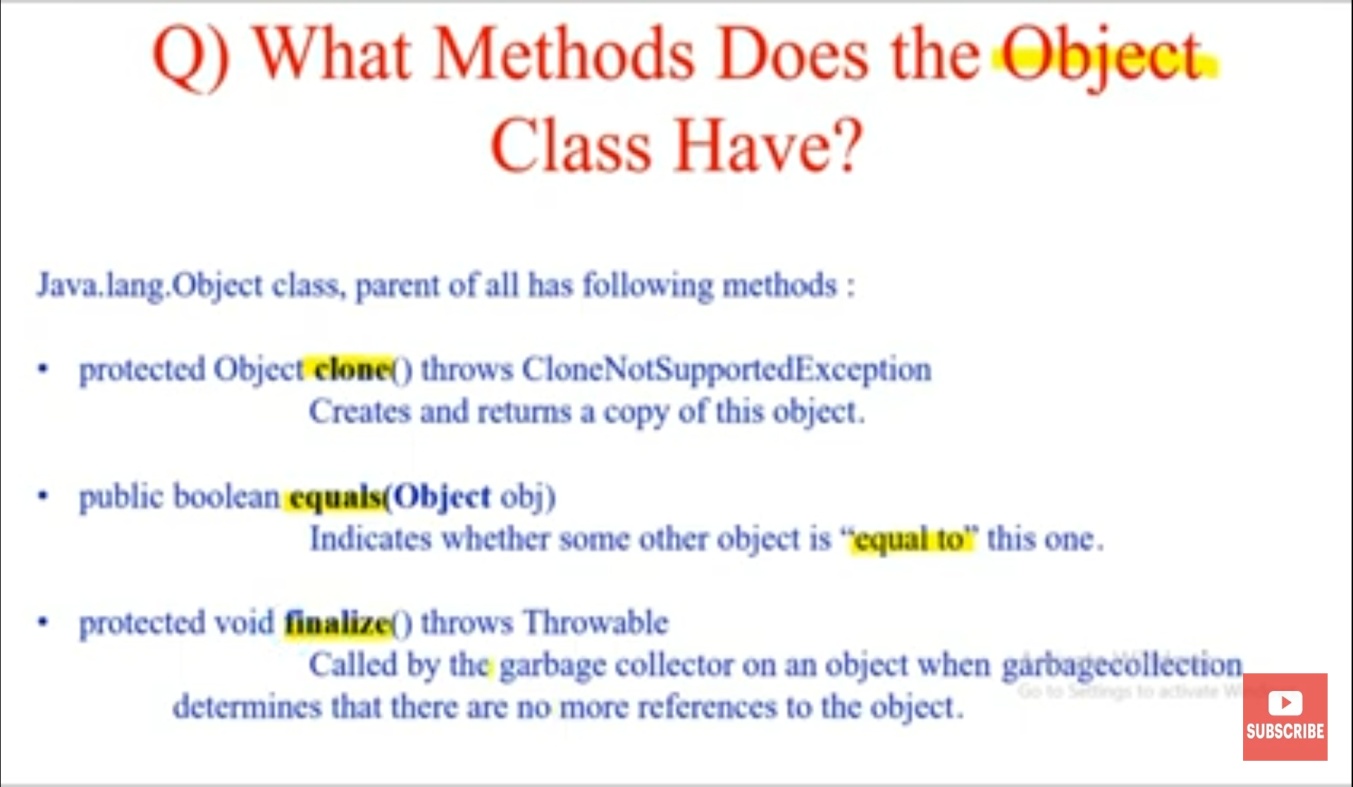
        // To reverse the string

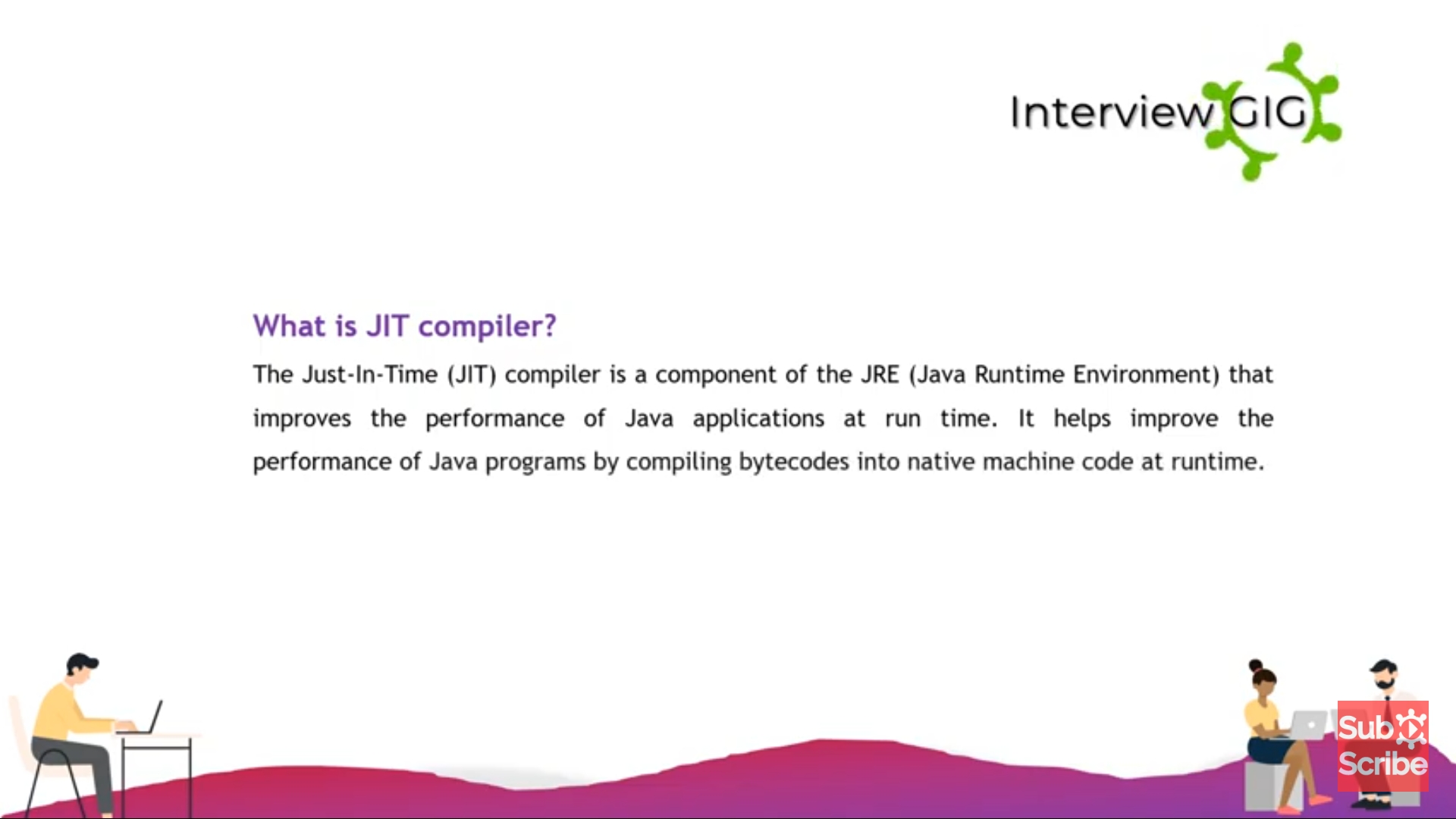
        sbr.reverse();

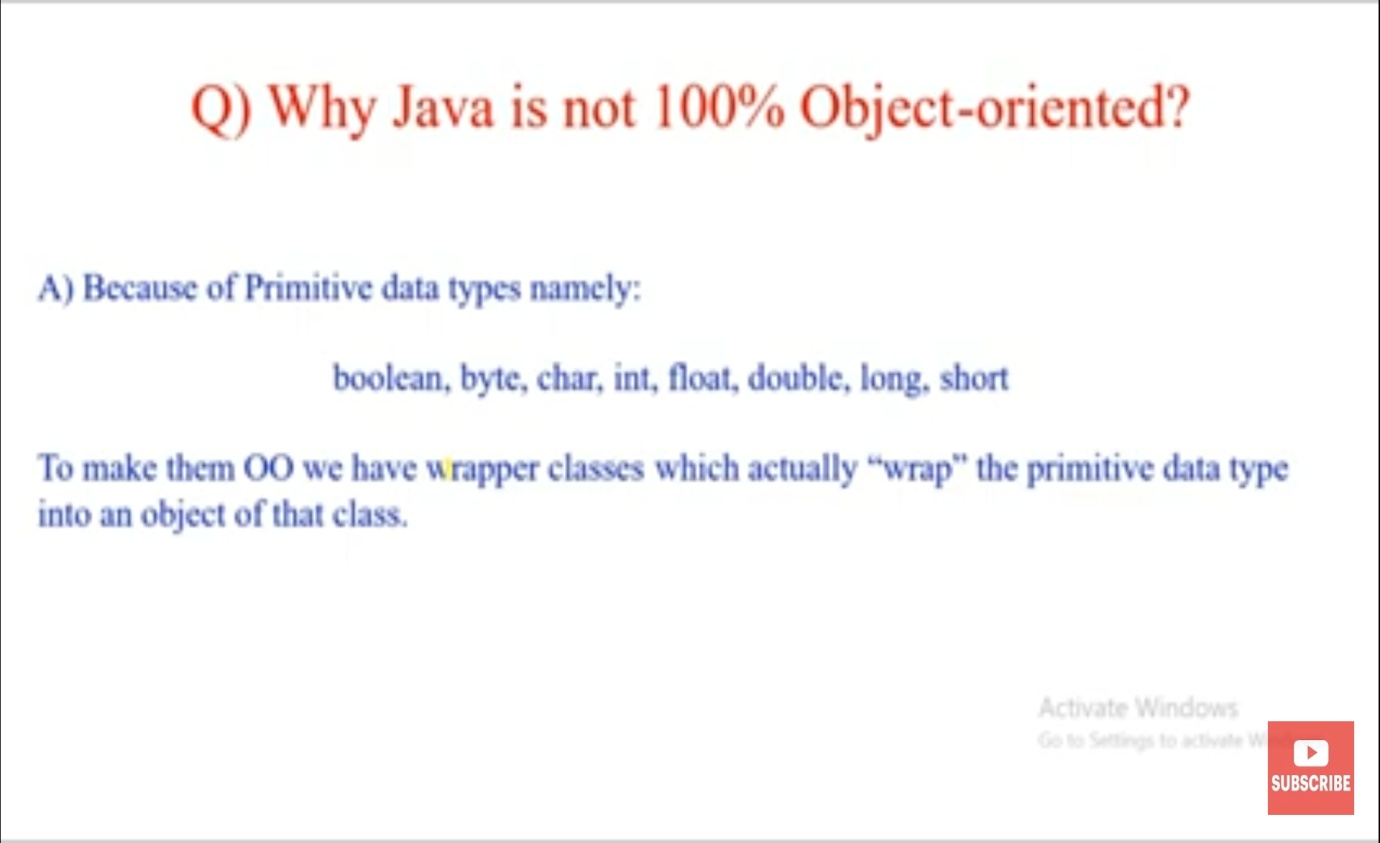
        System.out.println(sbr);

    }

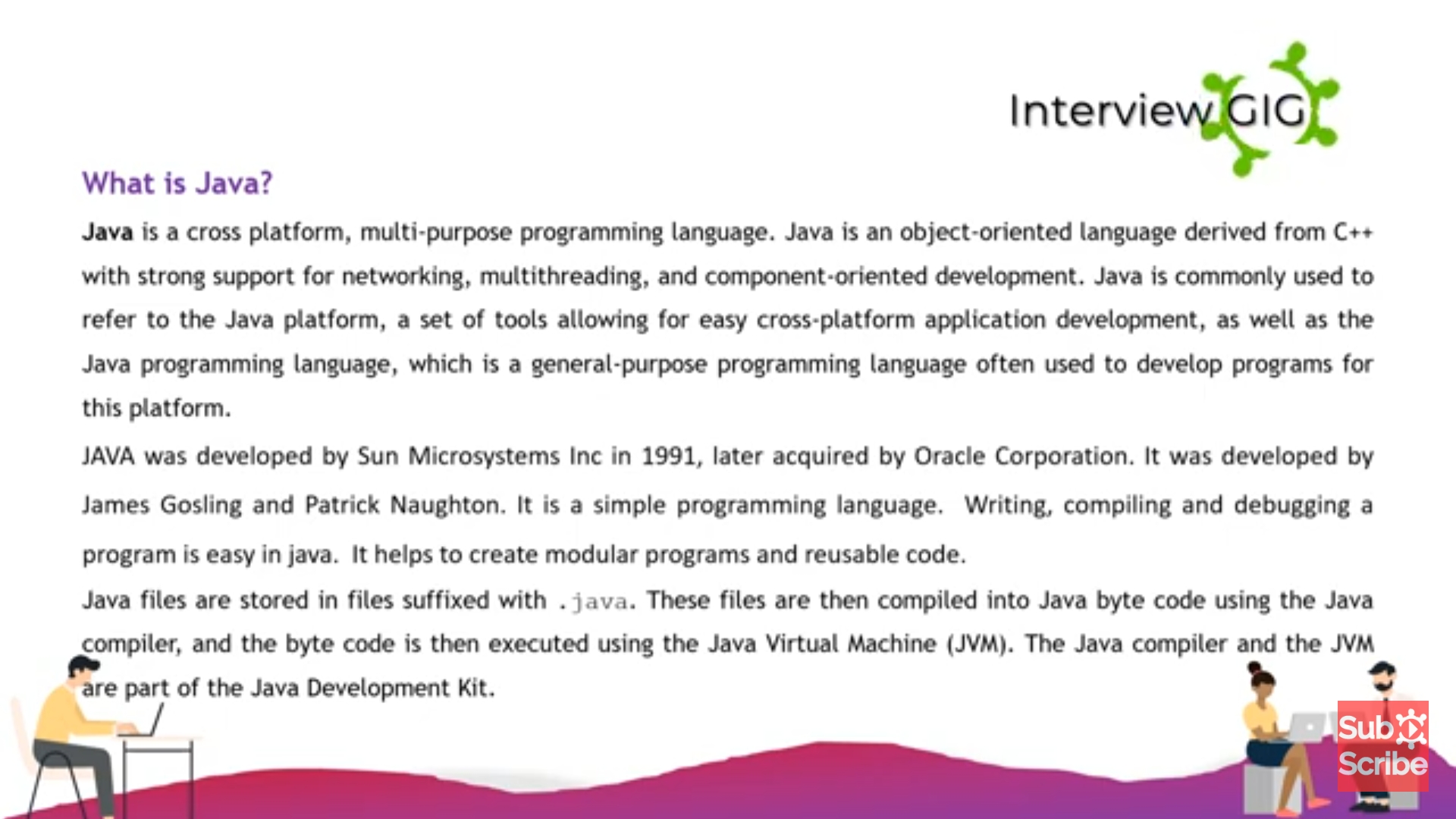
}

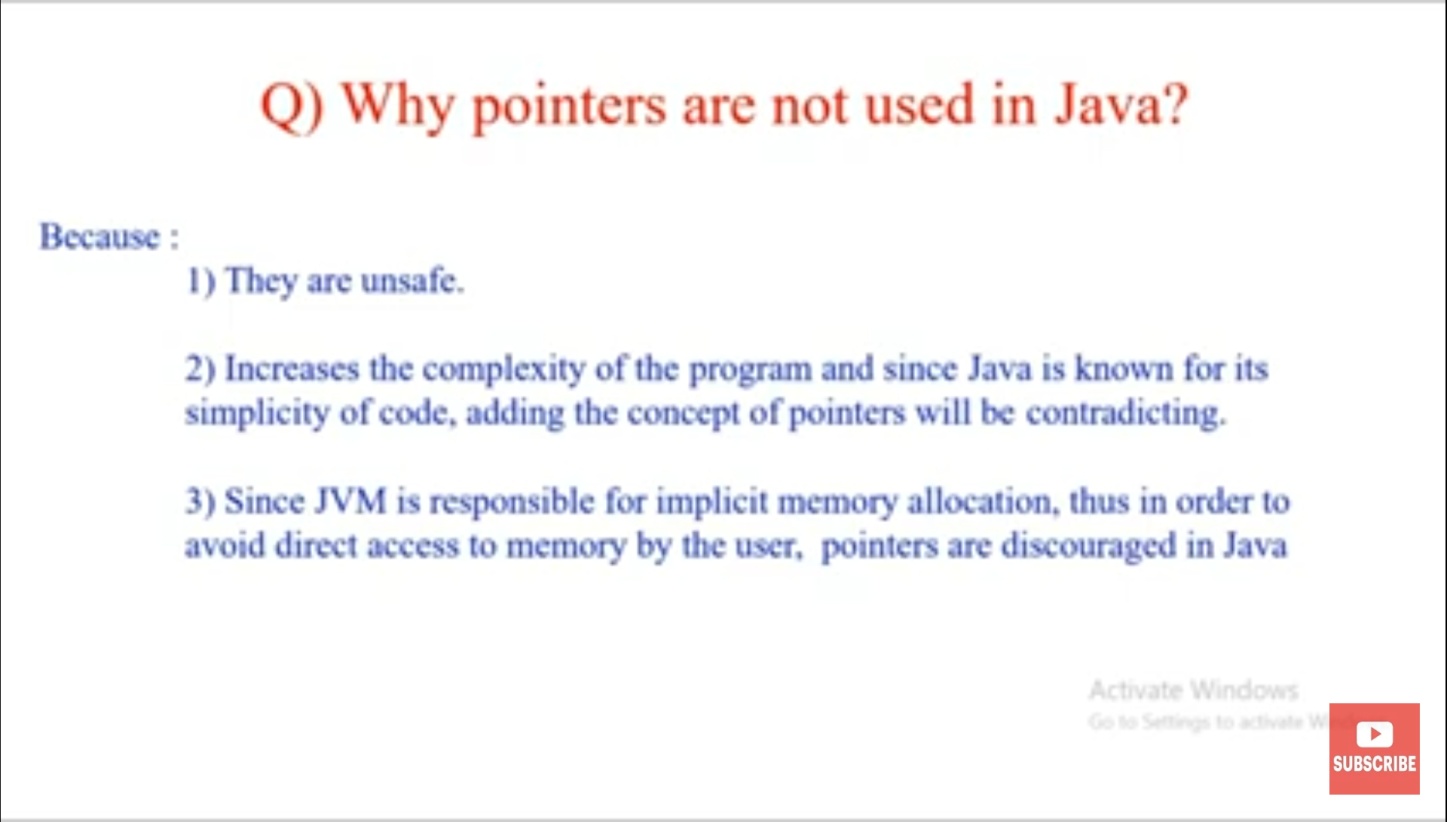






This primitive data type we use while programming in java & hence java is not object oriented programming language .because in oop everything should be around object & primitive data type is not object . more over java people develop WRAPPER class .to make them object oriented . we have Wrapper classes which actually “wrap” the primitive data type into an object of that class.

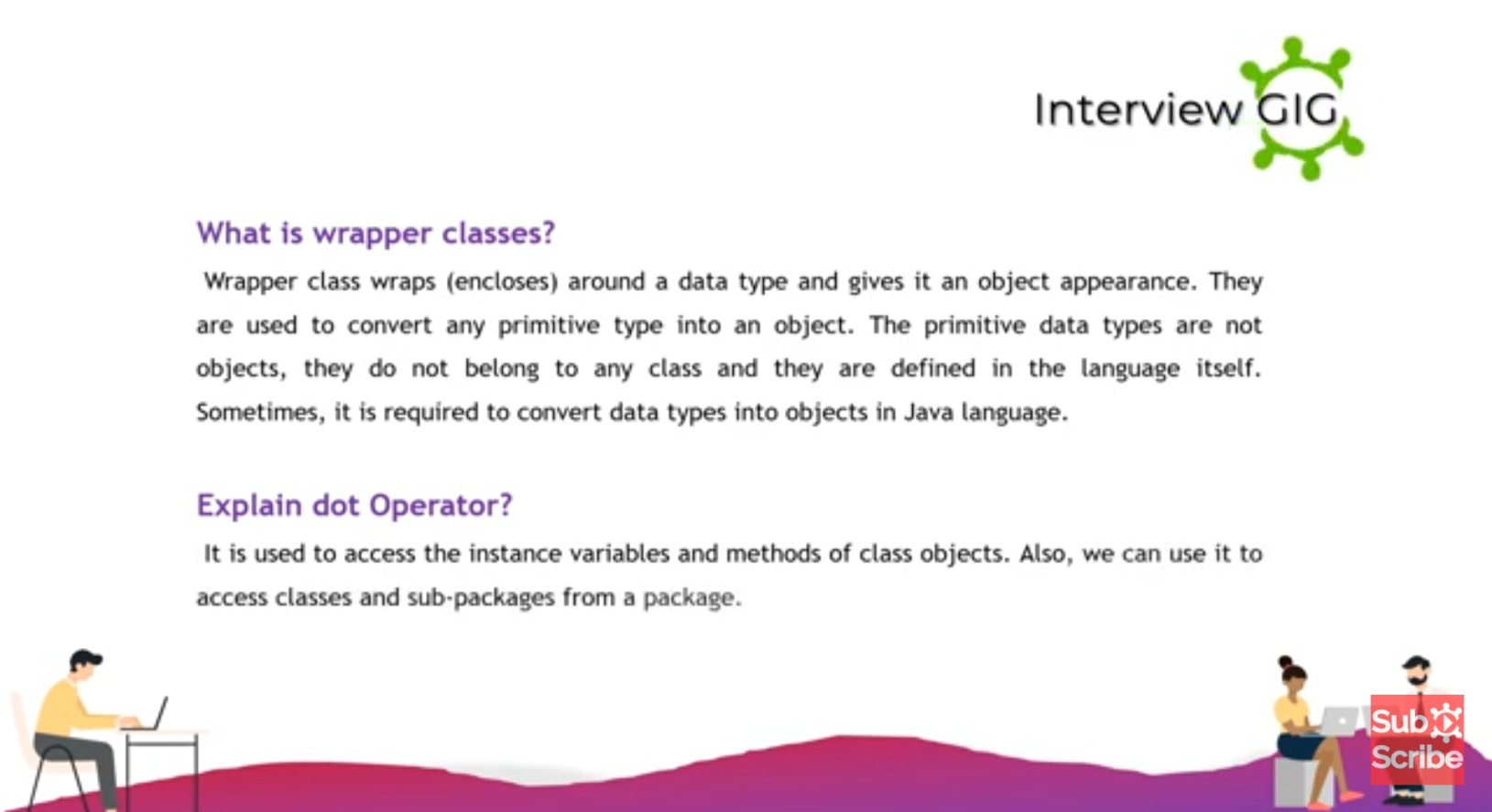


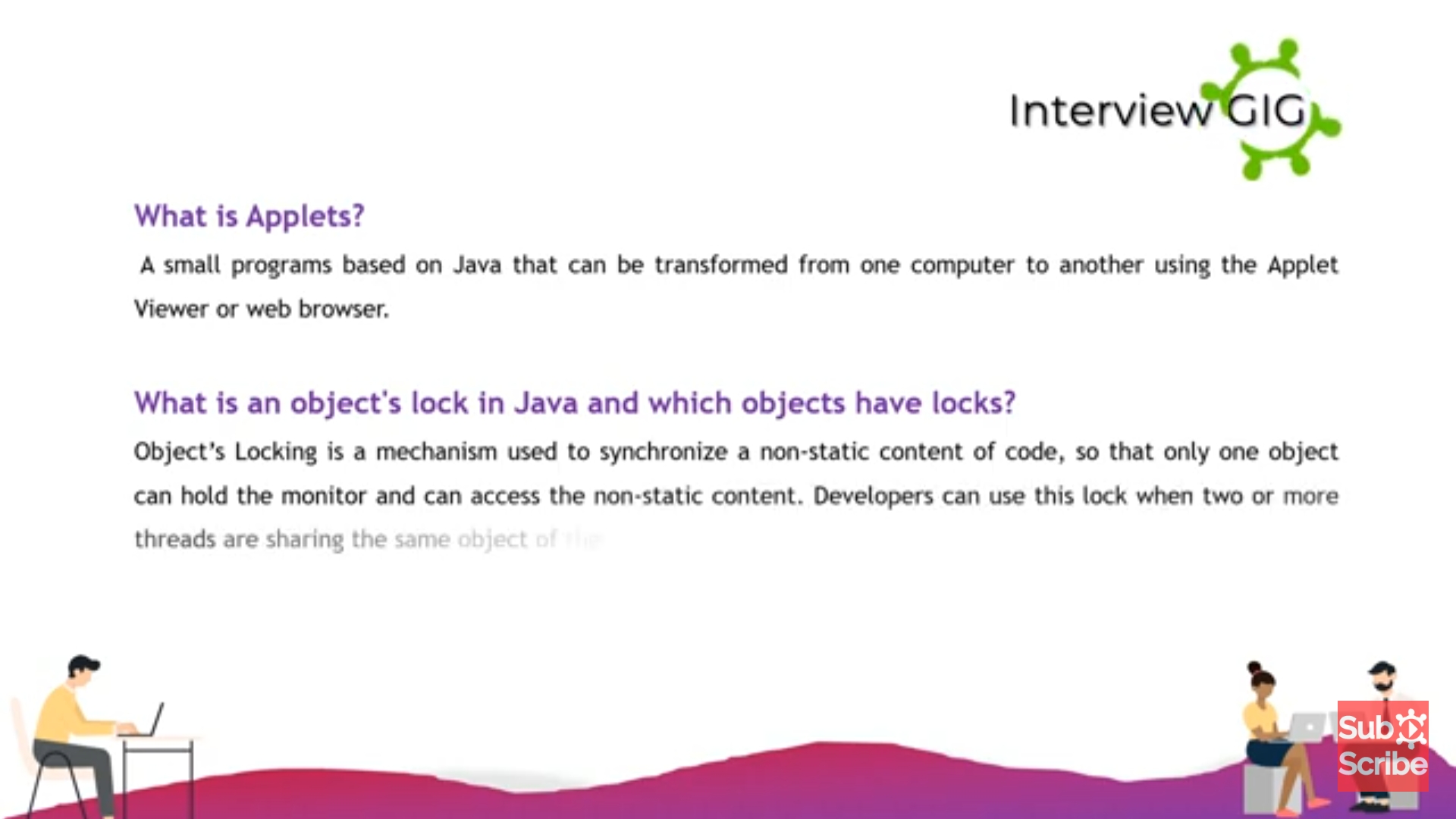


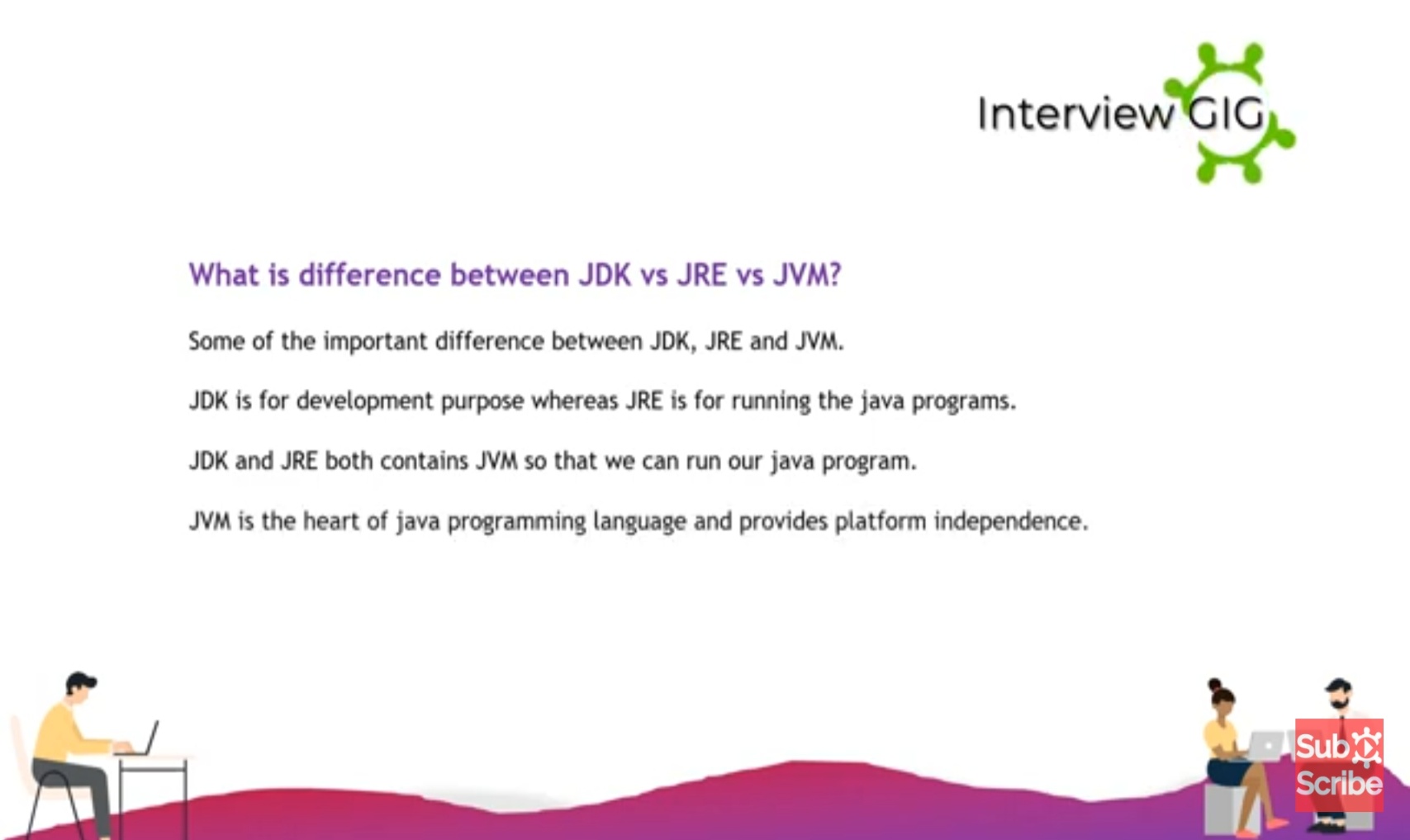
1. Since JVM is responsible for memory allocation & deallocaton in java.

So what pointer do? = they point to the particular memory allocation & if that thing is actually done by jvm internally then why do we need pointers for the same. Thus to avoid direct access to the memory by user because user can perform faulty operation thus pointers is discouraged in java.

((IN SHORT ) JVM is responsible so why do we need pointer.)







**If I download the latest version of Java JDK, do I need to install JRE separately in the system?**

JDK is the Java Development Kit, the base software system that needs to be installed on an operating system if you want to program in Java. The JDK installer comes with JRE as well. If you install JDK, JRE also gets installed. When you run the JDK installer, make sure you go through the entire installation process. This will install JRE as well. JRE is the Java Runtime Environment which lets you execute programs you've created and compiled using the Java Development Kit.

QUES :- TO FIND EVEN OR ODD WITH OUT USING IF ELSE?

**public** **class** Even {

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

Scanner sc=**new** Scanner(System.***in***);

**int** x= sc.nextInt();

System.***out***.println(x%2==0?"even":"odd");

}

}

QUES :- TO FIND LCM;

int n1 = 72, n2 = 120, gcd = 1;

for(int i = 1; i <= n1 && i <= n2; i++) {

// Checks if i is factor of both integers

if(n1 % i == 0 && n2 % i == 0)

gcd = i;

}

int lcm = (n1 \* n2) / gcd;

System.out.printf("The LCM of %d and %d is %d.", n1, n2, lcm)

HOW TO USE MAP FOR LIST

**public** Map<Integer,List<Employee>> getEmployeesGroupedByAge()

{

Map<Integer,List<Employee>> m=**new** HashMap();

//List<Employee> l= new ArrayList();

**for**(Employee e :**this**.emp)

{

List<Employee> l= **new** ArrayList();

l.add(e);

**if**(m.containsKey(e.getAge()))

{

List<Employee> l1= **new** ArrayList();

l1.addAll(m.get(e.getAge()));

l1.add(e);

m.put(e.getAge(), l1);

}

**else**

{

m.put(e.getAge(), **new** ArrayList(l));

}

}

**return** m;

}

OVERRIDDING CONCEPT

**public** **class** overMain {

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

Employee employee =**new** Marketing();

employee.getSalary();

**Sales sales=(Sales)employee;**

/\*Exception in thread "main" java.lang.ClassCastException: class overloading.Marketing cannot be cast to class overloading.Sales (overloading.Marketing and overloading.Sales are in module ZENSAR of loader 'app')

\*/

sales.getSalary();

}

}

**public** **class** Employee

{

String name="shubhanshu";

**public** **void** getSalary()

{

System.***out***.println("Employee class");

}

}

**public** **class** Marketing **extends** Employee

{

**public** **void** getSalary()

{

name="hello";

System.***out***.println("marketing class");

System.***out***.println(name);

}

}

**public** **class** Sales **extends** Employee

{

**public** **void** getSalary()

{

System.***out***.println("sales class");

}

}

Do class is immutable?

Ans :- class can be both mutable & immutable

**Immutable class** means that once an object is created, we cannot change its content. In Java, all the [wrapper classes](https://www.geeksforgeeks.org/wrapper-classes-java/) (like Integer, Boolean, Byte, Short) and String class is immutable. We can create our own immutable class as well. 

Following are the requirements: 

* The class must be declared as final (So that child classes can’t be created)
* Data members in the class must be declared as private (So that direct access is not allowed)
* Data members in the class must be declared as final (So that we can’t change the value of it after object creation)
* A parametrized constructor should initialize all the fields performing a deep copy (So that data members can’t be modified with object reference)
* Deep Copy of objects should be performed in the getter methods (To return a copy rather than returning the actual object reference)
* No setters (To not have the option to change the value of the instance variable)

### What are Mutable Objects

The mutable objects are objects whose value can be changed after initialization. We can change the object's values, such as field and states, after the object is created. For example, **[Java.util.Date](https://www.javatpoint.com/java-util-date),**[**StringBuilder**](https://www.javatpoint.com/StringBuilder-class)**, [StringBuffer](https://www.javatpoint.com/StringBuffer-class)**, etc.

### What are Immutable Objects

The immutable objects are objects whose value can not be changed after initialization. We can not change anything once the object is created. For example, **primitive objects** such as [int](https://www.javatpoint.com/int-keyword-in-java), [long](https://www.javatpoint.com/long-keyword-in-java), [float](https://www.javatpoint.com/float-keyword-in-java), [double](https://www.javatpoint.com/double-keyword-in-java), **all**[**legacy classes**](https://www.javatpoint.com/legacy-class-in-java)**,**[**Wrapper class**](https://www.javatpoint.com/wrapper-class-in-java)**,**[**String class**](https://www.javatpoint.com/methods-of-string-class), etc.

**Index in Sql?**

**AnS :-** Indexes are **special lookup tables** that the database search engine can use to speed up data retrieval. Simply put, an index is a pointer to data in a table. An index in a database is very similar to an index in the back of a book.

What is RMI ? Text, letter

Description automatically generated

What is stub & skeletion in RMI ?Text, letter

Description automatically generated

Text

Description automatically generated

Text, letter

Description automatically generated

#### What is the basic principle of RMI architecture ?

The RMI architecture is based on a very important principle which states that the definition of the behavior and the implementation of that behavior, are separate concepts. RMI allows the code that defines the behavior and the code that implements the behavior to remain separate and to run on separate JVMs.

#### What are the layers of RMI Architecture ?

The RMI architecture consists of the following layers:

* Stub and Skeleton layer
* Remote Reference Layer
* Transport layer: This layer is responsible for connecting the two JVM participating in the service.

#### Explain Marshalling and demarshalling.

When an application wants to pass its memory objects across a network to another host or persist it to storage, the in-memory representation must be converted to a suitable format. This process is called marshalling and the revert operation is called demarshalling.

#### What is the role of the java.rmi.Naming Class ?

The java.rmi.Naming class provides methods for storing and obtaining references to remote objects in the remote object registry. Each method of the Naming class takes as one of its arguments a name that is a String in URL format.

#### . What happens when an applet is loaded ?

First of all, an instance of the applet’s controlling class is created. Then, the applet initializes itself and finally, it starts running.

#### What are the restrictions imposed on Java applets ?

Mostly due to security reasons, the following restrictions are imposed on Java applets:

* An applet cannot load libraries or define native methods.
* An applet cannot ordinarily read or write files on the execution host.
* An applet cannot read certain system properties.
* An applet cannot make network connections except to the host that it came from.
* An applet cannot start any program on the host that’s executing it.

#### 53. What are untrusted applets ?

Untrusted applets are those Java applets that cannot access or execute local system files. By default, all downloaded applets are considered as untrusted

#### What is the applet security manager, and what does it provide

The applet security manager is a mechanism to impose restrictions on Java applets. A browser may only have one security manager. The security manager is established at startup, and it cannot thereafter be replaced, overloaded, overridden, or extended.

#### What is the purpose Class.forName method ?

This method is used to method is used to load the driver that will establish a connection to the database.

#### 75. What is the advantage of PreparedStatement over Statement ?

PreparedStatements are precompiled and thus, [their performance is much better](http://examples.javacodegeeks.com/core-java/sql/batch-statement-execution-example/). Also, PreparedStatement objects can be reused with different input values to their queries.

#### 76. What is the use of CallableStatement ?

Name the method, which is used to prepare a CallableStatement. A [CallableStatement](http://docs.oracle.com/javase/7/docs/api/java/sql/CallableStatement.html" \t "_blank) is used to execute stored procedures. Stored procedures are stored and offered by a database. Stored procedures may take input values from the user and may return a result. The usage of stored procedures is highly encouraged, because it offers security and modularity.The method that prepares a [CallableStatement](http://docs.oracle.com/javase/7/docs/api/java/sql/CallableStatement.html" \t "_blank) is the following:

CallableStament.prepareCall();

#### What is difference between fail-fast and fail-safe ?

All the collection classes in java.util package are fail-fast, while the collection classes in java.util.concurrent are fail-safe. Fail-fast iterators throw a [ConcurrentModificationException](http://examples.javacodegeeks.com/java-basics/exceptions/java-util-concurrentmodificationexception-how-to-handle-concurrent-modification-exception/" \t "_blank), while fail-safe iterator never throws such an exception.

#### What does System.gc() and Runtime.gc() methods do ?

These methods can be used as a hint to the JVM, in order to start a garbage collection. However, this it is up to the Java Virtual Machine (JVM) to start the garbage collection immediately or later in time.

#### If an object reference is set to null, will the Garbage Collector immediately free the memory held by that object ?

No, the object will be available for garbage collection in the next cycle of the garbage collector.

#### What is a JSP Page ?

A Java Server Page (JSP) is a text document that contains two types of text:

static data and JSP elements.

Static data can be expressed in any text-based format, such as HTML or XML. JSP is a technology that mixes static content with dynamically-generated content

**Can an enum be extended?**

**No**, we **cannot extend** **an enum** in Java. Java enums can extend**java.lang.Enum** class **implicitly**, so enum types cannot extend another class.

Ques :- what is connection pooling ?

Ans = if we required to communicate wit data base multiples times then it is not recommended to create separate. connection object every time because creating and destroying connection object creates performance problem.

To overcome this problem, we should go for connection pool.

Connection pool is pool of already created connection object which are ready to use.

If we want to communicate with database, then we request connection pool to provide connection. Once we got the connection, by using that we can communicate with database. After completing our work, we can return connection to pool instead of destroying.

Advantage = we can reuse same connection object multiple times, so performance is improved .

Data source is responsible to create connection pool

Spring boot dependency

<dependency>

<groupId>org.springframework.boot</groupId>

<artifactId>spring-boot-starter-data-jpa</artifactId>

</dependency>

Or

<dependency>

<groupId>org.springframework.boot</groupId>

<artifactId>spring-boot-starter-JDBC</artifactId>

</dependency>

# Caching in Hibernate

Hibernate caching improves the performance of the application by pooling the object in the cache. It is useful when we have to fetch the same data multiple times.

There are mainly two types of caching:

* First Level Cache, and
* Second Level Cache

#### First Level Cache

Session object holds the first level cache data. It is enabled by default. The first level cache data will not be available to entire application. An application can use many session object.

#### Second Level Cache

SessionFactory object holds the second level cache data. The data stored in the second level cache will be available to entire application. But we need to enable it explicitely.

Different vendors have provided the implementation of Second Level Cache.

1. EH Cache
2. OS Cache
3. Swarm Cache
4. JBoss Cache