JAVA ASSIGNMENT 1

JAINISH SAKHIDAS SE9 ROLL NO 31

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JAVA

ASSIGNMENT 1

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Q1) Write a short note on

a) Features of Java:-

1) Object Oriented Programming

Java is a object oriented because it follows following OOP features

(i) Class and Object
(ii) Data Abstraction
(iii) Data Encapsulation
(iv) Inheritance
(v) Polymorphism

2) Compiled & Interpreted

Java has two phases ie compilation and Interpretation

Compilation is done by compiler which converts source code into byte code and Interpretation is done by interpreter, which converts byte code into machine code.

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3) Platform Independent

Java is platform ~~idep~~ independent, because we can compile the program in one machine and run or interpret the program in any other machine irrespective of their operating system (OS).

4) Multi threading

It is the mechanism by which we divide a large program into different threads, so that every thread will get execute simultaneously.

5) Secure & robust

~~It is the mechanism by which we count~~

Java is a secure language because it does not support the concept of pointer, so that no one can access memory address directly. Also once a byte code is generated, no one can alter it.

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Java is a Robust language, because it supports Exception handling, using which we can handle run time errors.

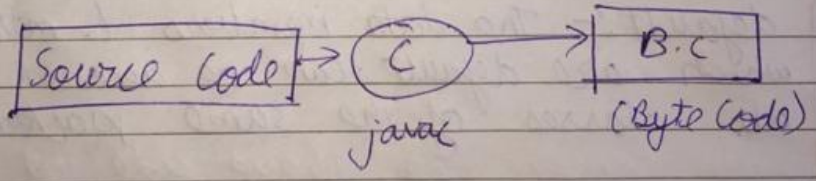
b) JVM (Java Virtual Machine)

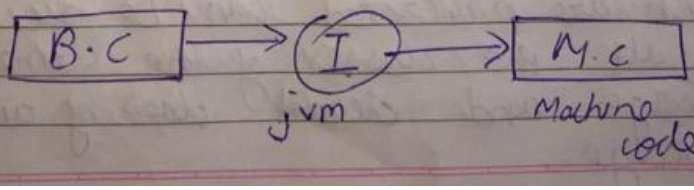
→ Java Virtual Machine is an abstract machine. It is a specification that provides runtime environment in which java byte code can be executed.

JVMs are available for many hardware and software platforms (ie JVM is platform independent)

JVM performs following operations:

- loads code
- Verifies code
- Executes code
- Provides Runtime Environment





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Q2) Explain Different Access Specifiers in java.

→ Java supports Data Abstraction ie data hiding.

We can hide data members and methods of one class from another class

This can be achieved using following access specifiers

(i) public :- The data members & methods which are public can be accessed by all the classes irrespective of packages

(ii) private :- The data members & methods which are private can be accessed only by a specific class

(iii) default :- The data members & methods which are default can be accessed by all classes of the same package.

(iv) protected :- The data members & methods which are protected can be accessed by all the classes of the same package and derived class of another package.

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Q3) Explain how to create user defined packages with example.

User defined packages are the packages that are created and also used by users and are not provided by Java.

To create user define package you need to include the below syntax in the first line of your code

```
package <packagename>;
```

There should not be any main class in your package and your class should be public so that you can use your package in any other program. Keeping your package class public is not a compulsion.

// A.java

```
package P1;
public class A
{
    public void display()
    {
        System.out.println("I am in A");
    }
}
```

Now you should compile A.java in a folder. When you do so a package named (folder named) P1 will get created and in the package P1 there will be a A.class file.

* Using user defined package

```
// test.java

import P1.*;
class test
{
    public static void main(String args[])
    {
        A a = new A();
        a.display();
    }
}
```

Output:-

```
I am in A
```

~~When~~ Compile the above code (test.java) in the same folder where there is package P1 and when you run the code you will get the above mentioned output.

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(Q4) Differentiate between

a) String	String buffer
→ String class is immutable	→ String Buffer class is mutable.
→ String is slow and consumes more memory when you concat too many strings because every time it creates new instance	→ String Buffer is fast and consumes less memory when you concat strings.
→ String class overides the equals() method of Object class. So you can compare the contents of two strings by equals() method	→ StringBuffer class does not overide the equals() method of object class.

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b)

Array	Vector
→ Array can store only same type of values	→ Vectors can store any type of objects.
→ It is easy to sort	→ It is not easy to sort
→ It is not a class	→ It is a class
→ It is not dynamic, its size cannot be increased.	→ It is dynamic array whose size can be increased.