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M. Nandini

1. What are the components of JAVA platform? Explain. Write a java Program to illustrate usage of Conditional Statements and looping statements. https://docs.oracle.com/javase/tutorial/intro/definition.html

Java platform: A platform is the hardware & software environment in which a program runs. We've already known Popular platforms like Microsoft windows, Linux, Solaris OS, and Mac OS. But the java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms.

Components of Java platform:

The java platform has two components:

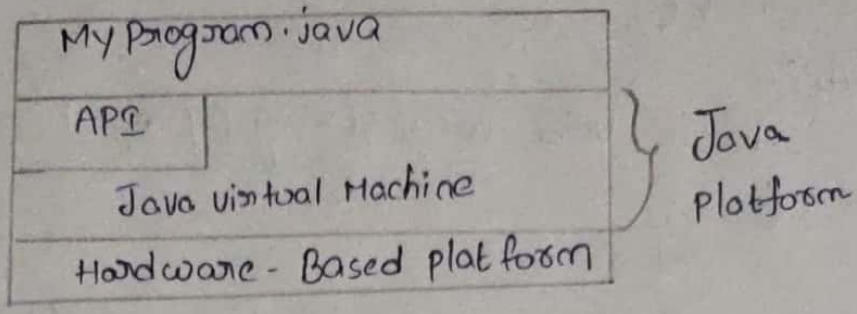
1. The Java Virtual Machine
2. The Java Application Programming Interface (API)

1. The Java virtual Machine: It is a virtual machine that enables a computer to run Java programs as well as programs written in other languages that are also compiled to Java byte code. It's the base for the Java platform and is ported onto various hardware based platforms.

2. The Java Application Programming Interface (API):

The API is a large collection of ready-made software components that provide many useful capabilities. It is grouped into libraries of related classes and interfaces; these libraries are known as packages.

The API and Java virtual Machine insulate the program from the underlying hardware.



As a platform-independent environment, the Java Platform can be a bit slower than native code. However, advances in compiler and virtual machine technologies are bringing performance close to that of native code without threatening portability.

The terms "Java Virtual Machine" and "JVM" mean a virtual machine for Java platform.

JVM Provides functionality of garbage collection, memory management, security etc. JVM is platform-independent and we can customize its functionality using a virtual interface it provides which is not machine-dependent and is also independent of operating system.

Using the API's, the programmer can know how to use the methods, fields, classes, interfaces provided by Java libraries.

Program:

```
class Test {
Public
    static void main(string[] args)
    {
       int i=0, j=9;
       do {
          i++;
          if (j-- < i++){
             break;
          }
       } while (i<5);
       system.out.println(i + " " +j);
    }
}
```

o/p is 66.

Explanation: In the above program, we have to specially take care about the break statement. The execution of the program is going as usual as the control flow of do-while loop but whenever compiler encountered break statement its control comes out from the loop.

```
class Test {
Public
    static void main(string [] args)
    {
        int x = 10;
        if (++x < 10 $$ (x / 0 = 10)) {
            System.out.println ("Bisha I");
        } else {
            system.out.println ("GEEKS");
        }
    }
}
```

o/p: GEEKS

Explanation: In above program we are ussing $$ operator. whenever we use $$ operator then if the first condition is false then the control does not go to the 2nd condition whether it is true or false. In the above program, the first condition in the if block is not true that's why the else part is excuted.

2. Write any six significant difference between Procedure oriented programming and object oriented programming. Why JAVA is Robust Programming language?

https://www.geeksforgeeks.org/difference-between-procedural-and-object-oriented-programming/

Procedural oriented Programming	object oriented Programming
1. It can be defined as a Programming model which is derived from structured Programming, based upon the concept of calling Procedure.	1. It can be defined as a Programming model which is based upon the concept of objects.
2. Procedural Programming follows top down approach.	2. object oriented Programming follows bottom up approach.
3. There is no access specifier in procedural programming.	3. Object oriented Programming have access specifiers like Private, Public, Protected etc.
4. Adding new data and function is not easy.	4. Adding new data and function is easy.
5. In procedural Programming, overloading is not possible.	5. overloading is possible in object oriented Programming.
6. Procedural Programming is based on unreal world.	6. Object oriented Programming is based on real world.
7. In Procedural Programming, function is more important than data.	7. In this data is more important than function.
8. Ex: C, FORTRAN, Pascal, Basic etc.	8. Ex: C++, Java, Python, CH etc.

Java is Robust language: https://www.javatpoint.com

Robust simply means strong. Java is robust because:

1. It uses strong memory management.
2. There is a lack of pointers that avoids security problems.
3. There is automatic garbage collection in java which runs on the Java virtual machine to get rid of objects which are not being used by a Java application anymore.
4. There are expection handling and the type checking mechanism in Java. All these points make Java robust.

3- Define a class Parking Lot with the following description:

Instance variables / data members:

int vno - To store the vehicle number

int hours - To store number of hours the vehicle is parked in the parking lot double bill - To store bill amount

Member methods:

Void input() - To input and store vno and hours.

Void calculate() - To compute the parking charge at the rate of Rs. 3 for the first hour or part thereof, and Rs. 150 for each additional hour or part there of.

void display(): To display the detail
write a main method to create an object of the class and call the above methods. https://brainly.in/question/10584188

```
import java.until.Scanner;
Public class Parking Lot {
Scanner sc=new Scanner(system.in);
int vno, hours;
double bill;
void input()
{
 system.out.println("Enter vehicle number");
  vno=sc.nextint();
  System.out.println("Enter no. of hours vehicle is
   parked");
  hours=sc.nextint();
}
void calculate()
{
  if(hours<=1)
  bill=hours*3;
  else if(hours>=1)
   bill=3+(hours-1)*1.5;
   else
   system.out.println("wrong value of hours");
}
void display()
{
```

```
System.out.println("Vehicle number is "+vno);
system.out.println(" it is parked for "+hours+"
 hours");
system.out.println(" Total amount to be Paid is
 Rs. "+bill);
}
Public static void main(string[] args) {
    ParkingLot obj = new ParkingLot();
    obj.inPut();
    obj.calculate();
    obj.display();
}}
```

4. Design a class to overload a function Joystring() as follows:

(i) void Joystring(string s, char ch1, char ch2) with one string and two character arguments that replaces the character argument ch1 with character argument ch2 in the given strings and prints the new string

Example:

Input value of S = "TECHNALAGY"

ch1 = 'A'

ch2 = 'O'

O/P: "TECHNOLOGY"

(ii) Void Joystring(string s) with one string argument that points the position of first space and the last space of given string s.

Example:
Input value of = "cloud computing means internet based computing"
First index : 5
Last index : 36

iii) Void Joystring (string s1, string s2) with two string arguments that combines the two strings with a space between them and prints the resultant string

Example:
Input value of S1 = "COMMON WEALTH" https://www.shaalaa.com
S2 = "GAMES"
output : "COMMON WEALTH GAMES"

```
class Overload
{
    void Joy string (string s, char ch1, char ch2);

{
    S = s.replace(ch1, ch2);
    System.out.println(" New string "+s);

};
    void joystring (string s)

{
        int i1 = s.index of (" ");
        int i2 = s.last index of (' ');
        system.out.println(" Position of 1st space"+i1);
(vpos   system.out.println(" Position of last space"+i2);

};
        void Joystring (string s1, string s2)

{
```

```
String s3 = s1.concat(" ");
s3 = s3.concat(s2);
System.out.println("new string"+s3);
}
}
```