JAVA PROGRAMMING 19BQ1A05H0

19-09-2020 Assignment-I -set-4 CSE-C

① What are the components of JAVA Platform? write a java program to illustrate the usage of conditional statements and looping statements?

Ⓐ Java Platform:-

Java Platform is a software or collection of Programs that help us to execute applications written in Java Programming language. A Java platform consists of a Java compiler, a set of lib's, and an execution engine.

Java platform is independent of any particular which makes Java Programming language a platform independent language.

Java platform consists of the following components:-

* Java language
* The Java development Kit (JDK)
* The Java Runtime Environment (JRE)
* The Java compiler
* The Java Virtual Machine (JVM).

Apart from the above main components the Java platform also contains garbage collectors, a set of libraries and other additional components and tools that are required to efficiently run the java applications.

The following diagram shows the flow of a Java Program:-

Java Language :-

Java is a programming language that the java platform uses. Java is an object-oriented programming language whose syntax is derived from C and oops OOPS features are derived from C++. It has its syntax, rules, format and programming Paradigm.

In this series, we will learn all the major concepts in Java and Programming in detail.

The Java Compiler:-

This is a compiler for Java programming language and its function is to generate Java class files from the Java Source code. Java class file contains a platform-independent Java byte code.

After generating class files, JVM loads these class files and either interprets the byte code or compiles it to machine code using Just-in-time(JIT)compiler.

The Java Development Kit (JDK):-

The Java Development Kit (JDK) is a software development environment used to develop java applications and applets. It contains JRE and several development tools an intrepreter loader

The Java Runtime Environment (JRE):-

The JRE software builds a runtime environment in which java programs can be executed. The JRE is the one disk system that

takes your java code, combines it with the needed libraries and starts the JVM to execute it. The JRE contains libraries & software needed by your java programs to run. JRE is a part of JDK but can be developed seperately.

The Java Virtual Machine (JVM):-

Java applications are called WORA (Write Once Run Anywhere) because of their ability to run a code on any platform. This is done only because of JVM The JVM is a java platform component that provides an environment for executing java programs. JVM interprets the bytecode into machine code which is executed in the machine in which the java programs runs.

Java Program to illustrate the usage of conditional and looping statements:-

```
import java.io.*;
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+" ")
    }
}
```

③ Define a class ParkingLot with the following description:
Instance variables / data members:
int Vno - To store the vehicle number.
int hours - To store the number of hours the vehicle is parked in the parking lot
double bill - To store the 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 there of and Rs.1.50 for each additional hour or Part thereof.
Void display() - To display the detail
write a main method to create an object of the class and call the above methods.

Ⓐ
```
import java.io.*;
import java.util.Scanner;
class PackingLot{
    Public int Vno;
    Public int hours;
    Public double bill;
    Void input(){
        Scanner sc=new Scanner(System.in);
        Vno = sc.nextInt();
        hours = sc.nextInt();
    }
    Void calculate(){
        bill = 3*hours +(1.5)*(hours-1);
    }
    Void display(){
        System.out.Println("Enter vehicle number");
        System.out.Println("Enter number of hours");
        System.out.Println(Bill);
    }
```

```
Public static void main (String[] args) {
    ParkingLot P1 = new ParkingLot();
    P1.input();
    P1.calculate();
    P1.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 characters arguments that replaces the character argument ch1 with the character argument ch2 in the given string s and prints the new string.

Example: Input value of S = 'TECHNALAGY

CH1 = 'A' CH2 = 'O' output = 'TECHNOLOGY

(ii) Void Joystring (String s) with one string argument that prints the position of the first space and the last space of the given string s. Ex:- 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.

Ex:- Input value of S1 = "COMMON WEALTH"

S1 = "GAMES"

output "COMMON WEALTH GAMES."

Program :-

```
import java.util.*;
class Overload {
    void Joystring (String s, char ch1, char ch2)
    {
     String str = S.replace (ch1, ch2);
     System.out.Println (str);
    }
    Void Joystring (String s)
    {
      int first = S.Index of (' ');
      System. out. Println ("First index :" + first);
      int last = s . last Index of (' ');
      System. out. Println ("Last index:" + last);
    }
    void Joystring (String s1, String s2)
    {
      string s3 = " ";
      string str = s1. conCat (s3). concat (s2);
      System. out . Println (str);
    }
     Public static void main (String args[]) {
          Overload obj = new Overload ();
          Obj. Joystring ("TECHNALAGY", 'A', 'O');
          obj. Joystring ("Cloud computing means
                          Internet based computing");
          obj. Joystring ("COMMON WEALTH", "GAMES
                                            ");
     }
}
```

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

(A)

Procedural Oriented Programming	Object oriented Programming
① In Procedural Programming, Program is divided in to Smaller Parts called functions	① In object oriented programming Program is divided into small Parts called 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 specifier like Private, Public, protected etc...
④ Adding new data and function is not easy	Adding new data and function is easy.
⑤ procedural programming does not have any proper way for hiding data so it is less secure	object oriented programming provides data hiding so it is more secure.
⑥ In procedural programming, overloading is possible.	overloading is possible in object oriented programming.
⑦ In procedural programming, function is more important than data	In object oriented programming data is more important than function.
Procedural programming is based on unreal world.	object oriented programming is based on real world.
Examples:- C, FORTRAN, Basic etc...	Examples:- C++, Java, Python, C# etc...

JAVA is a Robust language;-

Java is Robust because it is highly supported language. It is portable across many operating Systems. Java also has feature of Automatic memory management and garbage collection. Strong type checking mechanism of Java also helps in making Java Robust. Bugs, especially System crashing bugs, are very rare in java.