**TITLE 4 – FUNCTIONS**

1. Write a class with the name ‘volume’ using function overloading that computes the volume of a cube, a sphere and a cuboid.

Formula: Volume of a cube (vc) = s\*s\*s

Volume of a sphere(vs) = 4/3 \*π\*r\*r\*r(whereπ = 3.14)

Volume of a cuboid(vcd) = l\*b\*h

**ANS:**

**class problem\_1**

**{**

**public static void vol(int s)**

**{**

**int vc = s\*s\*s;**

**System.out.println("Volume of cube" + vc);**

**}**

**public static void vol(double r)**

**{**

**double vs = (4.0/3)\*3.14\*r\*r\*r;**

**System.out.println("Volume of sphere = " +vs);**

**}**

**public static void vol(int l, int b, int h)**

**{**

**int vcd = l\*b\*h;**

**System.out.println("Volume of cuboid ="+vcd); }**

**public static void main(int a, int b, int c, double d)**

**{**

**vol(a);**

**vol(d);**

**vol(a,b,c);**

**}**

**}**

1. **Write a Menu driven program to overload a function num\_calc as follows:**

**void num\_calc (intnum, char ch) with one integer argument and one character argument, computes the square of integer argument if choice ch is ‘s’ otherwise finds its cube.**

**voidnum\_calc (int a, int b, char ch) with two integer arguments and one character argument. It computes the product of integer arguments if ch is ‘p’ else adds the integers.\*/**

**import java.util.\*;**

**public class program2**

**{**

**static char ch;**

**static int a,b,c;**

**static String s1,s2;**

**static void num\_calc(int a, char ch)**

**{**

**if(ch=='s')**

**c=a\*a;**

**else**

**c=a\*a\*a;**

**System.out.println("your choice is "+ch+" answer is "+c);**

**}**

**static void num\_calc(int a, int b, char ch)**

**{**

**if(ch=='p')**

**c=a\*b;**

**else**

**c=a+b;**

**System.out.println("your choice is "+ch + " anser is "+c);**

**}**

**public static void main(int m, int n, int v, char z)**

**{**

**program2 obj=new program2();**

**switch (v)**

**{**

**case 1:**

**{**

**obj.num\_calc(m,z);**

**break;**

**}**

**case 2:**

**{**

**obj.num\_calc(m,n,z);**

**break;**

**}**

**default :**

**System.out.println("Wrong entry");**

**}**

**}**

**}**

***3. Write a complete java program with the following members of its class:***

|  |  |  |
| --- | --- | --- |
| Members | Member name | Description |
| Data members  Member methods | ac\_num  ac\_name  bal  getValues()  display()  deposit()  withdraw() | Stores account number.  Stores account holders name.  Stores balance amount in the account.  To store data.  To display the data.  To modify balance according to amount deposited.  To modify balance according to withdrawn amount. |

**Create a main method for the above**

**class program3**

**{**

**static long ac\_num;**

**static String ac\_name;**

**static double bal;**

**static void getvalues(long acNumber, String acName)**

**{**

**ac\_num=acNumber;**

**ac\_name=acName;**

**}**

**static void deposit(double amt)**

**{**

**bal = bal + amt;**

**}**

**void withdraw(double amt)**

**{**

**bal = bal - amt;**

**}**

**static void display()**

**{**

**System.out.println("Account number: " + ac\_num);**

**System.out.println("Name of the account holder: " + ac\_name);**

**System.out.println("Balance in the account: " + bal);**

**}**

**public static void main(long acno, String n, double x)**

**{**

**program3 obj=new program3();**

**obj.getvalues(acno,n);**

**obj.deposit(x);**

**obj.withdraw(x);**

**obj.display();**

**} }**

**4. Write a java method “result” that takes the rollno, name and marks of three subjects: engMarks, mathMarks, compMarks as parameters from the main. The method returns the percentage of the student, assuming that maximum marks of each subject is 100.**

**Define the main method for calling the ‘result’ method.**

**import java.util.\*;**

**class program4**

**{**

**double result(int roll, String nam, int m1, int m2, int m3)**

**{**

**double t, per;**

**t = m1+m2+m3;**

**per = t/300.0\*100;**

**return per;**

**}**

**public static void main()**

**{**

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

**System.out.println("Enter the roll number, name, marks in english, maths and science");**

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

**String n = sc.next();**

**int mark1 = sc.nextInt();**

**int mark2 = sc.nextInt();**

**int mark3 = sc.nextInt();**

**program4 obj = new program4();**

**double p=obj.result(r, n, mark1, mark2, mark3);**

**double tot = mark1+mark2+mark3;**

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

**System.out.println("Roll Number: " + r);**

**System.out.println("Name of the student: " + n);**

**System.out.println("Marks in English: " + mark1);**

**System.out.println("Marks in maths: " + mark2);**

**System.out.println("Marks in Science: " + mark3);**

**System.out.println("Total marks: " + tot);**

**System.out.println("The percentage marks = " +p);**

**}}**

# 5. Write a program using function overloading to calculate the area of a rectangle, circle and triangle. Return the output to the main method and Display.

**class program5**

**{**

**static int rect , L ,b , r;**

**static double cir,tri,ba,ht;**

**public static int area(int L, int b)**

**{**

**rect = L \* b;**

**return(rect);**

**}**

**public static double area(double ba)**

**{**

**cir =(Math.PI)\*(Math.pow(ba,2));**

**return(cir);**

**}**

**public static double area(double ba,double ht)**

**{**

**tri = (1.0/2.0) \* (ba \* ht);**

**return(tri);**

**}**

**public static void main(int L, int b, double ba, double ht)**

**{**

**program5 obj=new program5();**

**int x=obj.area(L , b);**

**double y=obj.area(ba);**

**double z=obj.area(ba,ht);**

**System.out.println("Area of the rectangle = "+x);**

**System.out.println("Area of the triangle = "+z);**

**System.out.println("Area of the circle = "+y);**

**} }**

\* \* \* \* \*