Programming Lab

Java Introduction

Core java practical

Unit 1 java introduction

1 **Write a program to evaluate simple interest for a given principle, rate and time.**

```
class prog1
{
  public static void main(String args[])
 {
      int p=1000, time=5;
      float rate =4.5f, si;
     si=(p*time*rate)/100;
     System.out.println("Simple interest is"+si);
}
}
```

2 **A motor cycle dealer sells two-wheelers to his customer on loan, which is to be repaid in 5 years. The dealer charges simple interest for the whole term on the day of giving the loan itself. The total amount is then divided by 60(months) and is collected as equated monthly instalment (EMI). Write a program to calculate the EMI for a loan of Rs. X, where X is given from command line argument. Print the EMI value in rupees.**

```
class prog2
{
  public static void main(String args[])
 {
     int loanamt=Integer.parseInt(args[0]);
     float rate = Float.parseFloat(args[1]);
     int time=5;
      float   si=(loanamt*time*rate)/100;
```

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```
    float totalamt = si+loanamt;
     float emi =totalamt/12;


     System.out.println("EMI is"+emi);
}
}
```

3 **A car accessories shop assigns code 1 to seat covers, 2 to steering wheel covers ,**

3 to car lighting and 4 for air purifiers. All other items have code 5 or more.

While selling the goods, a sales tax of 2% to seat covers ,3% to steering wheel

covers, 4% to car lighting, 2.5% to air purifiers and 1.2% for all other items is

charged. A list containing the product code and price is given for making a bill.

Write a java program using switch statements to prepare a bill.

```
import java.util.*;
class prog3
{
  public static void main(String args[])
 {
    System.out.println("1 seat cover -15000rs.");
    System.out.println("2 steering wheel cover -1500rs.");
    System.out.println("3 car lighting -7000rs.");
    System.out.println("4 air purifiers -500rs.");
    System.out.println("5 other items- enter amt.");
    System.out.println("\n Enter your choice");
    Scanner sc = new Scanner(System.in);
   int ch=sc.nextInt();
   double amt;
    switch(ch)
  {
    case 1:
            amt=15000 + (15000*2)/100;
            System.out.println("Seat cover total charges are: "+ amt);
            break;
    case 2:
            amt=1500 + (1500*3)/100;
            System.out.println("Steering wheel cover total charges
are: "+ amt);
            break;
   case 3:
            amt=7000 + (7000*4)/100;
```

```
                System.out.println("Car lighting total charges are: "+
amt);
                break;
   case 4:
                amt=500 + (500*2.5)/100;
                System.out.println("Seat cover total charges are: "+ amt);
                break;
    case 5:
                System.out.println(" Enter amt");
                amt=sc.nextFloat();

                 System.out.println("Enter item");
                  String name= sc.next();
                amt=amt + (amt*1.2)/100;
                System.out.println(name +"total charges are: "+ amt);
                break;
 default:
            System.out.println("Wrong choice entered");
  }
}
}
```

4 **Write a java program to scan 3 integer values from the command line argument**

and display the maximum number using conditional operator.

```
class prog4
{
  public static void main(String args[])
 {
     int a,b,c,max;
    a=Integer.parseInt(args[0]);
    b=Integer.parseInt(args[1]);
    c=Integer.parseInt(args[2]);
   max=(a>b)? ((a>c)?a:c):((b>c)?b:c);
     System.out.println("Max no is"+max);
}
}
```

5 **Write a program to calculate the hypotenuse of right angled triangle when other**

Sides of the triangle are given. (Hypotenuse = square root (x*x + Y *Y))

```
import java.util.*;
class prog5
{
  public static void main(String args[])
```

```
 {
    Scanner sc = new Scanner(System.in);


     System.out.println("\n Enter value of x");
     int x=sc.nextInt();
     System.out.println("\n Enter value of y");
     int y=sc.nextInt();
    double hyp =Math.sqrt((x*x)+(y*y));
   System.out.println("Hypotenuse of Right angled triangle is : "+
hyp);


  }


}
```

6 **Write a program to calculate the area of square and rectangle by overloading**

the area method.

```
class prog6
{
  void area(int l)
  {
    System.out.println("Area of square is"+(l*l));
  }
 void area(int l, int b)
  {
    System.out.println("Area of rectangle is"+(l*b));
  }
  public static void main(String args[])
 {
    prog6 p1= new prog6();
   p1.area(5);
  p1.area(5,6);


  }
```

7 **Create a complex number class. The class should have a constructor and**

methods to add, subtract and multiply two complex numbers and to return the

real and imaginary parts.

```
class complex
 {
  int real, img;
  complex( ) { real=img=0; }
  complex(int x) { real=img=x; }
```

```
  complex(int x, int y) { real=x; img=y; }
  complex add(complex a, complex b)
   {
      complex temp= new complex();
      temp.real=a.real+b.real;
      temp.img=a.img+b.img;
      return(temp);
   }
complex sub(complex a, complex b)
 {
   complex temp= new complex();
   temp.real=a.real-b.real;
   temp.img=a.img-b.img;
    return(temp);
 }
complex multi(complex a, complex b)
{
  complex temp= new complex();
   temp.real=a.real*b.real;
   temp.img=a.img*b.img;
   return(temp);
 }
void display()
{
System.out.println("Real"+real+" Imag "+img);
}
}
class complexdemo
{
   public static void main(String args[])
   {
     complex c1= new complex(5,6);
    complex c2= new complex(4,7);
    complex c3= new complex();
    c3= c1.add(c1,c2);
    c3.display();
    c3= c1.sub(c1,c2);
    c3.display();
    c3= c1.multi(c1,c2);
     c3.display();
} }
```

8 **A shop during festival season offers a discount 10% for purchase made up to**

Rs.1,000, 12% for purchase value of Rs.1,000 or more up to Rs 1,500 and 15% for

purchase value of Rs.1,500 or more. Write a program to implement the above scheme for a given sales and print out the sales and print out the sales value, discount and net amount payable by a customer. Create necessary methods and constructors.

```
import java.util.*;


class calcost
{ int sv, disc;
float netv;
  calcost()
  {
   sv=disc=0;
     netv=0;
  }
  void netpay(int sv)
  {
     if(sv<=1000)
      {
        disc=10;
      }
    else if(sv>1000 &&sv<1500)
       {
         disc=12;
        }
   else
        {
           disc=15;
        }
    netv=sv -((disc*sv)/100);
     System.out.println("Netvalue  for" +sv +"is"+netv);
 }
}
class u1_p8
{
  public static void main(String args [])
 {
   int n;
  Scanner sc = new Scanner (System.in);
    System.out.println("Enter purhase value");
      n=sc.nextInt();
    calcost c1= new calcost();
   c1.netpay(n);
```

```
    }


}
```

9 **A bank gives 6.5% per annum interest on deposits made in that bank. Write a program to calculate the total amount that a person will receive after the end of 5 years for a deposit of Rs.5000 for compound interest. Create necessary methods and constructors too.**

```
class calamount
{
 double p,r,n;
 calamount(double p1,double r1, double n1)
  {
    p=p1;
    r=r1;
    n=n1;
   }
   void calint()
   {
     double ci=p*(Math.pow((1+(r/100)),n));
     double netv=p+ci;


      System.out.println("Interest is" +ci +"and amount recevied
is"+netv);
 }
}
class u1_p9
{
  public static void main(String args [])
 {


   double p=5000, r=6.5,n=5;


     calamount c1= new calamount(p,r,n);
    c1.calint();
     }


}
```

10 **Write a java program to display powers of 2 i.e. 2,4,8,16 etc up to 1024 using bitwise operators.**

```
public class bitwisedemo
```

```
{
  public static void main(String args[])
  {
    int a=1;
    for(int i=1;i<11;i++)
    {
       System.out.println(a<<i);
} } }
```
