

# PROGRAM 1

```
/*
*****
*/
/* Name of the Program      : clq1.java          */
/* Aim                     : A program to test class Employee. */
/* Author                   : ASWIN BABU         */
/* Date Written             : 16/01/2017        */
/* Revision                 : 1                  */
/*
*****
*/
```

```
/*
*****
*/
/* PROGRAM:                                     */
```

```
class Employee
{
    String first_name;
    String last_name;
    double monthly_salary;

    Employee(String fname_in, String lname_in, double salary_in)
    {
        first_name = fname_in;
        last_name = lname_in;
        monthly_salary = salary_in;
    }

    void set_first_name(String fname_in)
    {
        first_name = fname_in;
    }
}
```

```
String get_first_name()
```

```
{  
    return first_name;  
}
```

```
void set_last_name(String lname_in)
```

```
{  
    last_name = lname_in;  
}
```

```
String get_last_name()
```

```
{  
    return last_name;  
}
```

```
void set_salary(double salary_in)
```

```
{  
    if(monthly_salary > 0)  
        monthly_salary = salary_in;  
    else  
        System.out.println("Salary is negative, value not set!");  
}
```

```
double get_salary()
```

```
{  
    return monthly_salary;  
}
```

```
void yearly_salary()
```

```
{
```

```
        System.out.println("Yearly salary of " + first_name+ " " + last_name+ " is "
            + monthly_salary*12);
    }
}
```

```
class c1q1
{
    public static void main(String args[])
    {
        Employee emp_1 = new Employee("NAVYA", "BABU", 150000);
        Employee emp_2 = new Employee("NAVYA", "NAIR", 500000);
        emp_1.yearly_salary();
        emp_2.yearly_salary();
        emp_1.set_salary(emp_1.get_salary() + (emp_1.get_salary() * 10/100));
        emp_2.set_salary(emp_2.get_salary() + (emp_2.get_salary() * 10/100));
        System.out.println("After salary hike,");
        emp_1.yearly_salary();
        emp_2.yearly_salary();
    }
}
```

```
/*  
*/
```

**/\* OUTPUT:**

```
mca1634@mca-pc76:~/javalab/cycle1$ java c1q1
```

```
Yearly salary of ASWIN BABU is 1800000.0
```

```
Yearly salary of NAVYA NAIR is 6000000.0
```

```
After salary hike,
```

```
Yearly salary of ASWIN BABU is 1980000.0
```

```
Yearly salary of NAVYA NAIR is 6600000.0
```

\*/

/\*\*\*\*\*  
/

## PROGRAM 2

```
/* **** */
/* Name of the Program      : c1q2.java          */
/* Aim                     : A program to test class SavingsAccount. */
/* Author                  : ASWIN BABU         */
/* Date Written            : 16/01/2017        */
/* Revision                : 1                 */
/* **** */
```

```
/* **** */
/* PROGRAM:                                     */
```

```
import java.util.Scanner;
class Savingsaccount
{
    static double ann_intr;
    private double sav_bal;
    Savingsaccount(double s)
    {
        ann_intr=1;
        sav_bal=s;
    }
    double calc_month()
    {
        double mon_intr;
        mon_intr=ann_intr*sav_bal/1200;
        sav_bal=sav_bal+mon_intr;
        return mon_intr;
    }
}
```

```

static void modi_annual_intr(double an_intr)
{
ann_intr=an_intr;
}
void print_monthintr()
{
double r=calc_month();
System.out.print(r);
}
void print_bal()
{

System.out.println(sav_bal);
}
}
class c1q2
{
public static void main(String args[])
{
Scanner s=new Scanner(System.in);
double sal;
int i;
Savingsaccount saver1=new Savingsaccount(2000);//a
Savingsaccount saver2=new Savingsaccount(3000);

System.out.println("\n Enter the rate");//b
sal=s.nextDouble();
saver1.modi_annual_intr(sal);
saver2.modi_annual_intr(sal);
System.out.println("\n The interest for saver1");

```

```
for(i=1;i<=12;i++)
{
System.out.println("\n For the Month -"+i);
saver1.print_monthintr();
System.out.println("\n");
System.out.println("\n The new monthly balance");
saver1.print_bal();
}
System.out.println("\n The intrest for saver2");
for(i=1;i<=12;i++)
{
System.out.println("\n For the month "+i);
saver2.print_monthintr();
System.out.println("\n");
System.out.println("\n The new monthly balance");
saver2.print_bal();
}
System.out.println("\n The total deposit for saver1 is");
saver1.print_bal();

System.out.println("\n The total deposit for saver2 is");
saver2.print_bal();

System.out.println("\n Enter the new rate");//c
sal=s.nextDouble();
saver1.modi_annual_intr(sal);
saver2.modi_annual_intr(sal);
System.out.println("\n The interest for saver1");
System.out.println("\n *****");
```

```
saver1.print_monthintr();
System.out.println("\n The interest for saver2");
System.out.println("\n *****");
saver2.print_monthintr();
System.out.println("\n The total amount for saver1:");
saver1.print_bal();
System.out.println("\n The total amount for saver2:");
saver2.print_bal();
```

```
}
```

```
}
```

```
/******
```



```
/******  
/*
```

```
/* OUTPUT:
```

```
mca1634@mca-pc76:~/javalab/cycle1$ java c1q2
```

```
Enter the rate
```

```
4
```

```
The interest for saver1
```

```
For the Month -1
```

```
6.666666666666667
```

```
The new monthly balance
```

```
2006.6666666666667
```

```
For the Month -2
```

```
6.688888888888889
```

```
The new monthly balance
```

```
2013.3555555555556
```

```
For the Month -3
```

```
6.711185185185186
```

```
The new monthly balance
```

```
2020.066740740741
```

For the Month -4  
6.733555802469136

The new monthly balance  
2026.80029654321

For the Month -5  
6.756000988477367

The new monthly balance  
2033.5562975316873

For the Month -6  
6.778520991772291

The new monthly balance  
2040.3348185234595

For the Month -7  
6.801116061744865

The new monthly balance  
2047.1359345852043

For the Month -8  
6.823786448617348

The new monthly balance

2053.9597210338216

For the Month -9

6.846532403446072

The new monthly balance

2060.8062534372675

For the Month -10

6.869354178124225

The new monthly balance

2067.6756076153915

For the Month -11

6.892252025384638

The new monthly balance

2074.567859640776

For the Month -12

6.9152261988025865

The new monthly balance

2081.4830858395785

The interest for saver2

For the month 1

10.0

The new monthly balance

3010.0

For the month 2

10.033333333333333

The new monthly balance

3020.0333333333333

For the month 3

10.066777777777778

The new monthly balance

3030.1001111111111

For the month 4

10.100333703703702

The new monthly balance

3040.2004448148145

For the month 5

10.134001482716048

The new monthly balance

3050.3344462975306

For the month 6

10.167781487658436

The new monthly balance

3060.502227785189

For the month 7

10.201674092617298

The new monthly balance

3070.7039018778064

For the month 8

10.235679672926022

The new monthly balance

3080.9395815507323

For the month 9

10.269798605169107

The new monthly balance

3091.2093801559013

For the month 10

10.304031267186337

The new monthly balance

3101.5134114230877

For the month 11

10.338378038076959

The new monthly balance

3111.8517894611646

For the month 12

10.372839298203882

The new monthly balance

3122.2246287593684

The total deposit for saver1 is

2081.4830858395785

The total deposit for saver2 is

3122.2246287593684

Enter the new rate

5

The interest for saver1

\*\*\*\*\*

8.672846190998243

The interest for saver2

\*\*\*\*\*

13.009269286497368

The total amount for saver1:

2090.155932030577

The total amount for saver2:

3135.2338980458658

\*/

/\*\*\*\*\*/

## PROGRAM 3

```
/*
*****
/* Name of the Program      : c1q3.java          */
/* Aim                    : Program to implement constructor and some other */
/*                        : methods              */
/* Author                 : ASWIN BABU          */
/* Date Written           : 18/01/2017         */
/* Revision                : 1                  */
*****
*/
```

```
/*
*****
/* PROGRAM:                                     */
*****
*/
```

```
class Invoice
{
String number,description;
int quantity;
double price,total;
Invoice()
{
number="";
description="";
quantity=0;
price=0;
}
void get(String num,String des,int qty,double pce)
{
number=num;
description=des;
```



```
quantity=qty;
price=pce;
if(qty<0)
quantity=0;
if(pce<0)
price=0.0;
}
void put()
{
System.out.printf(" Number = %s \n Description = %s \n Quantity = %d
\n",number,description,quantity);
System.out.println(" Price per item = " + price);
System.out.println(" Total = "+total);
}
void getInvoice()
{
total=price*quantity;
}
}
class c1q3
{
public static void main(String args[])
{
Invoice inv=new Invoice();
inv.get("ITEM NO:3","BOOK",5,30.5);
inv.getInvoice();
inv.put();
}
}
```

/\*\*\*\*\*/

```
/**
```

```
/* OUTPUT:
```

```
mca1634@mca-pc76:~/javalab/cycle1$ java c1q3
```

```
Number = ITEM NO:3
```

```
Description = BOOK
```

```
Quantity = 5
```

```
Price per item = 30.5
```

```
Total = 152.5
```

```
*/
```

```
/**
```

# PROGRAM 4

```
/*
*****
*/
/* Name of the Program      : c1q4.java          */
/* Aim                     : Program to implement overloaded constructor */
/* Author                   : ASWIN BABU         */
/* Date Written             : 18/01/2017        */
/* Revision                  : 1                 */
/*
*****
*/
```

```
/*
*****
*/
/* PROGRAM:                                     */
import java.io.*;
class date
{
    date(int d,int m,int y)
    {
        System.out.println(d + "/" + m + "/" + y);
    }
    date(String s,int m,int y)
    {
        System.out.println(s + m + ", " + y);
    }
    date(int m,int y)
    {
        System.out.println(m + " " + y);
    }
}
class c1q4
{
    public static void main(String args[]) throws IOException
```

```

{
BufferedReader br=new BufferedReader(new InputStreamReader(System.in));
System.out.println("Enter the year");
int y=Integer.parseInt(br.readLine());
System.out.println("Enter the month");
int m=Integer.parseInt(br.readLine());
System.out.println("Enter the month");
String s=br.readLine();
System.out.println("Enter the day");
int d=Integer.parseInt(br.readLine());
    date d1=new date(m,d,y);
    date d2=new date(s,d,y);
    date d3=new date(d,y);}
/*****/

```

```

/*****/

```

```

/* OUTPUT:

```

```

mca1634@mca-pc76:~/javalab/cycle1$ java c1q4

```

```

Enter the year

```

```

1994

```

```

Enter the month

```

```

11

```

```

Enter the month

```

```

NOVEMBER

```

```

Enter the day

```

```

25

```

```

11/25/1994

```

```

NOVEMBER25,1994

```

```

25 1994

```

\* /

/\*\*\*\*\*  
 /

## PROGRAM 5

```
/*
*****
*/
/* Name of the Program      : c1q5.java          */
/* Aim                     : Program to implement two dimensional array */
/* Author                   : ASWIN BABU         */
/* Date Written             : 15/02/2017        */
/* Revision                 : 1                 */
/*
*****
*/
```

```
/*
*****
*/
/* PROGRAM:                                     */
```

```
import java.io.*;
class c1q5
{
    public static void main(String args[])throws IOException
    {
        BufferedReader br=new BufferedReader(new InputStreamReader(System.in));
        int sales[][]=new int[6][5];
        int i,j,k,l;
        for(i=0;i<5;i++)
        {
            for(j=0;j<4;j++)
            {
                System.out.println("Enter the product values " + (i+1) + " " + "sold by sales man" + (j+1));
                sales[i][j]=Integer.parseInt(br.readLine());
            }
        }
        k=0;
```

```

for(i=0;i<5;++i)
{
int sum1=0;
for(j=0;j<4;j++)
{
sum1+=sales[i][j];
}
sales[k][4]=sum1;
k++;
}
l=0;
for(i=0;i<4;++i)
{
int sum2=0;
for(j=0;j<5;j++)
{
sum2+=sales[j][i];
}
sales[5][l]=sum2;
l++;
}
System.out.println("-----");
System.out.println("The table form is : ");
System.out.println("-----");
char a = 'P';
System.out.print("\t");
for(int m = 1; m <6; ++m)
{
if(m!=5)
{
String label = " S"+m;

```



```
System.out.print(label);
System.out.print(" ");
}
else
System.out.print("Total");
}
System.out.println();
for(i=0;i<6;++i)
{
if(i!=5)
System.out.print("Product " + (i+1) + " ");
else
System.out.print("Total ");
for( j=0;j<5;++j)
{
if((i==5)&&(j==4))
break;
System.out.print(sales[i][j]+" ");
}
System.out.println();
}
}
}
```

```
/****/
```

```
/******  
/*
```

```
/* OUTPUT:
```

```
mca1634@mca-pc125:~/javalab/cycle1$ java c1q5
```

```
Enter the product values 1 sold by sales man1
```

```
20
```

```
Enter the product values 1 sold by sales man2
```

```
10
```

```
Enter the product values 1 sold by sales man3
```

```
50
```

```
Enter the product values 1 sold by sales man4
```

```
40
```

```
Enter the product values 2 sold by sales man1
```

```
30
```

```
Enter the product values 2 sold by sales man2
```

```
50
```

```
Enter the product values 2 sold by sales man3
```

```
40
```

```
Enter the product values 2 sold by sales man4
```

```
80
```

```
Enter the product values 3 sold by sales man1
```

```
20
```

```
Enter the product values 3 sold by sales man2
```

```
30
```

```
Enter the product values 3 sold by sales man3
```

```
40
```

```
Enter the product values 3 sold by sales man4
```

```
70
```

```
Enter the product values 4 sold by sales man1
```

```
60
```

```
Enter the product values 4 sold by sales man2
```

80

Enter the product values 4 sold by sales man3

20

Enter the product values 4 sold by sales man4

30

Enter the product values 5 sold by sales man1

10

Enter the product values 5 sold by sales man2

20

Enter the product values 5 sold by sales man3

30

Enter the product values 5 sold by sales man4

20

-----

The table form is :

-----

	S1	S2	S3	S4	Total
Product 1	20	10	50	40	120
Product 2	30	50	40	80	200
Product 3	20	30	40	70	160
Product 4	60	80	20	30	190
Product 5	10	20	30	20	80
Total	140	190	180	240	*/

/\*\*\*\*\*\*  
/



# PROGRAM 6

```
/*
*****
*/
/* Name of the Program      : c1q6.java          */
/* Aim                     : Program to implement string handling functions */
/* Author                   : ASWIN BABU         */
/* Date Written             : 15/02/2017        */
/* Revision                  : 1                 */
/*
*****
*/
```

```
/*
*****
*/
/* PROGRAM:                                     */
```

```
import java.io.*;
class c1q6
{
public static void main(String args[])throws IOException
{
    BufferedReader br=new BufferedReader(new InputStreamReader(System.in));
    String s1;
    System.out.println("Enter a five letter word");
    s1=br.readLine();
    int i,j,k;
    System.out.println("The three letter words formed are:");
    for(i=0;i<5;i++)
    {
        for(j=0;j<5;j++)
        {
            for(k=0;k<5;k++)
            {
```

```
        if((i!=j)&&(j!=k)&&(k!=i))
        {
        System.out.printf("%c%c%c\n",s1.charAt(i),s1.charAt(j),s1.charAt(k));
        }
        }
    }
}
}
```

```
/***/
```

```
/***/
```

```
/* OUTPUT:
```

```
mca1634@mca-pc125:~/javalab/cycle1$ java c1q6
```

```
Enter a five letter word
```

```
bathe
```

```
The three letter words formed are:
```

```
bat
```

```
bah
```

```
bae
```

```
bta
```

```
bth
```

```
bte
```

```
bha
```

```
bht
```

bhe  
bea  
bet  
beh  
abt  
abh  
abe  
atb  
ath  
ate  
ahb  
aht  
ahe  
aeb  
aet  
aeh  
tba  
tbh  
tbe  
tab  
tah  
tae  
thb  
tha  
the  
teb  
tea  
teh  
hba  
hbt  
hbe

hab  
hat  
hae  
htb  
hta  
hte  
heb  
hea  
het  
eba  
ebt  
ebh  
eab  
eat  
eah  
etb  
eta  
eth  
ehb  
eha  
eht

/\*\*\*\*\*/



# PROGRAM 7

```
/*  
*****  
/* Name of the Program      : c1q7.java          */  
/* Aim                      : Program to implement overloaded constructor */  
/* Author                   : ASWIN BABU        */  
/* Date Written             : 23/02/2017        */  
/* Revision                 : 1                  */  
*****  
*/
```

```
/*  
*****  
/* PROGRAM:                                     */  
*****  
*/
```

```
import java.io.*;  
class c1q7  
{  
public static void main(String args[]) throws IOException  
{  
String st=new String();  
char temp;  
char ch[]=new char[15];  
int i,len,count=0,j,c,pos,flag=0;  
BufferedReader br= new BufferedReader(new InputStreamReader(System.in));  
System.out.println("Enter the string");  
st=br.readLine();  
len=st.length();  
st=st.toUpperCase();  
for(i=0;i<len;i++)  
{  
temp=st.charAt(i);
```

```
pos=0;
count=0;
for(j=0;j<i;j++)
{
if(temp==st.charAt(j))
{
flag=1;
break;
}
else
flag=0;
}
if(flag==0)
{
for(j=0;j<=len;j++)
{
c=st.indexOf(temp,pos);
if(c!=-1)
{
System.out.println("Total no of "+temp+" is "+count);
break;
}
else
{
count=count+1;
pos=c+1;
}
}
}
}
```

}

/\*\*\*/

```
/**
```

```
/* OUTPUT:
```

```
mca1634@mca-pc125:~/javalab/cycle1$ java c1q7
```

```
Enter the string
```

```
apple
```

```
Total no of A is 1
```

```
Total no of P is 2
```

```
Total no of L is 1
```

```
Total no of E is 1
```

```
*/
```

```
/**
```

## PROGRAM 8

```
/*
*****
/* Name of the Program      : c2q1.java
/* Aim                     : Program to implement multiple inheritance
/* Author                   : ASWIN BABU
/* Date Written             : 23/02/2017
/* Revision                 : 1
*****
*/
```

```
/*
*****
/* PROGRAM:
*/
```

```
class student
{
    int rn;
    void getno(int rno)
    {
        rn=rno;
    }
    void putno()
    {
        System.out.println("Roll No : " + rn);
    }
}
class test extends student
{
    int mark1,mark2;
    void getmark(int m1,int m2)
    {
```

```
mark1=m1;
mark2=m2;
}
void putmark()
{
    System.out.println("The marks of " + rn + " are " + mark1 + " and " + mark2);
}
}
class result extends test
{
    int total;
    void total()
    {
        total=mark1+mark2;
        System.out.println("Total = "+total);
    }
}
class c2q1
{
    public static void main(String args[])
    {
        result r=new result();
        r.getno(10);
        r.putno();
        r.getmark(50,50);
        r.putmark();
        r.total();
    }
}
```

/\*\*\*\*\*  
/

/\*\*\*\*\*/

**/\* OUTPUT:**

mca1634@mca-pc125:~/javalab/cycle2\$ java c2q1

Roll No : 10

The marks of 10 are 50 and 50

Total = 100

\*/

/\*\*\*\*\*/



## PROGRAM 9

```
/*  
*****  
/* Name of the Program      : c2q2.java          */  
/* Aim                      : Program to implement base class constructor  */  
/* Author                   : ASWIN BABU         */  
/* Date Written             : 02/03/2017        */  
/* Revision                 : 1                 */  
*****  
*/
```

```
/*  
*****  
/* PROGRAM:                                     */  
*****  
*/
```

```
import java.io.*;  
class user  
{  
    String name=new String();  
    int age;  
    user(String n,int a)  
    {  
        name=n;  
        age=a;  
    }  
}  
class student extends user  
{  
    String course=new String();  
    int rll_no,marks;  
    student(String n,int a,String c,int r,int m)  
    {
```

```

    super(n,a);
    course=c;
    rll_no=r;
    marks=m;
}
void display()
{
    System.out.println("The details of the student is " + "\n Name : " + super.name + "\n Age : " +
super.age + "\n Course : " + course + "\n Roll No : "+ rll_no + "\n Marks : "+ marks);
}
}
class teacher extends user
{
    String sub_assign[]=new String[3];
    int cnt_hr,sub;
    teacher(String n2,int a,int n,int c)
    {
        super(n2,a);
        sub=n;
        cnt_hr=c;
    }
    void display()
    {
        System.out.println("The details of the teacher is : " + "\n Name : " +super.name + "\n Age : " +
super.age + "\n Contact hour : " + cnt_hr);
        System.out.println("\n The subjects assigned are :");
        for(int i=0;i<3;i++)
        {
            System.out.println(" " + sub_assign[i]);
        }
    }
}

```

```

}
class c2q2
{
public static void main(String args[])throws IOException
{
    BufferedReader br=new BufferedReader(new InputStreamReader(System.in));
    int ch=0;
    while(ch!=3)
    {
        System.out.println("Enter your choice : \n 1 . Student \n 2 . Teacher \n ");
        ch=Integer.parseInt(br.readLine());
        switch(ch)
        {
            case 1 :
                student s=new student("NAVYA",21,"MCA",10,77);
                s.display();
                break;
            case 2 :
                teacher t=new teacher("ANJU",28,3,25);
                System.out.println("Enter three subjects assigned :");
                for(int i=0;i<3;i++)
                    t.sub_assign[i]=br.readLine();
                t.display();
                break;
            default :
                System.out.println("SORRY");
        }
    }
}
}
}
}

```

```
/******  
/******
```

```
/******  
/******
```

**/\* OUTPUT:**

```
mca1634@mca-pc125:~/javalab/cycle2$ java c2q2
```

Enter your choice :

1 . Student

2 . Teacher

1

The details of the student is

Name : NAVYA

Age : 21

Course : MCA

Roll No : 10

Marks : 77

Enter your choice :

1 . Student

2 . Teacher

2

Enter three subjects assigned :

c++

java

data structures

The details of the teacher is :

Name : ANJU

Age : 28

Contact hour : 25

The subjects assigned are :



# PROGRAM 10

```
/*
*****
/* Name of the Program      : c2q3.java          */
/* Aim                     : Program to implement abstract class */
/* Author                   : ASWIN BABU         */
/* Date Written             : 20/03/2017        */
/* Revision                 : 1                  */
*****
*/
```

```
/*
*****
/* PROGRAM:                                                         */
*****
*/
```

```
import java.io.*;
import java.util.*;
class employee
{int s1;
    Scanner sc = new Scanner(System.in);
    int empId;
    String firstName;
    String lastName;
    int currentSal;
    employee(int e,String fn,String ln,int cs)
    {
        empId = e;
        firstName = fn;
        lastName = ln;
        currentSal = cs;
    }
    void bonusEmp()
    {
```

```

        int bo,salary;
        bo = (currentSal/100)*5;
        salary = currentSal+bo;
        System.out.println("total salary of the employee = " + salary);

    }
}
class manager extends employee
{

    int numberOfStokes,br;
    manager (int ns,int e,String fn,String ln,int cs,int num)
    {
        super(e,fn,ln,cs);
        numberOfStokes = ns;
        s1=num;
    }
    public String toString()
    {
        return "Details of manager " +"\n"+ "EMPID :"+ empId +"\n"
+"EMP FIRST NAME :"+ firstName+"\n" +"EMP LASTNAME :"+lastName +"\n"+"SALARY
:"+ currentSal+"\n"+"NUM OF STOKES :"+ numberOfStokes +"\n";
    }
    void bonusEmp()
    {
        int bo,salary;
        bo = (currentSal/100)*10;
        salary = currentSal+bo;
        System.out.println("total salary of the Manager = " + salary);

    }
}
}

```

```

class salesMan extends employee
{
    int numberOfSales,br;
    int commissionRate;
    salesMan(int ns,int cr,int e,String fn,String ln,int cs,int num)
    {
        super(e,fn,ln,cs);
        numberOfSales = ns;
        commissionRate = cr;
        s1=num;
    }
    public String toString()
    {
        return "Details of salesman " + "\n" + "EMPID :"+ empId + "\n"
+"EMP FIRSTNAME :"+ firstName+"\n" +"EMP LASTNAME :"+lastName
+"\n"+"SALARY :"+ currentSal+"\n"+"NUM OF SALES :"+ numberOfSales
+"\n"+"commissionRate :"+commissionRate;
    }
    void bonusEmp()
    {
        int bo,salary;
        bo = (currentSal/100)*5;
        salary = currentSal+bo;
        System.out.println("total salary of the SalesMan = " + salary);
    }
}

```

```

public class c2q3
{
    public static void main(String args[])throws IOException
    {

```



```

int a,b,c,d,i,f,num;
String n;
String m;
BufferedReader br=new BufferedReader(new InputStreamReader(System.in));
    employee[] emp = new employee[5];
System.out.println("Enter the total no of employees");
num=Integer.parseInt(br.readLine());
for(i=0;i<num;i++)
{
System.out.println("Manager[0] or Salesman[1]");
f=Integer.parseInt(br.readLine());
if(f==1)
{
System.out.println("Enter the details of salesman "+(i+1));
System.out.println("Enter the employee ID ");
a=Integer.parseInt(br.readLine());
System.out.println("Enter the name Salesman ");
n=br.readLine();
m=br.readLine();
System.out.println("Enter the Salary of Salesman ");
b=Integer.parseInt(br.readLine());
System.out.println("Enter the Number of sales ");
c=Integer.parseInt(br.readLine());
System.out.println("Enter the comission rate ");
d=Integer.parseInt(br.readLine());
                }
else
{
System.out.println("Enter the details of Manager "+i);
System.out.println("Enter the employee ID ");
a=Integer.parseInt(br.readLine());

```

```
System.out.println("Enter the name Manager ");
n=br.readLine();
m=br.readLine();
System.out.println("Enter the Salary of Manager ");
b=Integer.parseInt(br.readLine());
System.out.println("Enter the Number of stock ");
c=Integer.parseInt(br.readLine());
```

```
emp[i] = new manager(c,a,n,m,b,f);
    }
```

```
for(i=0;i<num;i++)
{
if(emp[i].s1==1)
{
System.out.println(emp[i]);
emp[i].bonusEmp();
}
else
{
System.out.println(emp[i]);
emp[i].bonusEmp();
}
}
}
}
```

```
/******
```

```
/******
```

```
/* OUTPUT:
```

```
mca1634@mca-pc125:~/javalab/cycle2$ java c2q3
```

```
Enter the total no of employees
```

```
2
```

```
Manager[0] or Salesman[1]
```

```
0
```

```
Enter the details of Manager 0
```

```
Enter the employee ID
```

```
111
```

```
Enter the name Manager
```

```
NAVYA
```

```
BABU
```

```
Enter the Salary of Manager
```

```
654845
```

```
Enter the Number of stock
```

```
5
```

```
Manager[0] or Salesman[1]
```

```
1
```

```
Enter the details of salesman 2
```

```
Enter the employee ID
```

```
777
```

Enter the name Salesman

PHEBE

JOHN

Enter the Salary of Salesman

569747

Enter the Number of sales

3

Enter the comission rate

3

Details of manager

EMPID :111

EMP FIRST NAME :NAVYA

EMP LASTNAME :BABU

SALARY :654845

NUM OF STOKES :5

Total salary of the Manager = 720325

Details of salesman

EMPID :777

EMP FIRSTNAME :PHEBE

EMP LASTNAME :JOHN

SALARY :569747

NUM OF SALES :3

Commission Rate :3

Total salary of the Sales Man = 598232

\*/

/\*\*\*\*\*/



# PROGRAM 11

```
/*  
*****  
/* Name of the Program      : c2q4.java          */  
/* Aim                      : Program to implement package */  
/* Author                   : ASWIN BABU        */  
/* Date Written             : 20/03/2017       */  
/* Revision                 : 1                 */  
*****  
*/
```

```
/*  
*****  
/* PROGRAM:                                     */  
*****  
*/
```

```
import java.io.*;
```

```
abstract class Shape
```

```
{  
    int a,b;  
    abstract void printArea();  

```

```
}
```

```
class Rectangle extends Shape
```

```
{
```

```
    void printArea()
```

```
    {  
        BufferedReader br=new BufferedReader(new InputStreamReader(System.in));  
        try  
        {  
            System.out.println("Enter the length and breadth of the rectangle");  
            a=Integer.parseInt(br.readLine());
```

```
        b=Integer.parseInt(br.readLine());
        System.out.println("Rectangle Area= "+(a*b) );
    } catch(Exception e) {}
}
}
```

```
class Triangle extends Shape
```

```
{

    void printArea()
    {
        BufferedReader br=new BufferedReader(new InputStreamReader(System.in));
        try
        {
            System.out.println("Enter the base and altitude of the triangle");
            a=Integer.parseInt(br.readLine());
            b=Integer.parseInt(br.readLine());
            System.out.println("Triangle Area= "+(0.5*a*b));
        } catch(Exception e) {}
    }

}
```

```
class Circle extends Shape
```

```
{

    void printArea()
    {
        BufferedReader br=new BufferedReader(new InputStreamReader(System.in));
        try
        {
            System.out.println("Enter the radius of the circle");
```

```
        a=Integer.parseInt(br.readLine());
        System.out.println("Circle Area= "+(3.14*a*a) );
    } catch(Exception e){}
}
}
class c2q4
{
    public static void main(String args[]) throws IOException
    {
        Rectangle r=new Rectangle();
        Triangle t=new Triangle();
        Circle c=new Circle();
        r.printArea();
        t.printArea();
        c.printArea();
    }
}
```

```
/***/
```



```
/******
```

```
/* OUTPUT:
```

```
mca1634@mca-pc125:~/javalab/cycle2$ java c2q4
```

```
Enter the length and breadth of the rectangle
```

```
5
```

```
3
```

```
Rectangle Area= 15
```

```
Enter the base and altitude of the triangle
```

```
6
```

```
7
```

```
Triangle Area= 21.0
```

```
Enter the radius of the circle
```

```
5
```

```
Circle Area= 78.5
```

```
*/
```

```
/******
```

## PROGRAM 12

```
/*
*****
*/
/* Name of the Program      : c2q5.java          */
/* Aim                     : Program to implement package */
/* Author                   : ASWIN BABU         */
/* Date Written             : 22/03/2017        */
/* Revision                 : 1                  */
/*
*****
*/
```

```
/*
*****
*/
/* PROGRAM:                                     */
```

```
package pack;
import java.util.Scanner;
import mypack.*;
class c2q5
{
    public static void main(String args[])
    {
        Scanner d=new Scanner(System.in);
        System.out.println("Enter the string:");
        String s=d.nextLine();
        ReverseString r=new ReverseString();
        String s1=r.reverse_string(s);
        System.out.println("The reverse of entered string is "+s1);
    }
}

package mypack;
```

```
public class ReverseString
{
    public String reverse_string(String str)
    {
        String reverse=" ";
        String original=str;
        int length=original.length();
        for ( int i = length - 1 ; i >= 0 ; i-- )
            reverse = reverse + original.charAt(i);
        return(reverse);
    }
}
```

```
/***/
```

```
/***/
```

```
/* OUTPUT:
```

```
mca1634@mca-pc125:~/javalab/cycle2$ java pack.c2q5
```

```
Enter the string:
```

```
JAVA PROGRAMMING
```

```
The reverse of entered string is GNIMMARGORP AVAJ
```

```
*/
```

```
/***/
```



## PROGRAM 13

```
/*
*****
/* Name of the Program      : c2q6.java          */
/* Aim                    : Program to implement concept of interface */
/* Author                 : ASWIN BABU          */
/* Date Written           : 22/03/2017         */
/* Revision                : 1                  */
*****
*/
```

```
/*
*****
/* PROGRAM:                                     */
*****
*/
```

```
package squarencube;
import java.util.Scanner;
import squareandcube.cube;
import squareandcube.square;
class c2q6
{
    public static void main(String args[])
    {
        Scanner sca=new Scanner(System.in);
        System.out.println("Enter a number : ");
        int num=sca.nextInt();
        square so=new square();
        cube co=new cube();
        so.square1(num);
        co.cube1(num);
    }
}
```

```
package squareandcube;
public class cube
{
    int cub;
    public void cube1(int cub)
    {
        System.out.println("Cube is : " + (cub*cub*cub));
    }
}
```

```
package squareandcube;
public class square
{
    int squ;
    public void square1(int squ)
    {
        System.out.println("Square is : " + (squ*squ));
    }
}
```

```
/**/
```



```
/*  
*****  
*/
```

```
/* OUTPUT:
```

```
mca1634@mca-pc125:~/javalab/cycle2$ java squarecube.c2q6
```

```
Enter a number :
```

```
5
```

```
Square is : 25
```

```
Cube is : 125
```

```
*/
```

```
/*  
*****  
*/
```



# PROGRAM 14

```
/*
*****
/* Name of the Program      : c2q7.java          */
/* Aim                     : Program to define user defined exceptions */
/* Author                   : ASWIN BABU         */
/* Date Written             : 27/03/2017        */
/* Revision                 : 1                 */
*****
*/
```

```
/*
*****
/* PROGRAM:                                                         */
*****
*/
```

```
import java.util.*;
interface EMPInterface
{
    void displayEMP();
    void giveBonus(double amount);
}
abstract class Employee
{
    int empID;
    String fName;
    String lName;
    double salary;
    Employee(int eid,String fn,String ln,double s)
    {
        empID=eid;
        fName=fn;
        lName=ln;
    }
}
```

```

    salary=s;
}
}
class bonusException extends Exception
{
    public String toString()
    {
        return "The bonus cannot be zero or negative";
    }
}
class Manager extends Employee implements EMPInterface
{
    Manager(int i,String n1,String n2,double sl)
    {
        super(i,n1,n2,sl);
    }
    public void displayEMP()
    {
        System.out.println("The employee id :"+empID);
        System.out.println("The first name :"+fName);
        System.out.println("The last name :"+lName);
        System.out.println("The salary :"+salary);
    }
    public void giveBonus(double amount)
    {
        if(amount<=0)
        try
        {
            bonus(amount);
        }
        catch(bonusException e)

```

```

{
    System.out.println("\ncaught exception:"+e);
}
else
{
    double total=salary+amount;
    System.out.println("The amount after giving bonus:"+total);
}
}
void bonus(double amt) throws bonusException
{
    throw new bonusException();
}
}
class c2q7
{
    public static void main(String args[])
    {
        Scanner scan=new Scanner(System.in);
        int id;
        String s1=new String();
        String s2=new String();
        double sal,bonus;
        System.out.println("Enter the first name of the employee");
        s1=scan.nextLine();
        System.out.println("Enter the last name of the employee");
        s2=scan.nextLine();
        System.out.println("Enter the id employee");
        id=scan.nextInt();
        System.out.println("Enter the salary of the employee");
        sal=scan.nextDouble();
    }
}

```

```
Manager m=new Manager(id,s1,s2,sal);
System.out.println("Enter the bonus given to the employee");
bonus=scan.nextDouble();
m.displayEMP();
m.giveBonus(bonus);
}
}
```

```
/***/
```

```
/******  
/*
```

```
/* OUTPUT:
```

```
mca1634@mca-pc125:~/javlab/cycle2$ java c2q7
```

```
Enter the first name of the employee
```

```
NAVYA
```

```
Enter the last name of the employee
```

```
BABU
```

```
Enter the id employee
```

```
6272
```

```
Enter the salary of the employee
```

```
645847
```

```
Enter the bonus given to the employee
```

```
500
```

```
The employee id :6272
```

```
The first name :NAVYA
```

The last name :BABU

The salary :645847.0

The amount after giving bonus:646347.0

\*/

/\*\*\*/

# PROGRAM 15

```
/* **** */
/* Name of the Program      : c2q8.java          */
/* Aim                     : Program to define user defined exceptions */
/* Author                   : ASWIN BABU        */
/* Date Written             : 29/03/2017       */
/* Revision                 : 1                 */
/* **** */
```

```
/* **** */
/* PROGRAM:                                     */
```

```
import java.util.*;
class NegativeException extends Exception
{
    public String toString()
    {
        return "Negative amount exception..Transaction failed\n";
    }
}
class InsufficientException extends Exception
{
    public String toString()
    {
        return "Insufficient amount exception..Transaction failed:\n";
    }
}
class c2q8
{
```

```
static void negative(int d) throws NegativeException
{
    if(d<0)
        throw new NegativeException();
    System.out.println("No negative amount exception\n");
}
static void withdraw(int b,int w) throws InsufficientException
{
    if(b<w)
        throw new InsufficientException();
    System.out.println("Balance is sufficient\n");
}
public static void main(String args[])
{
    boolean num=true;
    Scanner scan=new Scanner(System.in);
    int account_id;
    int balance;
    int dep,wthdraw,choice;
    System.out.println("Enter the account id");
    account_id=scan.nextInt();
    System.out.println("Enter the balance");
    balance=scan.nextInt();
    do
    {
        System.out.println("Enter the choice\n 1 for deposit and 2 for withdraw");
        choice=scan.nextInt();
        switch(choice)
        {
            case 1:
                System.out.println("Enter the amount to be deposited");
```



```
dep=scan.nextInt();
try
{
    negative(dep);
}
catch(NegativeException e)
{
    System.out.println("caught:"+e);
}
break;
case 2:
System.out.println("Enter the amount of withdraw");
wthdraw=scan.nextInt();
try
{
    negative(wthdraw);
}
catch(NegativeException e)
{
    System.out.println("caught:"+e);
}
try
{
    withdraw(balance,wthdraw);
}
catch(InsufficientException e)
{
    System.out.println("caught:"+e);
}
break;
}
```





2

Enter the amount of withdraw

96874

No negative amount exception

caught:Insufficient amount exception..Transaction failed:

Enter the choice

1 for deposit and 2 for withdraw

2

Enter the amount of withdraw

-45254

caught:Negative amount exception..Transaction failed

Balance is sufficient

\*/

/\*\*\*\*\*/

# PROGRAM 16

```
/*
*****
/* Name of the Program      : c2q9.java          */
/* Aim                     : Program to implement multithreading */
/* Author                   : ASWIN BABU         */
/* Date Written             : 29/03/2017        */
/* Revision                 : 1                  */
*****
*/
```

```
/*
*****
/* PROGRAM:                                     */
*****
*/
```

```
import java.util.*;
class even implements Runnable
{
public int x;
public even(int x)
{
this.x = x;
}
public void run()
{
System.out.println("New Thread "+ x +" is EVEN and Square of " + x + " is: " + x * x);
}
}
class odd implements Runnable
{
public int x;
public odd(int x)
```

```

{
this.x = x;
}
public void run()
{
System.out.println("New Thread "+ x +" is ODD and Cube of " + x + " is: " + x * x * x);
}
}
class A extends Thread
{
public void run()
{
int num = 0;
Random r = new Random();
try
{
for (int i = 1; i <= 5; i++)
{
num = r.nextInt(100);
System.out.println("Main Thread and Generated Number is " + num);
if (num % 2 == 0)
{
Thread t1 = new Thread(new even(num));
t1.start();
} else {
Thread t2 = new Thread(new odd(num));
t2.start();
}
Thread.sleep(1000);
System.out.println("-----");
}
}
}

```

```
}  
catch (Exception ex)  
{  
System.out.println(ex.getMessage());  
}  
}  
}  
public class c2q9  
{  
public static void main(String[] args)  
{  
A a = new A();  
a.start();  
}  
}
```

/\*\*\*/

/\* **OUTPUT:**

mca1634@mca-pc125:~/javalab/cycle2\$ java c2q9

Main Thread and Generated Number is 77

New Thread 77 is ODD and Cube of 77 is: 456533

-----

Main Thread and Generated Number is 69

New Thread 69 is ODD and Cube of 69 is: 328509

-----

Main Thread and Generated Number is 44

New Thread 44 is EVEN and Square of 44 is: 1936

-----

Main Thread and Generated Number is 1

New Thread 1 is ODD and Cube of 1 is: 1

-----

Main Thread and Generated Number is 37

New Thread 37 is ODD and Cube of 37 is: 50653

-----

\*/

/\*\*\*/