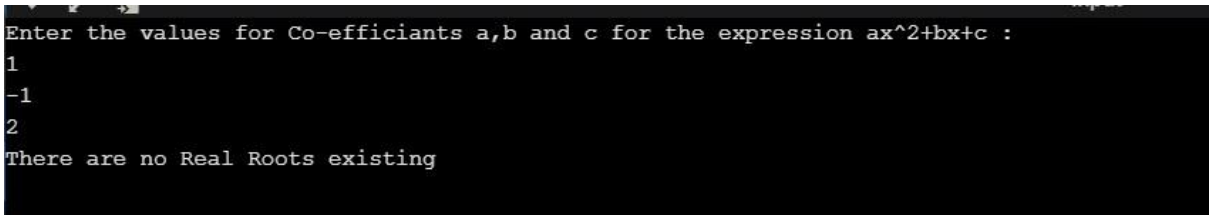
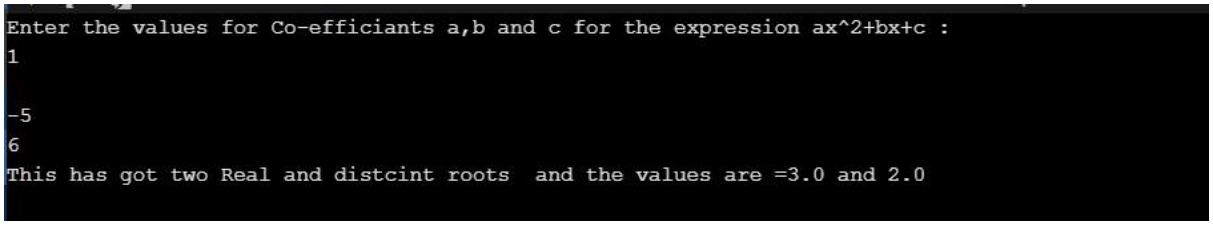
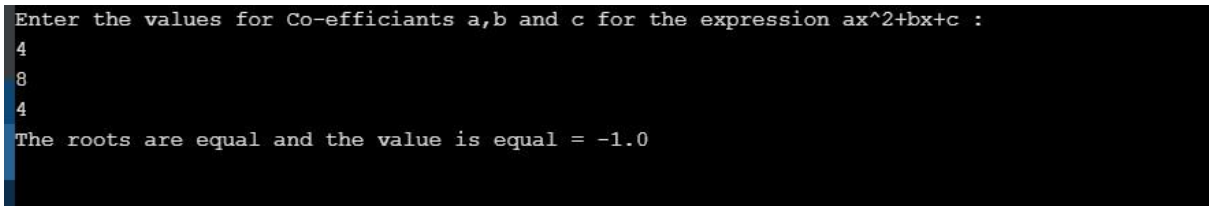
1.QUADRATIC ROOTS :

```
import java.util. *;
//import java.lang.Math;

public class Main
{
	public static void main(String[] args) {
		System.out.println("Enter the values for Co-efficiants a,b and c for the expression ax^2+bx+c :");

		Scanner input = new Scanner(System.in);
		int a = input.nextInt();
		int b = input.nextInt();
		int c = input.nextInt();

		double r1,r2;

		double d = (b*b)-4*a*c;

		if(a==0&&b==0&&c==0){
		   System.out.println("Invalid Input Please enter valid Data");
		}

		if(d<0){
		   System.out.println("There are no Real Roots existing");
		}
		else if(d==0){
		   r1= (-b)/(2*a);
		   System.out.println("The roots are equal and the value is equal = "+r1);
		}
```

```
                else if(d>0){
                   r1= (-b+Math.sqrt(d))/(2*a);
                   r2= (-b-Math.sqrt(d))/(2*a);

                   System.out.println("This has got two Real and distcint roots  and the values are
="+r1+" and "+r2);
                }
        }
}
```







2. Create a student class , and calculate his/her grade, depending upon CIE and SEE marks :

```
import java.util.Scanner;


class student{


 String usn;
 String name;
 float[] credits= new float[30];
 float[] marks = new float[30];
 float[] grade = new float[30];
 Scanner in = new Scanner(System.in);


 void input(int n) {
            for(int i=0;i<n;i++) {
                                System.out.println("Enter credit of subject"+(i+1));
                                 credits[i]=in.nextFloat();
                                 System.out.println("Enter marks of subject"+(i+1));
                                 marks[i]=in.nextFloat();
                                 if(marks[i]>=90&&marks[i]<=100){grade[i]=10;}
                                 else if(marks[i]>=80&&marks[i]<=90){grade[i]=9;}
                                 else if(marks[i]>=70&&marks[i]<=80){grade[i]=8;}
                                 else if(marks[i]>=60&&marks[i]<=70){grade[i]=7;}
                                 else if(marks[i]>=50&&marks[i]<=60){grade[i]=6;}
                                 else if(marks[i]>=40&&marks[i]<=50){grade[i]=5;}
                                 else if(marks[i]>=0&&marks[i]<=40){grade[i]=0;}
                        }
}


void output(float credits[],float grade[],int n) {
            float sum=0,cre=0,sgpa;
```

```
        for(int i=0;i<n;i++)
        { sum = sum + (credits[i]*grade[i]);
          cre=cre + credits[i];
         }

        sgpa = sum/cre;
        System.out.println("Student Details are :");

        System.out.println("Name : " +name);
        System.out.println("USN  : " +usn);
        System.out.println("SGPA : " +sgpa);

}
}

class Main{
public static void main(String args[])
{
student s= new student();
int n;
Scanner input = new Scanner(System.in);
System.out.println("Enter name of Student");

s.name=input.nextLine();
System.out.println("Enter USN");

s.usn = input.nextLine();

System.out.println("Enter number of subjects");
n = input.nextInt();
```

```
s.input(n);


s.output(s.credits, s.grade, n);
}


}
```

```
Enter name of Student
Rocky
Enter USN
157
Enter number of subjects
5
Enter credit of subject1
3
Enter marks of subject1
91
Enter credit of subject2
4
Enter marks of subject2
94
Enter credit of subject3
3
Enter marks of subject3
86
Enter credit of subject4
4
Enter marks of subject4
98
Enter credit of subject5
5
Enter marks of subject5
100
Student Details are :
Name : Rocky
USN  : 157
SGPA : 9.842105
```

3 . Create BOOK class , with author name , price, no.of pages , book name ,Create methods to perform basic operations and use toString function .

```
import java.util.*;


class Book{
   String B_name = new String();
   String B_AuthName = new String();
   int price;
   int num_pages;


   Scanner classINP = new Scanner(System.in);


   void input (){
      System.out.println("Enter Name");
      B_name = classINP.nextLine();
      System.out.println("Enter Author Name");
      B_AuthName = classINP.nextLine();
      System.out.println("Enter price");
      price = classINP.nextInt();
      System.out.println("Enter No of Pages");
      num_pages = classINP.nextInt();
   }


   public String toString(){
       return("Book name = "+B_name+" \nAuthor = "+B_AuthName+  "\nPrice = "+price+"\nPages =
"+num_pages);
   }
}
```

```
class main{
    public static void main(String[] args) {
        Scanner mainInp = new Scanner(System.in);
        System.out.println("Enter the no.of BOOKS details you wanna enter");
        int n=mainInp.nextInt();
        Book BOOKS[] = new Book[n];

        for (int i = 0; i < BOOKS.length; i++) {
            System.out.println("Enter the details of BOOK "+ (1+i));
            BOOKS[i]=new Book();
            BOOKS[i].input();
        }
        for (int i = 0; i < BOOKS.length; i++) {
            System.out.println("The Details of BOOK "+ (1+i) +"are being Displayed");
            System.out.println(BOOKS[i]+"\n\n");
        }


    }
}
```

```
Enter the no.of BOOKS details you wanna enter
2
Enter the details of BOOK 1
Enter Name
csdc
Enter Author Name
csd
Enter price
65
Enter No of Pages
5
Enter the details of BOOK 2
Enter Name
cdsc
Enter Author Name
sdc
Enter price
654
Enter No of Pages
564
The Details of BOOK 1are being Displayed
Book name = csdc
Author = csd
Price = 65
Pages = 5


The Details of BOOK 2are being Displayed
Book name = csdc
Author = csd
Price = 65
Pages = 5


The Details of BOOK 2are being Displayed
Book name = cdsc
Author = sdc
```

4 . Create Area class , use INHERITANCE concept , create a abstract function printArea.

```
import java.util.*;
class Shape{
   int S_lenght;
   int S_breadth;

   void printArea(){

   }

   Scanner S_inp = new Scanner(System.in);
}

class Rectangle extends Shape{
   void printArea(){
      System.out.println("Enter the lenght of Rectangle");
      S_lenght = S_inp.nextInt();
      System.out.println("Enter the breadth of Rectangle");
      S_breadth = S_inp.nextInt();

      System.out.println("The AREA of RECTANGLE is  : "+ (S_breadth*S_lenght));
   }
}

class Trinagle extends Shape{
   void printArea(){
      System.out.println("Enter the Height : ");
      S_lenght = S_inp.nextInt();
      System.out.println("Enter the Base : ");
      S_breadth = S_inp.nextInt();
```

```
        System.out.println("The AREA of TRIANGLE is : " +(.5*S_breadth*S_lenght));
    }
}

class Circle extends Shape{
    void printArea(){
        System.out.println("Enter the Radius :");
        S_lenght = S_inp.nextInt();

        System.out.println("The AREA of CIRCLE is : "+(3.143*S_lenght*S_lenght));
    }
}



public class App {
    public static void main(String[] args) throws Exception {

        Rectangle R1 = new Rectangle();
        Trinagle T1 = new Trinagle();
        Circle C1 = new Circle();

        R1.printArea();
        T1.printArea();
        C1.printArea();
    }
}
```

```
Enter the lenght of Rectangle
4
Enter the breadth of Rectangle
5
The AREA of RECTANGLE is  : 20
Enter the Height :
4
Enter the Base :
2
The AREA of TRIANGLE is : 4.0
Enter the Radius :
2
Enter the Height :
4
Enter the Base :
2
The AREA of TRIANGLE is : 4.0
Enter the Radius :
2
The AREA of CIRCLE is : 12.572
PS D:\clg notes\3rd SEM\OOJava\New pro\Area-Inheritance>
```

5 . create a BANK class , Create two subclasses savings and current , create necessary method inside each class .

```
import java.util.*;


//Bank class
class Bank{
   Bank(){
      System.out.println("BANK");
   }


   Scanner B_inp = new Scanner(System.in);
}


//Account class
class Account extends Bank{
   int A_no;
   String A_Name = new String();
   int A_accType;


   void getAccData(){
      System.out.println("Enter the  Account Name : ");
      A_Name = B_inp.nextLine();
      System.out.println("Enter the Account Type : (1.for Savings account 2.Current account)");
      A_accType = B_inp.nextInt();
      System.out.println("Enter The Account number :");
      A_no = B_inp.nextInt();
   }
}


//SaveAcc class
class SaveAcc extends Account{
```

```
double Bal;
int Intrest = 3;

void getDeposite(int Depo, SaveAcc ob) {
   ob.Bal = ob.Bal+Depo;
   System.out.println("The Balance amount after deposition is : " +ob.Bal);
}

void getBal(SaveAcc ob) {
   if (ob.Bal >= 5000) {
      System.out.println("The balance amount is " + ob.Bal);

   } else if (ob.Bal<5000 && ob.Bal!=0) {
      ob.Bal = ob.Bal - 10;
      System.out.println("You dont have minimum Balance ");
      System.out.println("The balance amount after the charges deduction is " + ob.Bal);

   }
   else if(ob.Bal==0){
      System.out.println("Balnce : 0");
   }

}

void getBalintrest(SaveAcc ob){
   ob.Bal= ob.Bal+(0.03)*(ob.Bal);
   System.out.println("The balance amt after computing the intrest is "+ ob.Bal) ;
}

void getWithdraw(SaveAcc ob,int WithD){
   if(WithD<=ob.Bal){
```

```
            ob.Bal = ob.Bal - WithD;
             System.out.println("Your current balance after the withdrawal is " + ob.Bal);
        }
        else{
            System.out.println("Insufficient balance");
        }
    }

    void GetACCinfo(SaveAcc ob, String Name, int No){
        System.out.println("Your Account Details are : ");
        System.out.println("NAME :" + Name);
        System.out.println("AccNO : "+ No);
        System.out.println("AccType : Savings Account");
        System.out.println("Current balance "+ob.Bal);
    }

}

//Curr class
class CurrACC extends Account{

    double Bal;

    void getDeposite(int Depo,CurrACC ob) {
        ob.Bal = ob.Bal + Depo;
        System.out.println("The Balance amount after deposition is : " + ob.Bal);
    }

    void getBal(CurrACC ob) {
        if(ob.Bal>=5000){
             System.out.println("The balance amount is " + ob.Bal);
```

```
    }
    else if(ob.Bal < 5000 && ob.Bal != 0){
        ob.Bal=ob.Bal-10;
        System.out.println("You dont have minimum Balance ");
        System.out.println("The balance amount after the charges deduction is " + ob.Bal);
    }
    else if (ob.Bal == 0) {
        System.out.println("Balnce : 0");
    }
  }

  void getWithdraw(int WithD,CurrACC ob) {
    if (WithD <= ob.Bal) {
        ob.Bal = ob.Bal - WithD;
        System.out.println("Your current balance after the withdrawal is " + ob.Bal);
    } else {
        System.out.println("Insufficient balance");
    }
  }

  void GetACCinfo(CurrACC ob , String Name , int No ) {
    System.out.println("Your Account Details are : ");
    System.out.println("NAME :" + Name);
    System.out.println("AccNO : "+ No);
    System.out.println("AccType : Current Account");
    System.out.println("Current balance " + ob.Bal);
  }

}
```

```
//Main class
public class App {
   public static void main(String[] args) throws Exception {

      Scanner M_inp = new Scanner(System.in);

      System.out.println("*****Welcome to Bank of KGF Service*****");
      System.out.println("Please enter the information below :");
      Account A1= new Account();
      A1.getAccData();

      if(A1.A_accType==1){
         SaveAcc S1 = new SaveAcc();
         System.out.println("Savings Account created Successfully");
         System.out.println("Enter the corresponding option to Proceed further");


         for(;;){
            System.out.println(
                  "1.Deposite\n2.Balance\n3.Withdrawal\n4.Balance with intrest\n5.To get your
Account INFO\nAny other key to exit");
            int c = M_inp.nextInt();

            switch (c) {
               case 1:
                  System.out.println("Enter the amount to be Deposited");
                  int Depo = M_inp.nextInt();
                  S1.getDeposite(Depo, S1);
                  break;
               case 2: S1.getBal(S1);
                     break;
```

```
            case 3:
               System.out.println("Enter the amount for Wthdrawal");
               int WithD = M_inp.nextInt();
               S1.getWithdraw(S1, WithD);
               break;
            case 4:
               S1.getBalintrest(S1);
               break;
            case 5:
               S1.GetACCinfo(S1 , A1.A_Name , A1.A_no);
               break;
            default:
               System.exit(0);
               break;
         }
      }



   }
   else if(A1.A_accType==2){
      CurrACC C1 = new CurrACC();
      System.out.println("Current Account created Successfully");
      System.out.println("Enter the corresponding option to Proceed further");

      for (;;) {
         System.out.println("1.Deposite\n2.Balance\n3.Withdrawal\n4.4To get your Account
INFO\nAny other key to exit");
         int c = M_inp.nextInt();

         switch (c) {
            case 1:
```

```
                System.out.println("Enter the amount to be Deposited");
                int Depo = M_inp.nextInt();
                C1.getDeposite(Depo, C1);
                break;
            case 2:
                C1.getBal(C1);
                break;
            case 3:
                System.out.println("Enter the amount for Wthdrawal");
                int WithD = M_inp.nextInt();
                C1.getWithdraw(WithD, C1);
                break;
            case 4:
                C1.GetACCinfo(C1, A1.A_Name, A1.A_no);
                break;
            default:
                System.exit(0);
                break;
          }
        }

    }
    else{
       System.out.println("Service Terminated");
    }

    M_inp.close();
  }
}
```

```
*****Welcome to Bank of KGF Service*****
Please enter the information below :
BANK
Enter the  Account Name :
Rocky
Enter the Account Type : (1.for Savings account 2.Current account)
1
Enter The Account number :
000250450000
BANK
Savings Account created Successfully
Enter the corresponding option to Proceed further
1.Deposite
2.Balance
3.Withdrawal
4.Balance with intrest
5.To get your Account INFO
Any other key to exit
1
Enter the amount to be Deposited
5488
The Balance amount after deposition is : 5488.0
1.Deposite
2.Balance
3.Withdrawal
4.Balance with intrest
5.To get your Account INFO
Any other key to exit
2
The balance amount is 5488.0
1.Deposite
2.Balance
3.Withdrawal
4.Balance with intrest
5.To get your Account INFO
Any other key to exit
4
```