LAB PROGRAM - 1 (QUADRATIC EQ)

```
import java.util.Scanner;
public class quadratic
{
  public static void main (String [] args)
  {
   float a,b,c,r1,r2,det;
Scanner sc = new Scanner(System.in);
System.out.println("enter co-efficient of x^2:");
 a= sc.nextFloat();
System.out.println("enter co-efficient of x:");
 b= sc.nextFloat();
System.out.println("enter constant:");
 c= sc.nextFloat();
 if(a==0)
    {
    System.out.println("Invalid Input");
    }
 else
 {  det = (float)Math.pow(b,2) - 4*a*c;
    if( det>0)
    {
      r1 = (float)(-b+Math.sqrt(det))/(2*a);
      r2 = (float)(-b-Math.sqrt(det))/(2*a);
      System.out.println("The roots are:"+
                          r1+"and"+r2);
    }
 else if(det==0)
      { r1 = (float) -b/(2*a);
        System.out.println("root is = "+r1);
      }
 else {
      System.out.println("No real sol^n");
```

OUTPUT :-

```
enter co-efficient of x^2 :
 4
enter co-efficient of x :
 6
enter constant :
 2
the roots are :-0.5 and -1.0
```

```
enter co-efficient of x^2 :
 1
enter co-efficient of x :
 1
enter constant :
 1
No real solution
```

~~FLOWCHART~~

ALGORITHM

STEP 1 : START

STEP 2 : Input a, b, c

STEP 3 : If a = 0 ; print "Invalid"

STEP 4 : else det = b*b - 4*a*c

STEP 5 : if det > 0

$r1 = (-b + \sqrt{b^2 - 4ac})/2a$

$r2 = (-b - \sqrt{b^2 - 4ac})/2a$

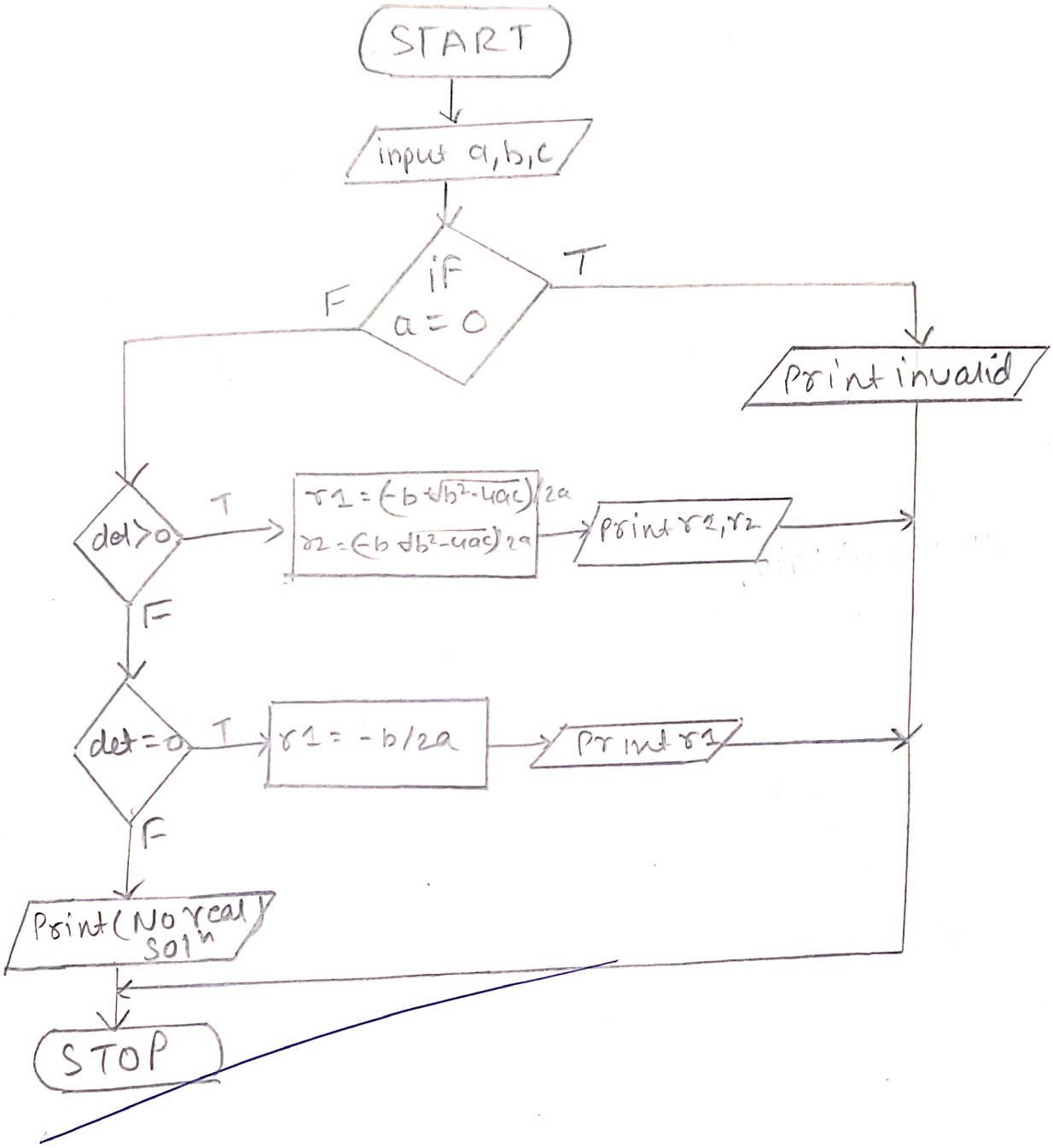
STEP 6 else if det == 0

$r1 = -b/2a$

STEP 7 : else : No real soln

STEP 8 : STOP

FLOWCHART



```
C:\Users\anura\OneDrive\Desktop\java complier>java anurag
enter the coefficients
12
22
22
roots:
r1=-0.9166667+0.9965217i
r2=-0.9166667-0.9965217i
anurag singh 1BM22CS048
```

LAB-3

29-12-2023

(SGPA - Program)

```
import java.util.Scanner;
class student
{
String USN;
String name;
int[] credits = new int[8];
int[] credits = new int[8];

public static void accept()
{

Scanner sc = new Scanner(System.in);
  System.out.println("enter USN:");
    USN = sc.nextLine();
System.out.println("enter name:");
    name = sc.nextLine();
System.out.println("enter detail:");
  for(i=0; i<credits.length; i++)
  {
  System.out.println("enter credits"+(i+1));
  credits[i] = sc.nextInt();
System.out.println("enter marks");
    marks[i] = sc.nextInt();
  }
}

public double calculateSGPA()
  {
      int totalcredits = 0;
      int sum = 0, gradepoint;
      double ans;
```

```
for(i=0; i<credit.length; i++)
{
total credits = totalcredits + (credits[i]);
gradepoint = ((marks[i]/10 + 1);
if (gradepoint == 11)
gradepoint = 10;
else if (gradepoint <= 4)
gradepoint = 0;
sum = sum + gradepoint * credits[i];
}
ans = (double) sum / (double) totalcredits;
return ans;
}
}
Public class printSGPA()
{
Public static void main(String[] args)
{
Student stu = new Student();
stu.accept();
System.out.println("Details:");
System.out.println("USN:" + stu.USN);
System.out.println("NAME:" + stu.name);
double SGPA = stu.calculateSGPA();
System.out.println("SGPA" + SGPA);
}
}
```

LAB - 3

29-12-2023

(SGPA - Program)

```
import java.util.Scanner;
class student
{
String USN;
String name;
int[] credits = new int[8];
int [] credits = new int[8];

public static void accept()
{
Scanner sc = new Scanner(System.in);
  System.out.println("enter USN:");
    USN = sc.nextLine();
System.out.println("enter name:");
    name = sc.nextLine();
System.out.println("enter detail:");
for(i=0;i<credits.length;i++)
{
System.out.println("enter credits"+(i+1));
credits[i] = sc.nextInt();
System.out.println("enter marks");
  marks[i] = sc.nextInt();

}

ublic double calculateSGPA()

    credits = 0;
```

LAB-4 (BOOK)

OUTPUT:-

Enter your detail below to calculate your SGPA:

Enter your USN : 1BM22CS048
Enter your name : Anureg
enter your marks : 90
89
100
100
100
95
93
90

NAME : Anureg
USN : 1BM22CS048
SGPA : 9.8

ALGROTHIM

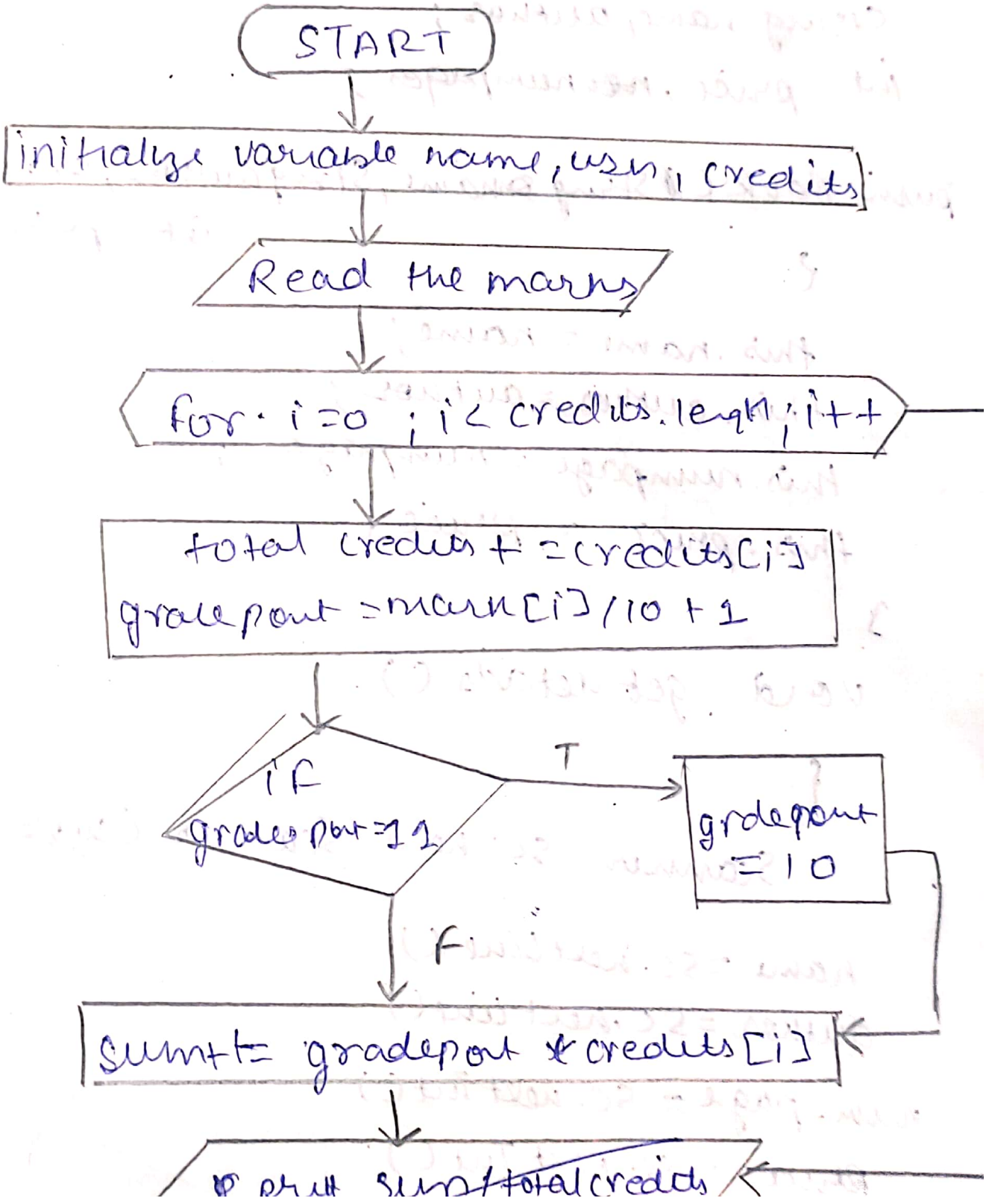
Step 1 : Start
Step 2 : define class student with name, usn, credits array
Step 3 : Read detail of student
Step 4 : for(i=0; i<credits.length; i++)
grade points = mark[i] /10 +1
Step 5 if grade point = 11 set it to 10

Step 7 : Sum = grade * Credits[i]

Step 8 : return sum / totalCredits

Step 9 : End.

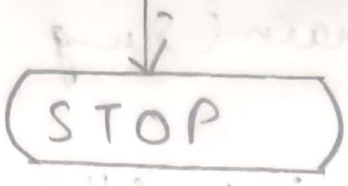
FLOWCHART



```
C:\Users\anura\OneDrive\Desktop\Java Compiler>java Prog2
Enter your name:
anurag
Enter your usn:
1bm22cs048
Enter the number of subject:
2
Enter the marks of subject 1 :
3
Enter credits of subject 1 :
4
Enter the marks of subject 2 :
5
Enter credits of subject 2 :
4
Name: anurag USN: 1bm22cs048
The marks of a subject 1 : 3
The credits of the subject : 4
The marks of a subject 2 : 5
The credits of the subject : 4
The SGPA of USN: 1bm22cs048 Name: anurag is : 4.0
```

LAB-4 (BOOK)

```
import java.util.Scanner;
class Book
{
    Scanner sc = new Scanner(System.in);
    String name, author;
    int price, numpages;

    public Book(String name, String author, int numpages,
                int price)
    {
        this.name = name;
        this.author = author;
        this.numpage = numpage;
        this.price = price;
    }

    void getdetails()
    {
        Scanner sc=new Scanner(system.in)
        name=sc.nextline()
        author=sc.nextline()
        num-page = sc.nextInt()
        Price = sc.nextInt()
    }

    void tostring()
    {
        System.Out.println("Author:" + author);
        System.out.println("Book:" + name);
        System.out.println("No.of page:" + numpage);
        System.Out.println("price:" + price);
    }
```



OUTPUT :-

Enter the number of books
2

enter the bookname, author, Price, no. of page
Abc
mark
800
280

enter the bookname, author, price, no. of page
XYZ
David
7805
250

Author → Abc
book → mark
No. of page: 800
Price : 280

Author : XYZ
book : David
No. of page : 785
price : 250

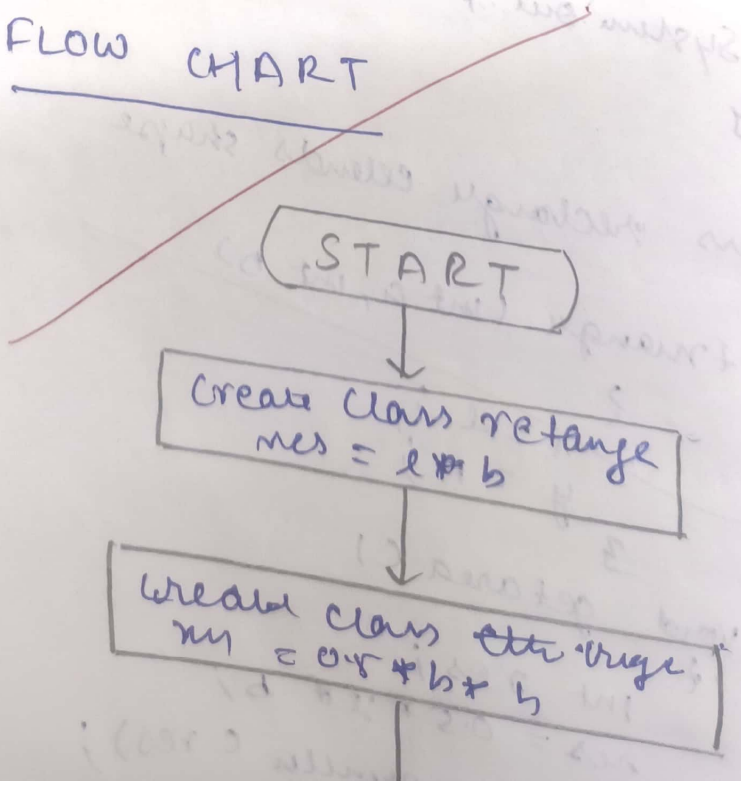
```
C:\Users\anura\OneDrive\Desktop\java complier>java Prog3
Enter number of books:
2
Enter the name of book:
asd
Enter the author of book:
aaa
Enter the price of the book:
123
Enter the number of pages:
111
Book: asd Author: asd details entered.
Enter the name of book:
qwqw
Enter the author of book:
qqqq
Enter the price of the book:
23
Enter the number of pages:
23
Book: qwqw Author: qwqw details entered.
Book Name: asd Author Name: aaa Price: 123.0 Pages: 111
Book Name: qwqw Author Name: qqqq Price: 23.0 Pages: 23

C:\Users\anura\OneDrive\Desktop\java complier>
```

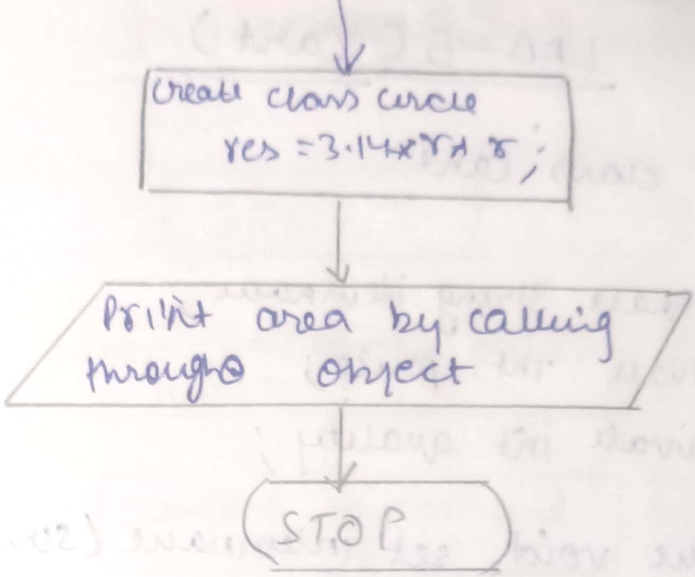
LAB-04(SHAPE)

```
import java.util.*;
abstract class shape
{
  int x, y;
abstract void printarea()
  {
  }
}
class rectangle extends Shape
{
  rectangle(int l, int b)
  {
      x = l;
      y = b;
  }
}
void printarea()
  {
    int res;
    res = x * y;
  System.out.println("Area = " + res)
  }
}
class rectangle extends shape
{
  triangle(int a, int b)
  {
    x = l;
    y = n;
  }
void getarea()
{
  int res;
  res = 0.5 * l * b;
  System.out.println(res);
```

```
class circle extends Shape
{
    circle (int r){
        {
            a = r;
        }
    void getarea()
    {
      res = 3.14 * r * r;
    }
}
class main
  {
  Public static void main (String args[])
    {
    Shape ob = Rectangle (2,4);
       ob. printarea();
    Shape ob1 = new Triangle (4,4);
       ob. printarea()
  }
}
```

FLOW CHART





OUTPUT:-

Area = 8

Area = 8

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```
C:\Users\anura\OneDrive\Desktop\java complier>java Prog4
The area of rectangle is: 18
The area of triangle is: 12.0
The area of circle is: 78.5

C:\Users\anura\OneDrive\Desktop\java complier>
```

LAB-5 (cart)

```
Public class cart
  {
  Private String itemname,
  Private int price;
  Private int quality;

 Public void set itemname (String itemname)
      {
         this.itemname;
       }

 Public String get item ()
      {
       this price = price;
       }

public int getprice()
        {
        return price;
        }

Public public static void main (String [] args)
      {
        cart. Obj = new cart ();
        Obj. setitem Name ("Butter");
        Obj. setprice (50);

  System. out. println ("Details we have");
System.out.println ( obj. getitem name());
System. out. println ( obj. getprice ());

}
```

LAB-5 (ACCOUNT)

```
import java.util.*;
class Account
  {
    String name;
    long accno;
    String type;
    double bal;

  public account (String name, long accno, String ty
      {
        this.name = name;
        this.accno = accno;
        this.type = type;
        this.bal = bal;
      }

  void display()
     {
     System.out.println("Acc no" + accno);
     System.out.println("Name" + name);
      System.out.println("Type" + type);
      System.out.println("Bal" + bal);

      }
}

class CurAcc extends Accounts
   {
      double minBal, serviccharge;
        public CurAcc(String name, long
          {
```

```
        super ( name , accno , "Current");
        this. minbal  = 500;
        this. servicecharge = 50 ;
    }

public void withdraw (double amount)
    {
      if (bal - amount >= minbal)
        {
          bal = bal - amount;
        System.out.println (" Success .Current bal=" + bal);
          }

      else
        {
        System.out.println (" unsuccessful ");
          }
    }

class saveact extends Account
  {
    double rate;
    public saveact (String name , long accno)
    {
      super (name , accno , "saving");
      this.rate = 0.05 ;
    }

public void depositeinterest()
  {
  double interest = bal * interest ;
    bal = bal + interest ;
    System.out.println( bal);
  }
```

```
double inibal = scanner.nextDouble();
    currAcc.bal = inibal;

System.out.println("enter withdraw amt");
    currAcc.bal = inibal;
    withAmt = sc.nextDouble()

}
    else if (choice == 2)
    {
     savAct = savAcct = new savAcct(nam,accn
     System.out.println(" Enter initial :");
     double inibal = sc.nextDouble();

      System.out.println("enr withraw :");
    double withbal = sc.nextDOUBLE();

    savAcc.bal-= withbal;

     System.out.println("enter rate :");
    double rate = sc.nextDouble();
     savAcct.displayBalance();
    }

      else
          {
            System.out.println("Invalid");
          }
    }
}
```

OUTPUT :-

Chose Account type
1. current
2. saving
enter choice : 2
enter name Anurag
enter account no. 10000789
enter initial balance 500000
enter withdraw bal 2000
withdrawal succesful, Bal = 498000
enter rate = 0.3
account no = 10000789
name = Anurag
type = saving
Bal = 498000

enter term for Compound : 4
current Bal = 1426050
Acc no 10000789
Name : Anurag
type : saving
Bal : 1426050.00

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```
Enter Name:
anuarag
Enter Account Number:
12345678
1.Savings 2.Current
Enter Account Type:
1
Enter deposit
123
Name: anuarag
Account Type: Savings
Account Number: 12345678
Current Balance: 123.0
1.Deposit 2.Withdraw 3.Interest 4.Exit
Enter your choice:
2
Enter amount:
22
Balance: 101.0
Enter your choice:
4
Enter 1 to continue or 0 to exit
0

C:\Users\anura\OneDrive\Desktop\java complier>
```

LAB-6

(CIE)

```
package CIE;

class Student
    {
      String USN;
      String name;
      String name;
      int sum;
    }

Public class Internal extends Student;
        {
      Public int[] Inter = new int[5];
        }

package SEE;

Public class external extends CIE.Student
      {
      Public int[] extarch = new int[5];
      }

import CIE.Student;
import SEE.External;
import java.util.Scanner;

    pubic class finalmark
      {
```

```
public static void main (String args[])
{
Scanner sc = new Scanner (System.in);
System.out.print("Enter no. of student");
int n = sc.nextInt();

int finalmarks [][] = new int [n][5]
    int i;
for(i=0 ; i<n ; i++)
  {
  System.out.println("stud" .. :");
System. ("enter internal marks 5 :");
  Internal I = new Internal();
for (int j=0 ; j<5 ; j++)
    {
      I.inter[i] = sc.nextInt();
  System.out.println("enter external");
    External E = new External();
for (int j= 0 ; j<5 ; j++)
  {
  E.exter[j] = sc.nextInt();
  }
```

```
for ( j=0 ;j<s ;j++)
  {
finalmarks [i][j ] = I . inter[j] + B . exter[j];
      }
}
System.out.println ("Final marks :");
for(i=0 ; i < n ; i++)
  {
  System.out.println("Student " + (i+1) + ":");
for (j = 0 ; j <s ; j++)
  {
  System.out.print ( finalmark[i][j] + "\t");
  }
  System.out.println();
  }
}
```

880
2|2|2

OUTPUT:-

```
Enter the No of Studen : 2
Enter internal mark for 5 course
10
2
0
30
40
```

Enter external mark for 5 course

10
20
30
40
80

Final Marks:

Student 1 : 20 22 30 70 90

SSD
2/2/22

```
Enter no. of students:
2
Name:
A
USN:
1BM17CS005
Sem:
2
Eneter cie marks out of 50:
48
47
46
48
44
SEE marks for 5 subjects out of 100:
84
88
86
82
80
Total Marks of A

90.0
91.0
89.0
89.0
84.0
Name:
B
USN:
1BM19CS192
Sem:
5
Eneter cie marks out of 50:
43
41
39
37
45
SEE marks for 5 subjects out of 100:
78
80
84
86
82
Total Marks of B

82.0
81.0
81.0
80.0
```

LAB-7 (FATHER & SON)

```
import java.util.Scanner;
class WrongAge extends Exception
    {
      public WrongAge (String message)
         {
           super (message)
         }
    }

  class father
     {
       int fage;
       public father (int fage) throws WrongeAge
          {
            if (fage <0)
       {
       throw new WrongAge (" Age cannot be -ve");
       }
      this.fatb this.fage = fage;
     }
}
class son extends father
        {
          int sage;
    public son (int fage, int sage) throws WrongAge
        {
         super(fage);
        }
}
```

```
public class FatherSon
{
public static void main(String[] args)
  {
  Scanner sc=new Scanner(System.in);
  System.out.println("enter Father age:");
  int fa= sc.nextInt();
  System.out.println("enter son age:");
   int sa = sc.nextInt();

try
  {
   Son s = new Son(fa, sa);
System.out.println("Father age=" + s.fage)
system.out.println("Son age=" + s.sage);
  }
  catch (WrongAge e)
    {
   System.out.println("Error:" + e.getMessage
    }
  }
}
```

OUTPUT:— Enter Father age
50
enter son age
20
Father age: 50
Son age : 20

```
C:\Users\anura\OneDrive\Desktop\java complier>java fatherson
Enter father's age and son's age:
44
22
Father's age: 44
Son's age: 22
anurag singh 1bm222cs048
```

LAB-8 (TIME)

```
class A extends Thread
{
  int t1, t2;
  A()
    {
      t1 = 10000;
      t2 = 21000;
    }
  public void run()
    {
      while (t1 <= t2)
    {
    System.out.println("BMS");
      try
        {
          sleep(10000);
        }
      catch (Exception e)
        {
        System.out.println("error");
        }
      t1 = t1+10000;
    }
  }
}
```

```
class B extends Thread
{
    t3, t4;

    B()
    {
        t4 = 21000
        t3 = 2000;
    }
    public void run()
    {
        while (t4 <= t4)
        {
        System.out.println("CSE");
        try {
                sleep (2000);
            }
        catch (Exception e)
        {
        System.out.println("ERROR");
        }
        t3 = t3 + 2000;
    }
}
}
class TH
{
public static void main (String args)
{
```

```
        A a = new A();
        B b = new B();

        ~~ob.s~~ a.start();
            b.start();

    }
}
```

OUTPUT :-

```
BMS
CSE
CSE
CSE
CSE
CSE
BMS
CSE
CSE
CSE
CSE
CSE
```

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```
C:\Users\anura\OneDrive\Desktop\java complier>javac Prog8.java

C:\Users\anura\OneDrive\Desktop\java complier>java Prog8
New Thread Thread[#21,CSE,5,main]
New Thread Thread[#22,BMS College Of Engineering,5,main]
CSE : 0
BMS College Of Engineering : 0
CSE : 1
CSE : 2
CSE : 3
CSE : 4
BMS College Of Engineering : 1
CSE : 5
CSE : 6
CSE : 7
CSE : 8
CSE : 9
BMS College Of Engineering : 2
```