Lab-2

1) import java.util.*;
Public class first {
Public static void main (string[] args) {
Scanner sc = new.scanner (system.in);
System.out.print ("Enter a number");
int number = sc.nextInt();
System.out.println ("you entered: " + number);
}
}

Output:
Enter a number : 8
you entered 8

~~Flowchart~~ Algorithm

step1 : Start
step2 : Initialise variable number
step3 : print "Enter a number"
step4 : Read number
step5 : print "you entered" + number
step6 : Stop

2) Java program to check whether a number is even or odd.

→ import java.util.scanner;
public class second {
public static void main (string[] args)
{
int num;
System.out.print ("Enter an Integer number: ");
Scanner in = new Scanner (System.in);
num = in.nextInt();
if (num % 2 == 0)
system.out.println (num + " is an even number");
else
system.out.println (num + " is odd number");
}
}

output:

Enter an integer numbers

2

2 is an even numbers

Algorithm

Step1: Start

Step2: Initilise variable num

Step3: Read num

Step4: if (num%2 == 0)

print num + is even, go to step 6

Step5: else

print num + is odd

Step6: stop

3) Java program to print Right triangle star pattern.

→ public class Third {

public static void main (String[] args) {

int row, column, n=8;

for (row=0 ; row<n ; row++)

{

for (column=0 ; column<=row ; column++)

{

System.out.print("* ");

}

System.out.println();

}

}

}

output:

*

* *

* * *

* * * *

* * * * *

* * * * * *

* * * * * * *

* * * * * * * *

Algorithm

Step 1: Start

Step 2: Initialize variables row, column, n

Step 3: for (row = 0; row < n; row++)

{ for (column = 0; column <= row; column++)

{ print "* ";

}

print "\n"

}

continue until condition fails

Step 4: Stop

4) Java program to find Quotient and Remainder

```
public class Fourth {
        Public static void main (String[] args)
        {
          int num1 = 15, num2 = 2;
          int quo = num1/num2;
          int rem = num1 % num2;
          System.out.println ("Quotient is: " + quo);
          System.out.println ("Remainder is: " + rem);
    }
}
```

output:

Quotient: 7

Remainder = 1

Algorithm

Step 1: Start

Step 2: Initialize variable num1 = 15, num2 = 2, quo, rem

Step 3: quo = num1/num2

Step 4: rem = num1 % num2

Step 5: Print "Quotient: " + quo

Step 6: Print "Remainder = ", rem

Step 7: Stop

5) Java program to Multiply 2 no.s

→
```
import java.util.Scanner;
Public class Fifth {
    Public static void main (string[] args)
    {
      Scanner in = new Scanner (System.in);
      System.out.print ("Enter first no: ");
      int n1 = in.nextInt();
      System.out.print ("Enter second no: ");
      int n2 = in.nextInt();
      int pro = n1 * n2;
      System.out.println ("out: " + pro);
    }
}
```

Output:

Enter first no = 1

Enter second no = 2

Output = 2

Algorithm

Step 1: start

Step 2: Initialise variable n1, n2, pro

Step 3: Input = "Enter first no = ", n1,

Step 4: Input = "Enter second no = ", n2

Step 5: pro = n1 * n2

Step 6: print " product is " pro

Step 7: stop

6] Swap two numbers

```
public class Sixth
{
    public static void main (String[] args)
    {
    float first = 1.20f , second = 1.45f ;
    System.out.println ("--- Before Swapping --");
    system.out.println("First no = " + first);
    System.out.println ("second no = " + second) ;
    float temp = first ;
    first = second ;
    second = temp ;
    System.out.println("--- After Swapping ---");
    system.out.println ("First no = " + first) ;
    system.out.println ("second no = " + second) ;
    }
}
```

Output :- -Before Swapping --

first no = 5
second no = 8
-- After Swapping --
First no = 8
Second no = 5

Algorithm

Step 1 : Start
Step 2 : Initilise variable first = 1.20f , second = 2.45f
Step 3 : print "First no = " + first
Step 4 : print "Second no = " + second
Step 5 : temp = first
first = second
second = temp
Step 6 : print "-- After Swapping --"
Step 7 : Print "First no : " + first
Step 8 : Print "Second no : " + Second
Step 9 : Stop

```
C:\Windows\System32\cmd.e

Microsoft Windows [Version 10.0.22631.3155]
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C:\Users\abhig\OneDrive\Desktop\javaa\week 1>javac First.java

C:\Users\abhig\OneDrive\Desktop\javaa\week 1>java First
Abhishek Gouda H
1BM22CS006
Enter a number : 8
You entered : 8

C:\Users\abhig\OneDrive\Desktop\javaa\week 1>javac Second.java

C:\Users\abhig\OneDrive\Desktop\javaa\week 1>java Second
Abhishek gouda 1BM22CS006
Enter an Integer : 10
10 is even
C:\Users\abhig\OneDrive\Desktop\javaa\week 1>javac Third.java

C:\Users\abhig\OneDrive\Desktop\javaa\week 1>java Third
Abhishek gouda 1BM22CS006
Enter number of rows : 5
*
* *
* * *
* * * *
* * * * *
* * * * * *

C:\Users\abhig\OneDrive\Desktop\javaa\week 1>javac Fourth.java

C:\Users\abhig\OneDrive\Desktop\javaa\week 1>java Fourth
Abhishek gouda 1BM22CS006
Quotient is 7
Remainder is 1

C:\Users\abhig\OneDrive\Desktop\javaa\week 1>javac Fifth.java

C:\Users\abhig\OneDrive\Desktop\javaa\week 1>java Fifth
Abhishek gouda 1BM22CS006
Enter 1st number
10
Enter 2nd number
20
Output : 200

C:\Users\abhig\OneDrive\Desktop\javaa\week 1>javac Sixth.java

C:\Users\abhig\OneDrive\Desktop\javaa\week 1>java Sixth
Abhishek gouda 1BM22CS006
--Before swap--
First number = 1.2
Second nmber = 2.45
--After swap--
```

P-1 Quadratic Equation

22-12-23

Write a Java program that prints all real solutions to the quadratic equation $ax^2+bx+c=0$

```
import java.util.*;
class qRoots {
    public static void main (String args[]) {
        float a, b, c, d, r1, r2;
        System.out.Print("Enter the coeff of a: ");
        Scanner sc = new Scanner(System.in);
        a = sc.nextInt();
        System.out.print("Enter the coeff of b: ");
        b = sc.nextInt();
        System.out.print("Enter the coeff of c: ");
        if (a==0) {
            System.out.print("Invalid inputs");
        }
        else {
            d = b*b - 4*a*c;
            if (d>0) {
                r1 = (-b+d)/2*a ; (-b+math.sqrt(d))/(2*a);
                r2 = (-b-d)/2*a & -b- math.sqrt(d)/(2*a);
                System.out.println("Roots are real and
                R1:" + r1 + "R2:" + r2);
            }
            else if (d<0) {
                r1 = -b/2*a;
                r2 = d/2*a ; math.sqrt(d)/2*a;
                System.out.println("Roots are Imaginary and
                R1:" + r1 + (r2) + "i" + " R2: " + r1 +
                " " + (r2) + "i");
            }
        }
```

```
else if (d == 0)
        {
        r1 = r2 = -b/2*a ;
        System.out.println ("Roots are equal and
        R1 = R2 =" +r1);
        }
    }
}
}
```

Algorithm :

Step 1 : Start

Step 2 : initilise variables : a, b, c, d, r1, r2 ;

Step 3 : Print Enter the values of a, b, c

Step 4 : Read a, b, c

Step 5 : if (a == 0)
Print Invalid inputs
Goto step 3

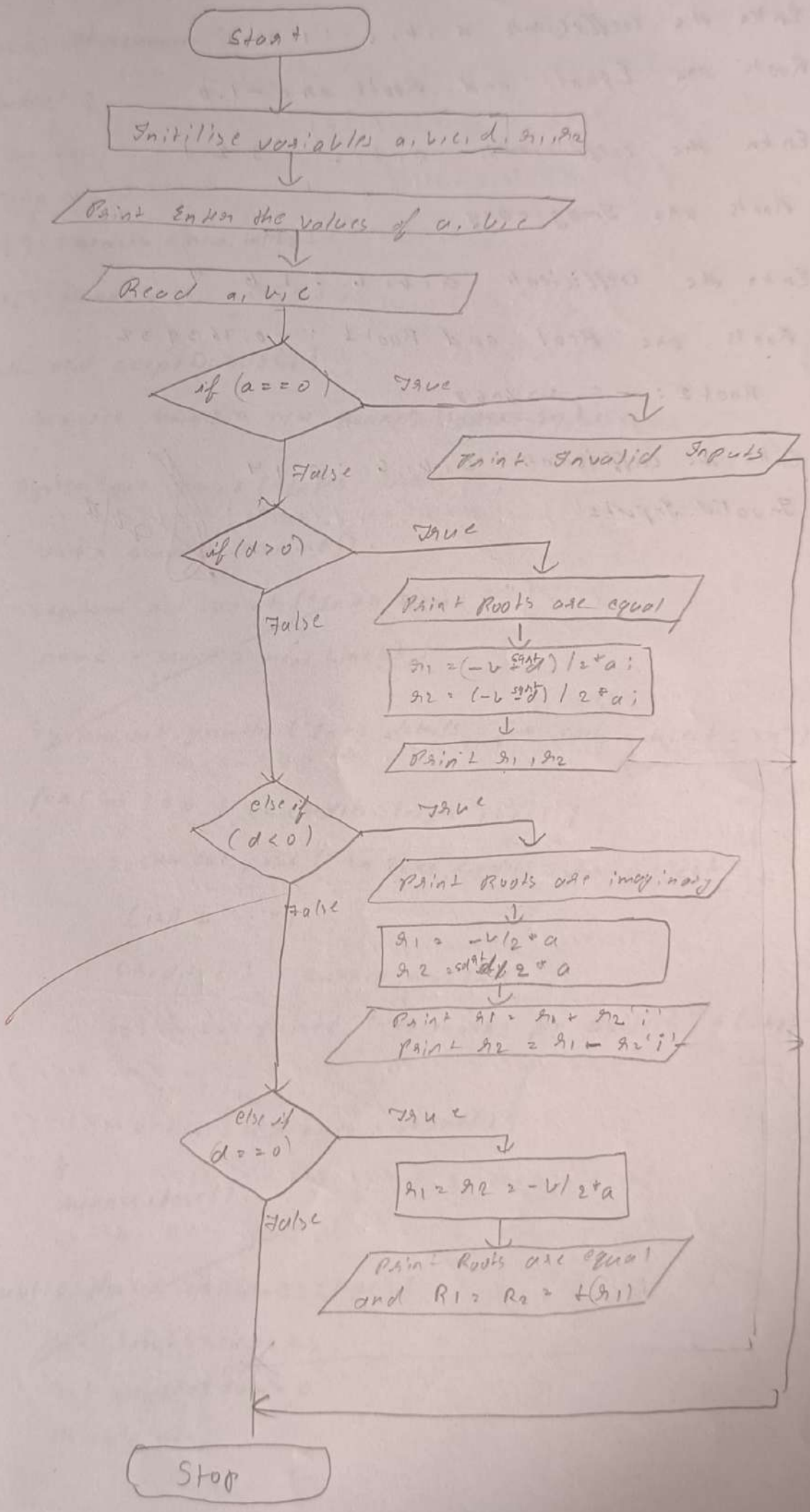
Step 6 : else,
if (d > 0)
Print Roots are real
r1 = (-b + d) / 2*a ; (-b + math.sqrt(d)) / (2*a);
r2 = (-b - d) / 2*a ; (-b - math.sqrt(d)) / (2*a);
Print r1 ; r2

Step 7 : else if (d < 0)
Print Roots are Imaginary,
r1 = -b/2*a ;
r2 = d/2*a ; r2 = (math.sqrt(d)) / 2*a ;
Print Root 1 = r1 + r2 "i"
Root 2 = r1 - r2 "i"

Step 8 : else if (d == 0)
r1 = r2 = -b/2*a ;
Print Roots are equal and
R1 = R2 = +(r1) ;

Step 9 : Stop

Flow chart:


Start
Initilise variables a, b, c, d, r1, r2
Print Enter the values of a, b, c
Read a, b, c
if (a == 0)
True
Print Invalid Inputs
False
if (d > 0)
True
Print Roots are equal
r1 = (-b + 루트 d) / 2*a;
r2 = (-b - 루트 d) / 2*a;
Print r1, r2
False
else if (d < 0)
True
Print Roots are imaginary
r1 = -b/2*a
r2 = 루트 d / 2*a
Print r1 = r1 + r2 'i'
Print r2 = r1 - r2 'i'
False
else if (d == 0)
True
r1 = r2 = -b/2*a
Print Roots are equal and R1 = R2 = (r1)
False
Stop

Output:

Enter the coefficients a, b, c : 1 2 1

Roots are Equal and Roots are -1.0

Enter the coefficients a, b, c : 3 2 1

Roots are Imaginary

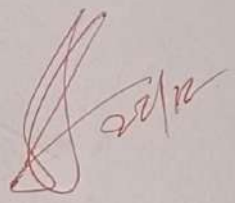
Enter the coefficients a, b, c : 1 6 4

Roots are Real and Root1 : -0.763932

Root2 : -5.236068

Enter the coefficients a, b, c : 0 1 4

Invalid Inputs



C:\Windows\System32\cmd.e

```
Microsoft Windows [Version 10.0.22631.3155]
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C:\Users\abhig\OneDrive\Desktop\javaa\week 2>javac Quad.java

C:\Users\abhig\OneDrive\Desktop\javaa\week 2>java Quad
Abhishek Gouda  1BM22CS006
Enter co-efficients
1 2 1
roots are equal
r = -1.0

C:\Users\abhig\OneDrive\Desktop\javaa\week 2>java Quad
Abhishek Gouda  1BM22CS006
Enter co-efficients
3 2 1
roots are imaginary
r1 = 0.0
r2 = 0.47140452079103173(i)

C:\Users\abhig\OneDrive\Desktop\javaa\week 2>
```

Lab-7 SGPA-calculator

```
import java.util.Scanner;

class Student {
    String usn;
    String name;
    int[] credits = new int[8];
    int[] marks = new int[8];

    Public void acceptDetails() {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter USN: ");
        USN = scanner.nextLine();
        System.out.print("Enter Name: ");
        name = scanner.nextLine();

        System.out.println("Enter details for each subject: \n");
        for(int i=0; i<credits.length; i++) {
            system.out.print("\n Enter Credits for subject" +
            (i+1) + ": ");
            Credits[i] = scanner.nextInt();
            System.out.print("Enter marks for Subject" + (i+1) +
            ": ");
            marks[i] = scanner.nextInt();
        }
        scanner.close();
    }
    Public double calculateSGPA() {
        int totalCredits = 6;
        int weightedSum = 0;
        double ans;
```

```
for (int i=0; i<credits.length;i++){
        total credits += credits[i];
        int gradepoints;
        gradepoints = (marks[i]/10)+1;
        if (gradePoints == 11) {
                gradePoints = 10;
        }
        else if (gradepoints<=4) {
                GradePoints = 0;
        }
        weightedSum += gradepoints * credits[i];
    }
    ans = (double) weightedSum / (double) totalCredits;
    return ans;
  }
}

Public class sgpa {
    Public static void main (String[] args) {
        Scanner sc = new Scanner(System.in);
        Student s tudent = new student();
        Student.acceptDetails();
        System.out.println("\n Student Details :");
        System.out.println("USN : " + student.usn);
        System.out.println("Name : " + student.name);
        double sgpa = student.calculateSGPA();
        System.out.print("\n SGPA : " + sgpa);
        Scanner.close();
    }
}
```

Algorithm

step 1 : start

step 2 : initializing variables usn, name, marks, credits

step 3 : enter det() ; function call

step 4 : Input usn, name, marks, credits

step 5 : display det() function call

step 6 : Print (usn)

step 7 : Print (name)

step 8 : for (i=0 ; i<8 ; i++)
{ Print (marks)
Print (credits)
}

step 9 : sgpa() function call

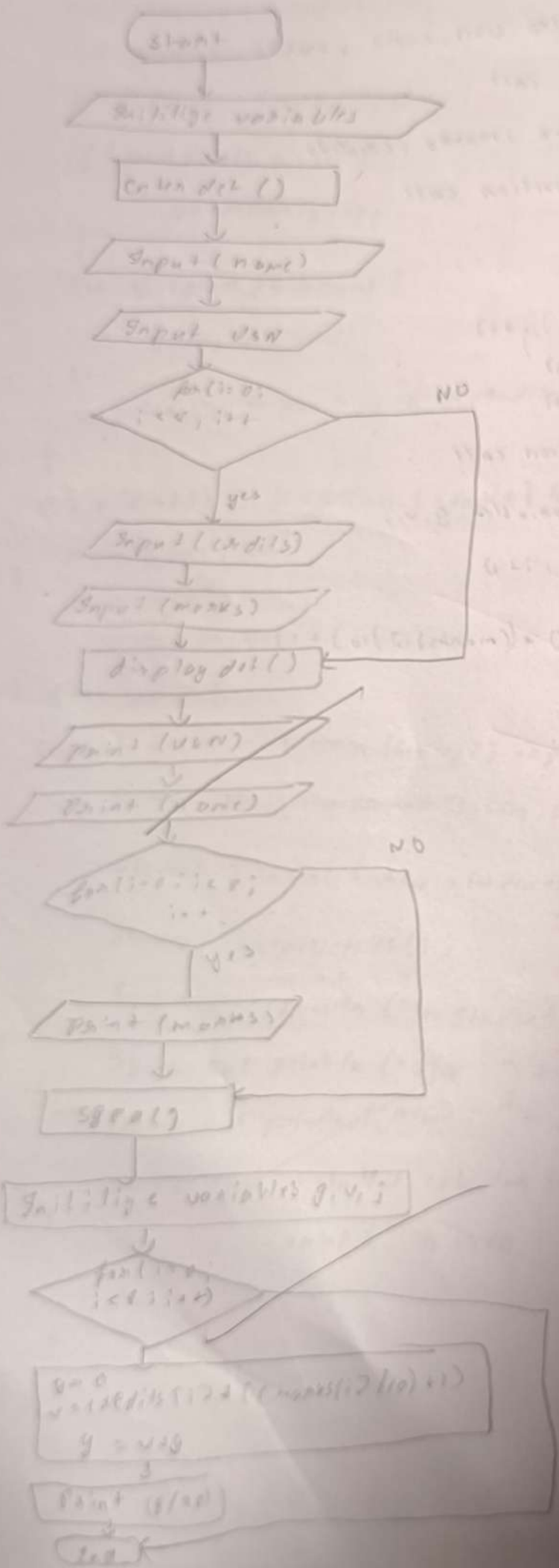
step 10 : initializing variables g, v, i

step 11 :- for (i=0; i<8 ; i++)
g = 0
v = credits[i] * ((marks[i])/10) + 1)
g = v + g ;

step 12 : Print (g/20) ;

step 13 : end.

Flowchart


start
Initialize variables
Enter details ()
Input (name)
Input usn
for(i=0; i<5; i++
NO
yes
Input (credits)
Input (marks)
display details ()
Print (usn)
Print (name)
for(i=0; i<5; i++
NO
yes
Print (marks)
sgpa()
Initialize variables g, v, j
for(i=0; i<5; i++)
g = 0
Print (g/20)
stop

Output:

Enter USN : 1LM22CS006

Enter name : Abhishek

Enter the details of each student :

Enter credits for subject 1 :

4

Enter Marks of subject 1 :

91

Enter credits for subject 2 :

4

Enter Marks of subject 2 :

95

Enter credits for subject 3 :

4

Enter ~~marks~~ for ~~subject~~ 3 :

99

Enter ~~credits~~ for subject 4 :

3

Enter ~~credits~~ marks for subject 4 :

78

Enter credits for subject 5 :

3

Enter ~~credits~~ marks for subject 5 :

79

Enter Credits for subject 6 :

1

Enter ~~credits~~ marks for subject 6 :

100

Enter credits for subject 7 :

1

Enter marks for subject 7 :

70

Enter credits for subject 8 :

1

Enter marks for subject 8 :

56

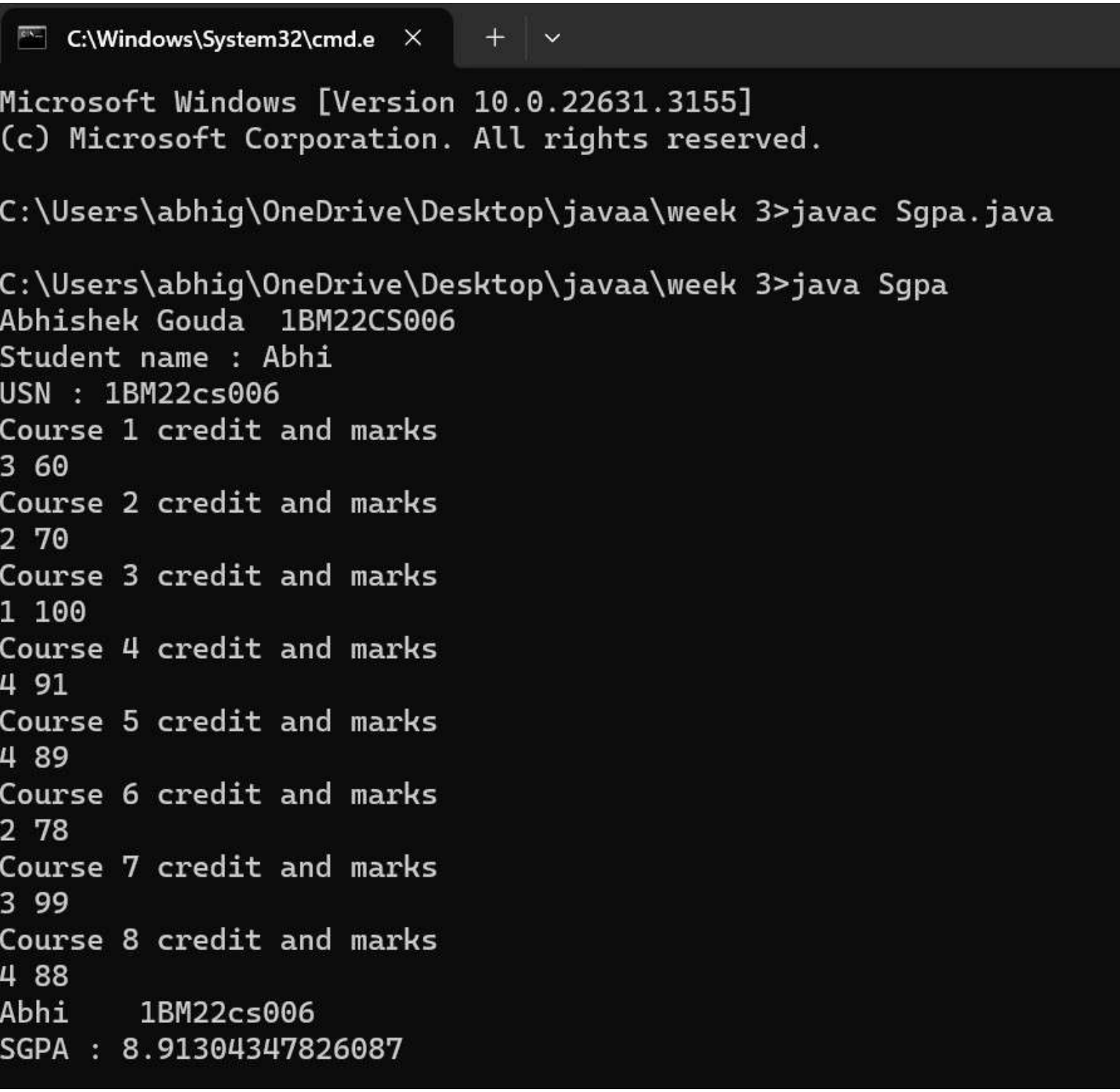
Student details :

USn : 1bm22cs006

Name : Abhishek

SGPA : 4.23809

29/12/23


C:\Windows\System32\cmd.e
Microsoft Windows [Version 10.0.22631.3155]
(c) Microsoft Corporation. All rights reserved.
C:\Users\abhig\OneDrive\Desktop\javaa\week 3>javac Sgpa.java
C:\Users\abhig\OneDrive\Desktop\javaa\week 3>java Sgpa
Abhishek Gouda 1BM22CS006
Student name : Abhi
USN : 1BM22cs006
Course 1 credit and marks
3 60
Course 2 credit and marks
2 70
Course 3 credit and marks
1 100
Course 4 credit and marks
4 91
Course 5 credit and marks
4 89
Course 6 credit and marks
2 78
Course 7 credit and marks
3 99
Course 8 credit and marks
4 88
Abhi   1BM22cs006
SGPA : 8.913043478260870

Lab-#3

1) Details of a Book (Input and display of the details of book using toString() :

```
import java.util.*;
class Books {
    String name;
    String author;
    double price;
    int num_pages;
Public Books (String name, String author,
    double price, int num_pages ) {
    this.name = name;
    this.author = author;
    this.price = price;
    this.num_pages = num_pages;
}
void setDetails ( String name, String author,
    double price, int num_pages) {
    this.name = name;
    this.author = author;
    this.price = price;
    this.num_pages = num_pages;
}
void getDetails () {
    String s = "Book: " + name + "by author: " + authors +
    "with pages :" + num_pages + "is of price :" + price;
    System.out.println (s);
}
```

```
Public String ~~to string~~ toString() {
    String s = "Book : " + name + "by author :" +
    author + " with pages :" + num-pages + "
    is of pages " + price ;
    return s;
}}
Public class Data {
    Public static void main (string[] args) {
        Scanner sc = new Scanner (System.in)
        System.out.println ("Enter the total number
        of Books ");
        int n = sc.nextInt();
        ~~Book[] books = new Books[n];~~
        ~~Books[5]~~
        Books b[] = new Books[n];
    for (int i=0 ; i <n ; i++) {
        ~~Scanner . nextLine();~~
        ~~sc.nextLine();~~
        System.out.println ("Enter the details of Book: "
            + (i+1) );
        System.out.println ("Enter name :");
            ~~Scanner~~ .
            String name = Scanner.nextLine();
        System.out.println ("Enter author :");
            String author = Scanner.nextLine();
        System.out.println ("Enter price :");
            ~~String~~ .
            double price = sc.nextDouble();
        System.out.println ("Enter no of pages :");
            int num-pages = sc.nextInt();
        b[i] = new Books(name, author, price,
                num-pages);
}
```

```
System.out.println("\n Details of the Books : ");
for (int i=0 ; i<n ; i++){
    System.out.println("In Book "+(i+1)+" Details"+
    B[i].toString() );
  }
}
```

Algorithm :

step 1 : Start

step 2 : class Books
Initilize name, author, price, num-pages

step 3 : Create constructor Books and initilize

step 4 : method setDetails and pass strings name, author, price, num-pages

step 5 : method getDetails and
Print String s = 'Book' + name + 'by author' + author + 'with pages' + num-pages + 'is of price :' + price.

step 6 : method toString()
Print s = Book + name + by author + author + with pages + num_pages + 'is of price' + price

step 7 : class Data

step 8 : Print Enter the total number of Books

step 9 : Read n

Step 10 : Read name, author, price, no of pages

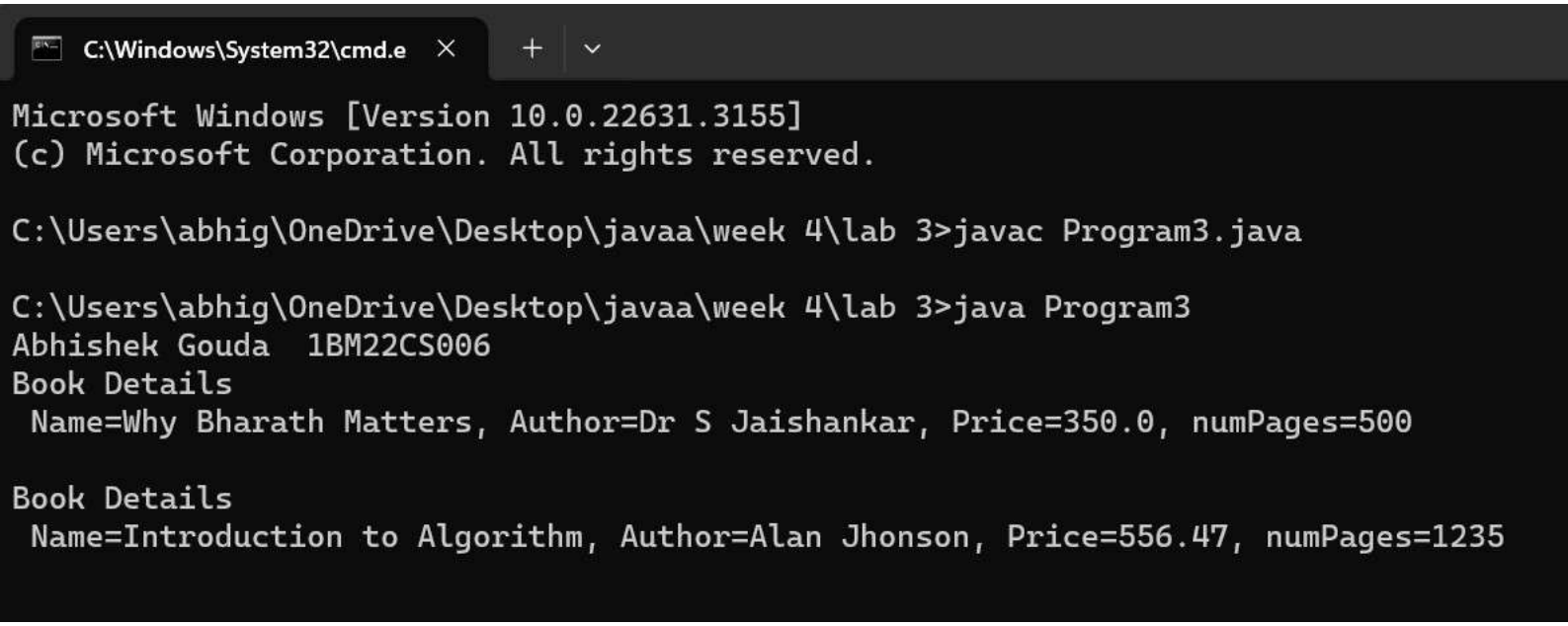
step 11 : Print Details

step 12 : End

8) Output:

Enter the number of books :
2
Enter the details of Book 1
name : aaa
Author : bbb
Price : 100
No of pages : 292
Enter the details of Book 2
name : ccc
Author : ddd
Price : 111
No of pages : 777

Display :
Details of Book 1
aaa
bbb
100
121
Details of Book 2
ccc
ddd
111
777


C:\Windows\System32\cmd.e
Microsoft Windows [Version 10.0.22631.3155]
(c) Microsoft Corporation. All rights reserved.
C:\Users\abhig\OneDrive\Desktop\javaa\week 4\lab 3>javac Program3.java
C:\Users\abhig\OneDrive\Desktop\javaa\week 4\lab 3>java Program3
Abhishek Gouda 1BM22CS006
Book Details
Name=Why Bharath Matters, Author=Dr S Jaishankar, Price=350.0, numPages=500
Book Details
Name=Introduction to Algorithm, Author=Alan Jhonson, Price=556.47, numPages=1235

a) Develop a Java program to create an abstract class to find the area of Rectangle, Triangle and circle.

Lab - 4

```
import java.util.*;
abstract class Shape {
    int a, b;
    abstract void printArea();
}
class Rectangle extends Shape {
    Rectangle(int l, int br) {
        a = l;
        b = br;
    }
    public void printArea() {
        System.out.println("Area of Rectangle = " + l*br);
    }
}
class Triangle extends Shape {
    Triangle(int ba, int h) {
        a = ba;
        b = h;
    public void printArea() {
        double area = 0.5 * a * b;
        System.out.println("Area of Triangle" + area);
    }
}
class Circle extends Shape {
    Circle(int r) {
        a = r
    }
    Public void printArea() {
        double area = 3.14 * r * r;
        System.out.println("Area of the circle " + area);
    }
}
```

```
Class Main {
    public static void main (String [] args) {
        Scanner.out.println ("e.
        Scanner sc = new Scanner (System.in);
        System.out.println ("Enter the radius of a Rectangle");
        Rectangle rec = new Rectangle ( sc.nextInt(),
                sc.nextInt());
        rec.printArea();
        System.out.println ("Enter the base and height
            of a Triangle ");
        Triangle tri = new Triangle (sc.nextInt(),
                in.nextInt());
        tri.printArea();
    System.out.println ("Enter the radius of a circle ");
        Circle cir = new Circle (sc.nextInt());
        cir.printArea();
    }
}
```

Output:

Enter the length and breadth of a Rectangle:

11 13

Area of Rectangle: 143.0

Enter of the base and height of a Triangle:

22 45

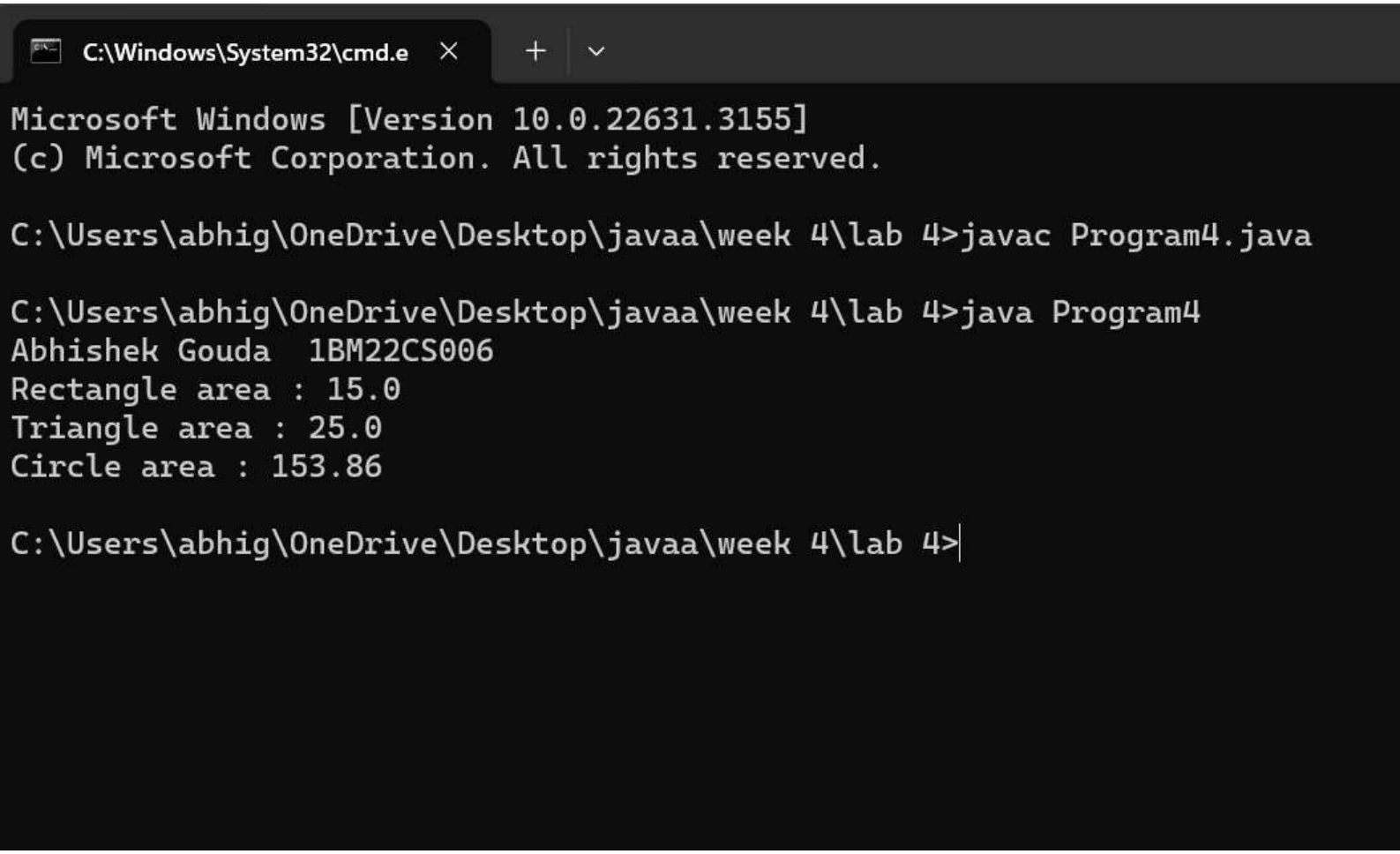
Area of a Triangle: 495.0

Enter the radius of a circle

99

Area of a circle: 30975.1400

12/01/24


C:\Windows\System32\cmd.e
Microsoft Windows [Version 10.0.22631.3155]
(c) Microsoft Corporation. All rights reserved.
C:\Users\abhig\OneDrive\Desktop\javaa\week 4\lab 4>javac Program4.java
C:\Users\abhig\OneDrive\Desktop\javaa\week 4\lab 4>java Program4
Abhishek Gouda 1BM22CS006
Rectangle area : 15.0
Triangle area : 25.0
Circle area : 153.86
C:\Users\abhig\OneDrive\Desktop\javaa\week 4\lab 4>

19/1/24 Week - 5

1) Program to use get and set methods

```
Public class Cost {
    // Private members
    private String itemName;
    private int price;
    private int quatity;

    // First setter method
    Public void setItemName (String itemName);
        this.itemName;

    }
    // First getter method
    Public String getItemName() {
        return itemName;

    }

    // Second setter method
    public void setPrice (int price) {
        this.price = price;

    }
    // second getter method
    Public int getPrice() {
        return price;

    }
    Public static void main (String[] args) {
        Cost obj = new Cost();
        obj.setItemName("Butter");
        obj.setPrice(50);
        System.out.println("The details we have set
                are : ");
        System.out.println(obj.getItemName() "\n"
                obj.getprice());

    }
}
```

Outputs

The details we set are

Buffers

SO

2) Bank program Lab- 5

```
import java.util.*;
class Account{
    String cust_name;
    int accno;
    String acc_type
    double balance;
    Public Account (String cust_name, int accno,
        String acc_type.) {
        this.cust_name = cust_name;
        this.accno = accno;
        this.acc_type = acc_type;
        this.balance = 0;
    }
    Public void displayBal() {
        System.out.println("Account number:" + accno);
        System.out.println("Customer name:" + cust_name);
        System.out.println("Account type:" + acc_type);
        System.out.println("Balance:" + balance);
    }
}
class Saving extends Account {
    double interest_rate;
    Savings (String cust_name, int accno) {
        Super (cust_name, accno, "savings");
        this.interest_rate = 0.5;
    }
    Public void DepoistInterest() {
        balance += balance * interest_rate;
        System.out.println("compound Interest deposited
    applied. current balance:" + balance);
    }
{   Public void CompoundInterest(double initial_amt,
    int time) {
    double ci = initial_amt * Math.Pow((1+interest_rate), time)
            - initial_amt;
        balance += ci;
```

```
        System.out.println(" Compound interest applied
        current balance : " + balance);
    }
}
Public void withdrawal()
{
    System.out.println("Enter the amount to be
      withdrawn from your saving account:");
    double q1 = sc.nextDouble();
    if(q1 > bal)
    {
        System.out.println("In Sufficient Balance!");
    }
    else {
        System.out.println(" you have withdrawn " + q1);
        balance = balance - q1;
        System.out.println("your current balance is:".
                + balance);
    }
}
}
Class current extends Account {
    double min_balance, service_charge;
    current(String cust_name, int accno) {
        Super(cust_name, accno, "current");
        this.min_balance = 500;
        this.service_charge = 20;
    }
    Public void withdrawal(double amt) {
        if(balance - amt > min_balance) {
            balance -= amt;
            System.out.println("withdrawal successfull,
            current balance:" + balance);
        }
        else {
```

```
        System.out.println("withdrawal not possible
            due to insufficient balance");
    }
}
public void serviceCharge() {
    if(balance < min_balance) {
        balance -= service_charge;
        System.out.println("service charge imposed.
        current balance :" + balance);
    }
}
public void getchq() {
System.out.println("Enter the amount for which cheque
has to be issued");
    e = sc.nextDouble();
}
public void cashchq() {
    if(e>balance)
    {
     System.out.println("cheque bounced!");
    }
    else
    {
     System.out.println("Via cashing a cheque you have
      withdrawn" + e);
      balance = balance - e;
      System.out.println("current balance is: " + balance);
      if(balance < 3000) min_balance)
      {
       balance = balance - 100;
       System.out.println("your balance is below cheque
       balance!, a penalty is applied");
       System.out.println your current balance
                is " + balance);
    }
}
```

```
Public class Ab {
    Public static void main (String[] args) {
        Scanner in = new Scanner (System.in);
        System.out.println ("choose account type: ");
    System.out.println ("1. Savings");
    System.out.println ("2. Current");
    System.out.println ("Enter choice 1 or 2");
    int choice = in.nextInt();
    System.out.println ("Enter customer name:"
    );
    String cust_name = in.next();
    System.out.println ("Enter account number:");
    int accno = in.nextInt();
    if (choice == 1) {
        Saving savAcc = new Saving (cust_name, accno);
            System.out.println ("Enter initial balance");
        double initial_balance = in.nextDouble ();
        ~~savAcc.balance = w;~~
        savAcc.balance = initial balance;
        ~~System.out~~
        System.out.println ("For withdrawl");
        savAcc.withdrawl (amt);
        System.out.println ("Enter interest rate:");
        double interest_rate = in.nextDouble();
        savAcc.interest_rate = interest_rate;
        savAcc.displayBal();
        System.out.println ("Enter time (in years)
        to calculate compount interest:");
        int time = in.nextInt();
    savAcc.CompountInterest (initial_balance, time);
        savAcc.displayBal();
    }
    ~~else if~~
```

* Output:

Choose account type

1. savings 2. current

1.

Enter customer_name : Abhi

Enter account number : 001

Enter initial balance : 10000

Enter withdrawl amount : 1000

current balance : 9000

enter time : 2

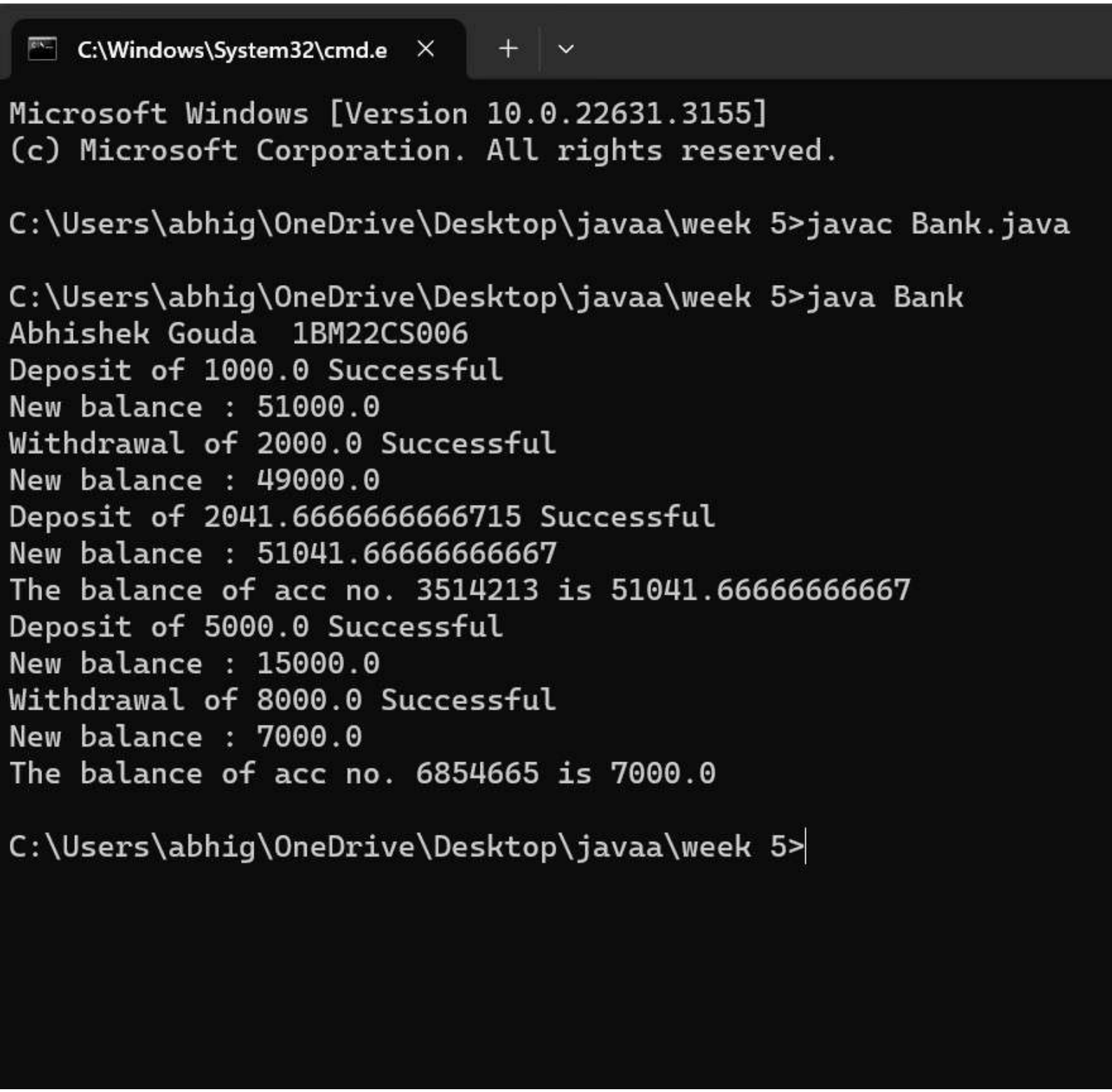
current balance : 9658

Enter name : Abhi

number : 001

balance : 9658

19/01/24


C:\Windows\System32\cmd.e
Microsoft Windows [Version 10.0.22631.3155]
(c) Microsoft Corporation. All rights reserved.
C:\Users\abhig\OneDrive\Desktop\javaa\week 5>javac Bank.java
C:\Users\abhig\OneDrive\Desktop\javaa\week 5>java Bank
Abhishek Gouda 1BM22CS006
Deposit of 1000.0 Successful
New balance : 51000.0
Withdrawal of 2000.0 Successful
New balance : 49000.0
Deposit of 2041.6666666666715 Successful
New balance : 51041.66666666667
The balance of acc no. 3514213 is 51041.66666666667
Deposit of 5000.0 Successful
New balance : 15000.0
Withdrawal of 8000.0 Successful
New balance : 7000.0
The balance of acc no. 6854665 is 7000.0
C:\Users\abhig\OneDrive\Desktop\javaa\week 5>

Lab-6

6) Create package CIE, SEE and import the package on main.java file.

→

```
Package CIE;
    import java.util.Scanner;
    Public class Student {
        Public int sem;
        Public string usn;
        Public String name;
        Public void accept()
        {
            Scanner sc = new Scanner(System.in);
            System.out.println("Enter usn: ");
            usn = sc.next();
            System.out.print("Enter name = ");
            name = sc.next();
            System.out.print("Enter sem: ");
            sem = sc.next();
        }
    }
    Public class Internal {
        Public int marks[] = new int[5];
    }
}

Package SEE;
import CIE.student;
Public class External extends Student {
        int ext = new int[5];
}
```

Main.java

```
import java.util.*;
import SEE.*;
import CIE.*;
public class Main {
    public static void main (String[] args) {
        int final[] = new int[5];
        Scanner in = new Scanner(System.in);
        System.out.println("Enter n = ");
        int n = in.nextInt();
        SEE.External end[] = new SEE.External[n];
        CIE.Internal in[] = new CIE.Internal[n];
        for(int i=0 ; i<n ; i++){
            end[i] = new SEE.External();
            in[i] = new CIE.Internal();
            System.out.println("Enter details of "+(i+1));
            end[i].accept();
            System.out.println("Enter internal and
                External marks");
            for(int j=0 ; j<5 ; j++){
                System.out.println("Course "+(j+1));
                in[i].marks[j] = in.nextInt();
                end[i].ext[j] = in.nextInt();
                final[j] = in[i].marks[j] +
                    end[i].ext[j];
            }
            System.out.println("Final marks of "
                + end[i].name);
            for(int k=0 ; k<5 ; k++){
                System.out.println("Course "
                    +(k+1) + " = " + final[k]);
            }
        }
    }
}
```

Output:

Enter n: 1

Enter details of 1

Enter usn : 1S

Enter name : Ram

Enter sem : 2

Enter internal external marks

Course 1

23 89

Course 2

23 90

Course 3

45 78

course 4

39 90

course 5

35 90

final marks

course 1 = 56

Course 1 = 56

course 2 = 16

Course 3 = 61

Course 4 = 62

Course 5 = 62

```
C:\Users\arbaa\Desktop\CS0  >javac FinalMarks.java

C:\Users\arbaa\Desktop\CS0  >java FinalMarks
Enter n:
1
Enter details for student 1
Enter USN, Name, and Semester:
008
Abhishek
3
Enter im and sm of subject 1
15
90
Enter im and sm of subject 2
36
92
Enter im and sm of subject 3
40
99
Enter im and sm of subject 4
34
98
Enter im and sm of subject 5
35
90
Final marks of Abhishek
Subject 1 = 105
Subject 2 = 128
Subject 3 = 139
Subject 4 = 132
Subject 5 = 125
```

Program 7 -

Write a program that demonstrate handling of exception in inheritance tree. Create a base class called "Father" and derived class called "Son" which extends the base class.

In Father class, implement a constructor which takes the age and throws the exception WrongAge() when input age <0. In Son class implement a constructor that case both father and son's age and throws an exception if son's age is >= Father age

```
class WrongAge extends Exception {
        Public WrongAge() {
            sop ("Invalid age");
        }
}
class Father {
int Fage;
    Public void Father (int age) throws WrongAge
    {
      if (age <=0) {
          new throw new WrongAge();
      }
      else {
        sop ("valid age");
        }
        ~~Thog~~
        Fage = age;
}
    Public int getage() {
            return Fage;
        }
}
```

```
Class Son extends Father {
        int sage;
Public Son (int ageF , int ages) throws WrongAge
{
   super (ageF) ;
    if (ageF ≤ ages) {
            throw new WrongAge() ;
      }
    else {
        sop (" Valid age") ;
    }
     sage = ages ;
  }
   Public int getages() {
       return sage ;
     }
}
Class A {
  Public static void main (String[ ] args ) {
  try{
     Father  F1 = new Father (50) ;
     Son     S1 = new Son (50, 25) ;
     SOP (" Father age is " + F1.getageF() ) ;
     SOP (" Son age is " + S1.getageS() ) ;
  }
  catch (WrongAge e) {
       SOP ( e) ;
    }
}
```

Algorithm:

Step1: Start

Step2: class wrongAge extends Exception
constructor wrongAge()
Print Invalid age.

Step3: class Father, initilize fage
constructor Father(age) throws wrongAge.

Step3: if (age <=0)
throw exception
else
print valid age

Step4: getageFather();

Step6: Class Son extends Father
Initilize sage

Step8: constructor Son(ageF, ageS) throws wrongAge
• Father constructor(ageF)

Step5: if(ageF ≤ ageS){
throw throw exception;

Step9: else.
Print valid age

Step10: getagesun();

Step11: class A, main

Step12: try{
obj FL for Father class
obj SL for Son class
Print "Father age is Fage"
Print "Son age is Sage"
catch(exception e)
Print e

Step13: Stop.

Output

valid Age

valid Age

valid Age

Damon age is 50

Son age is 25

16.02.24

```
C:\Windows\System32\cmd.e
Microsoft Windows [Version 10.0.22631.3155]
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C:\Users\abhig\OneDrive\Desktop\javaa\week 7\lab 7>javac FatherSon.java

C:\Users\abhig\OneDrive\Desktop\javaa\week 7\lab 7>java FatherSon
Abhishek Gouda 1BM22CS006
Father's Age : 50
Son's Age : -10
WrongAge: Son's Age is negative

C:\Users\abhig\OneDrive\Desktop\javaa\week 7\lab 7>javac FatherSon.java

C:\Users\abhig\OneDrive\Desktop\javaa\week 7\lab 7>java FatherSon
Abhishek Gouda 1BM22CS006
Father's Age : -20
Son's Age : 10
WrongAge: Father's Age is negative

C:\Users\abhig\OneDrive\Desktop\javaa\week 7\lab 7>javac FatherSon.java

C:\Users\abhig\OneDrive\Desktop\javaa\week 7\lab 7>java FatherSon
Abhishek Gouda 1BM22CS006
Father's Age : 20
Son's Age : 50
WrongAge: Son's Age should be less than Father's Age

C:\Users\abhig\OneDrive\Desktop\javaa\week 7\lab 7>
```
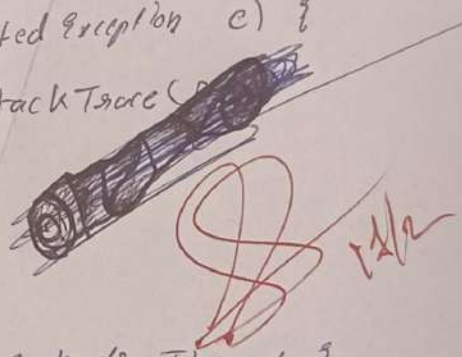

Program 8

Write a Program which creates two threads one threads displaying 'BMS college of engineering' once every ten seconds and another displaying CSE once every two seconds.

```
// Public class Main {

    Static class DisplayBMS extends Thread
    {
    @Override
     Public void run() { int i=0;
        while ( i<5 ) {
            System.out.println(" BMS college of Engineering");
            i++;
        try {
            Thread.sleep(10000);
        }
        catch (InterruptedException e) {
            e.printStackTrace();
        }
    }
}
```



```
Static class DisplayCSE extends Thread {

  @Override
   public void run() { int i=0;
     while (i<10) {
      System.out.println("CSE");
      i++;
      try {
          Thread.sleep(500);
      }
      catch (InterruptedException e) {
          e.PrintStackThrow();
      }
    }
}
```

~~Public static void main~~

```
Public class Main {
  Public static void main(String[] args)
  {
    Display BMS dis1 = new DisplayBMS();
    ~~Display BMS();~~
    ~~dis1();~~
    Display CSE dis2 = new DisplayCSE();
    ~~display~~ dis1.start();
                dis2.start();
  }
}
```

Algorithm:

step1: Start

step2: class DisplayBms extends thread
method run(), initilize i=1
while (i<5)
print BMS college of engineering
i++;
try { thread.sleep(10sec); }
catch (Interrupted Exception e) {
print exception
}

step3: class displayCSE extends thread
method run(), initilize i=1
while(i<25)
print CSE
i++
try { thread.sleep(2sec); }
catch (Interrupted Exception e) {
e.printexception
}

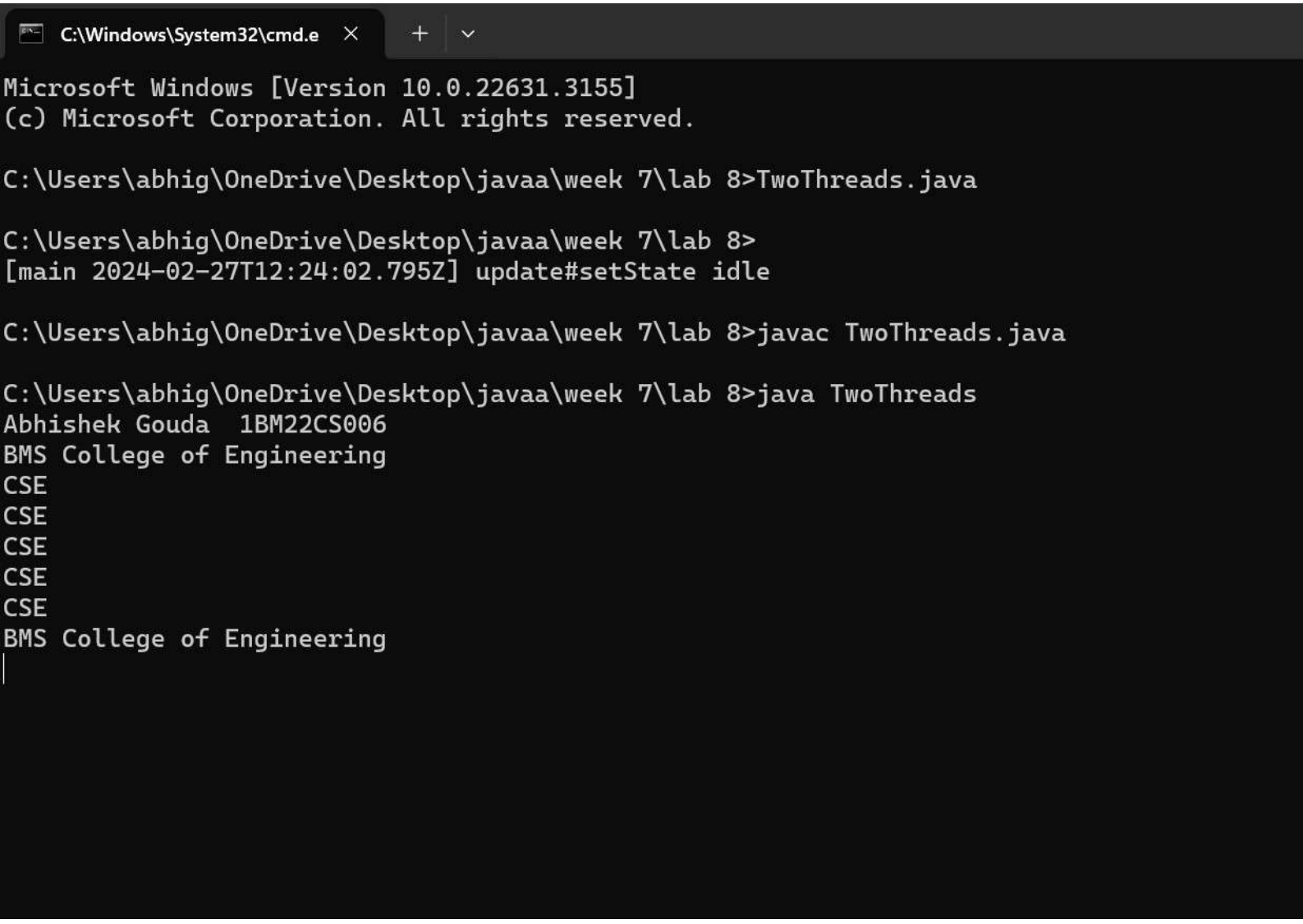
step4: class Main
initilize object,
displayBms as dis1
initilize object
displayCSE as dis2

```
dis1.start();
dis2.start();
```

```
stop1 stop2
```

Output:

```
BMS college of Engineering
CSE
CSE
BMS college of engineering
CSE
CSE
BMS college of Engineering
CSE
CSE
BMS college of Engineering
CSE
CSE
BMS college of Engineering
CSE
CSE
```


C:\Windows\System32\cmd.e
Microsoft Windows [Version 10.0.22631.3155]
(c) Microsoft Corporation. All rights reserved.
C:\Users\abhig\OneDrive\Desktop\javaa\week 7\lab 8>TwoThreads.java
C:\Users\abhig\OneDrive\Desktop\javaa\week 7\lab 8>
[main 2024-02-27T12:24:02.795Z] update#setState idle
C:\Users\abhig\OneDrive\Desktop\javaa\week 7\lab 8>javac TwoThreads.java
C:\Users\abhig\OneDrive\Desktop\javaa\week 7\lab 8>java TwoThreads
Abhishek Gouda 1BM22CS006
BMS College of Engineering
CSE
CSE
CSE
CSE
CSE
BMS College of Engineering

Lab-9

8) Write a program that creates a user interface to perform integer divisions. The user enters two numbers in the text fields, Num1 and Num2. The division of Num1 or Num2 were not a n : is displayed in the Result field when the Divide button is clicked. If num1 or Num2 were not an integer, the program would throw an arithmetic exception Display the exception is a message dialog box.

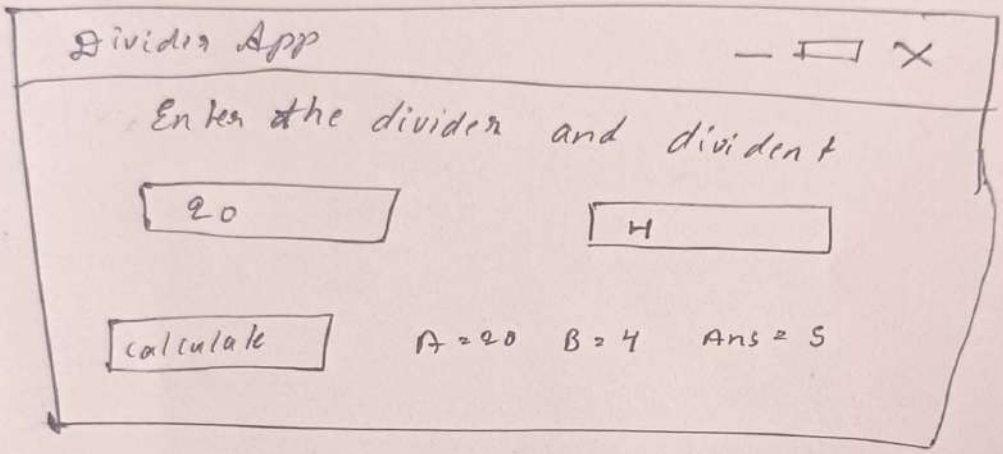
->

```
import javax.swing.*;
import java.awt.*;
import java.awt.event.*;

Public class SwingDemo {

    SwingDemo() {
    JFrame jfrm = new JFrame ("Divider App");
     jfrm.setSize (275,150);
    jfrm.setDefault Close Operation (JFrame.EXIT_ON_CLOSE);
    JLabel jLab = new JLabel (" Enter the divider and dividend");
    JTextField ajtf = new ~~JTextField~~ JTextField (8);
    JTextField bjtf = new JTextField (8);

    JButton button = new JButton ("calculate");
    JLabel err = new JLabel();
    JLabel alab = new JLabel();
    JLabel blab = new JLabel();
    JLabel anslab = new JLabel();

    jfrm.add(err);
    jfrm.add(jlab);
    jfrm.add(ajtf);
    jfrm.add(bjtf);
    jfrm.add(button);
    jfrm.add(alab);
    jfrm.add(blab);
    jfrm.add(anslab);
```

```
ActionListener I = new ActionListener() {
    Public void actionPerformed(ActionEvent evt) {
        System.out.println("Action event from
            a text field");
    }
};
ajtf.addActionListener(I);
bjtf.addActionListener(I);
button.addActionListener(new ActionListener() {
    Public void actionPerformed(ActionEvent evt) {
        try {
            int a = Integer.parseInt(ajtf.getText());
            int b = Integer.parseInt(bjtf.getText());
            int ans = a/b;
            alab.setText("\n A=" +a);
            blab.setText("\n B=" + b);
            anslab.setText("\n Ans=" + ans);
        } catch (NumberFormatException e) {
            alab.setText("");
            blab.setText("");
            anslab.setText("");
            ers.setText(text: "Enter only Integer!");
        } catch (ArithmeticException e) {
            alab.setText("");
            blab.setText("");
            anslab.setText("");
            ers.setText("B should be Non zero!");
        }
    }
});
jfrm.setVisible(true);
}
```

```
public static void main (String args[]){
        SwingUtilities.invokeLater(new Runnable() {
            public void run() {
                new SwingDemo();
            }
        });
    }
}
```

output:



23/2

Functions:

JLabel: ~~object~~ Object that can display either text or an image.

ActionListener: The listener, interface for receiving action events

Actionevent: A semantic event which indicates that a component defined action ~~occured~~ occured,

SetText() = Defines the single line of text

setVisible(b) = Shows or hides this window depending on the value of parameter b

invokeLater = to update or perform any task on Event dispatch thread asynchronously

C:\Windows\System32\cmd.e

```
Microsoft Windows [Version 10.0.22631.3155]
(c) Microsoft Corporation. All rights reserved.

C:\Users\abhig\OneDrive\Desktop\javaa\week 8>javac LastLab.java

C:\Users\abhig\OneDrive\Desktop\javaa\week 8>java LastLab
Action event from a text field
Action event from a text field
```