**B.M.S. COLLEGE OF ENGINEERING**
Basavanagudi, Bengaluru- 560019
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

# LAB REPORT

On

## *Object Oriented Java Programming*

**(23CS3PCOOJ)**

Submitted By:

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**1BM22CS024**

*In partial fulfilment of*

**BACHELOR OF ENGINEERING**

In

**COMPUTER SCIENCE AND ENGINEERING**

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Faculty-In-Charge

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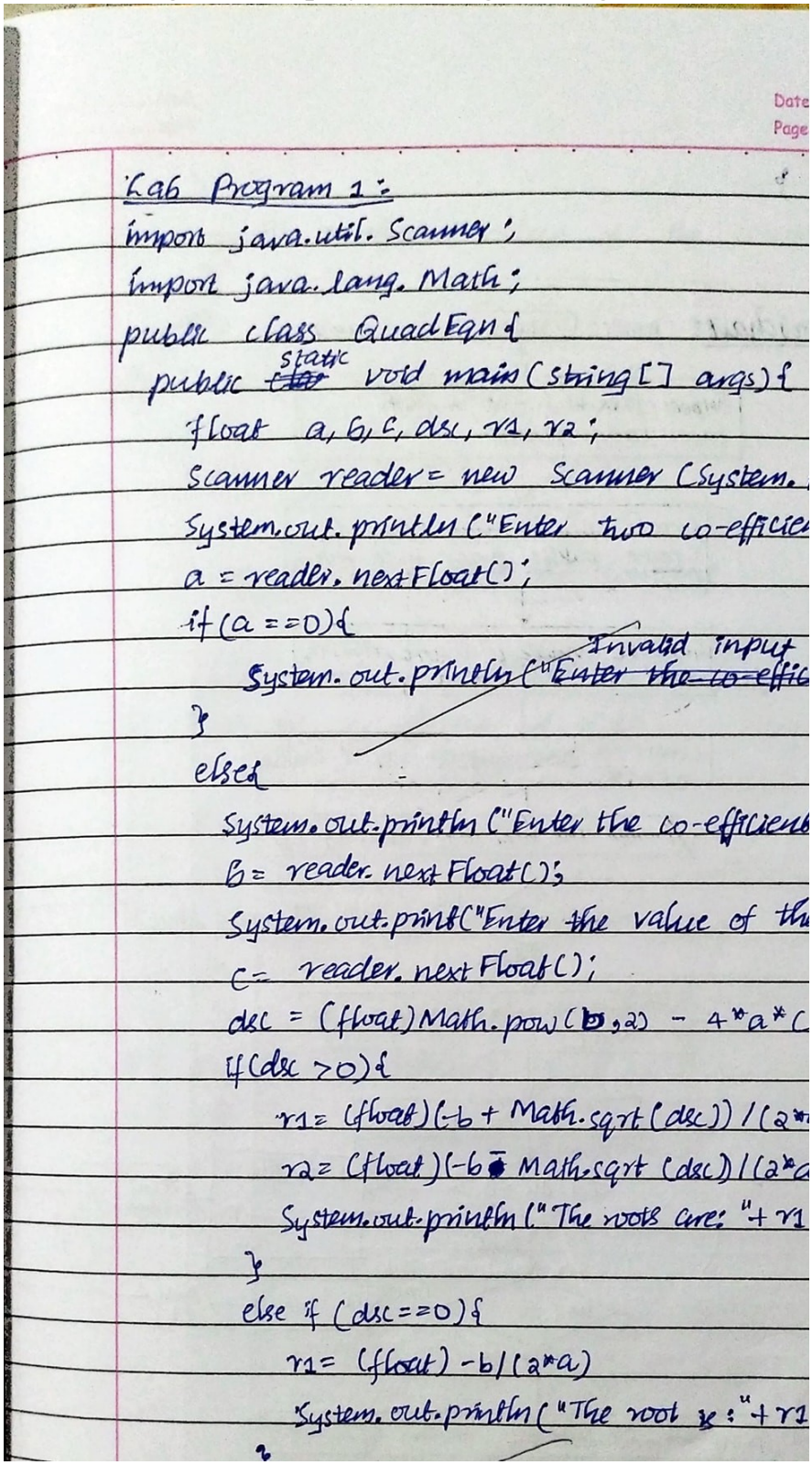
# LAB-1:QUADRATIC EQUATION

Develop a Java program that prints all real solutions to the quadratic equation ax2+bx+c= 0.Read in a, b, c and use the quadratic formula. If the discriminate b2-4ac is negative, display a message stating that there are no real solutions.

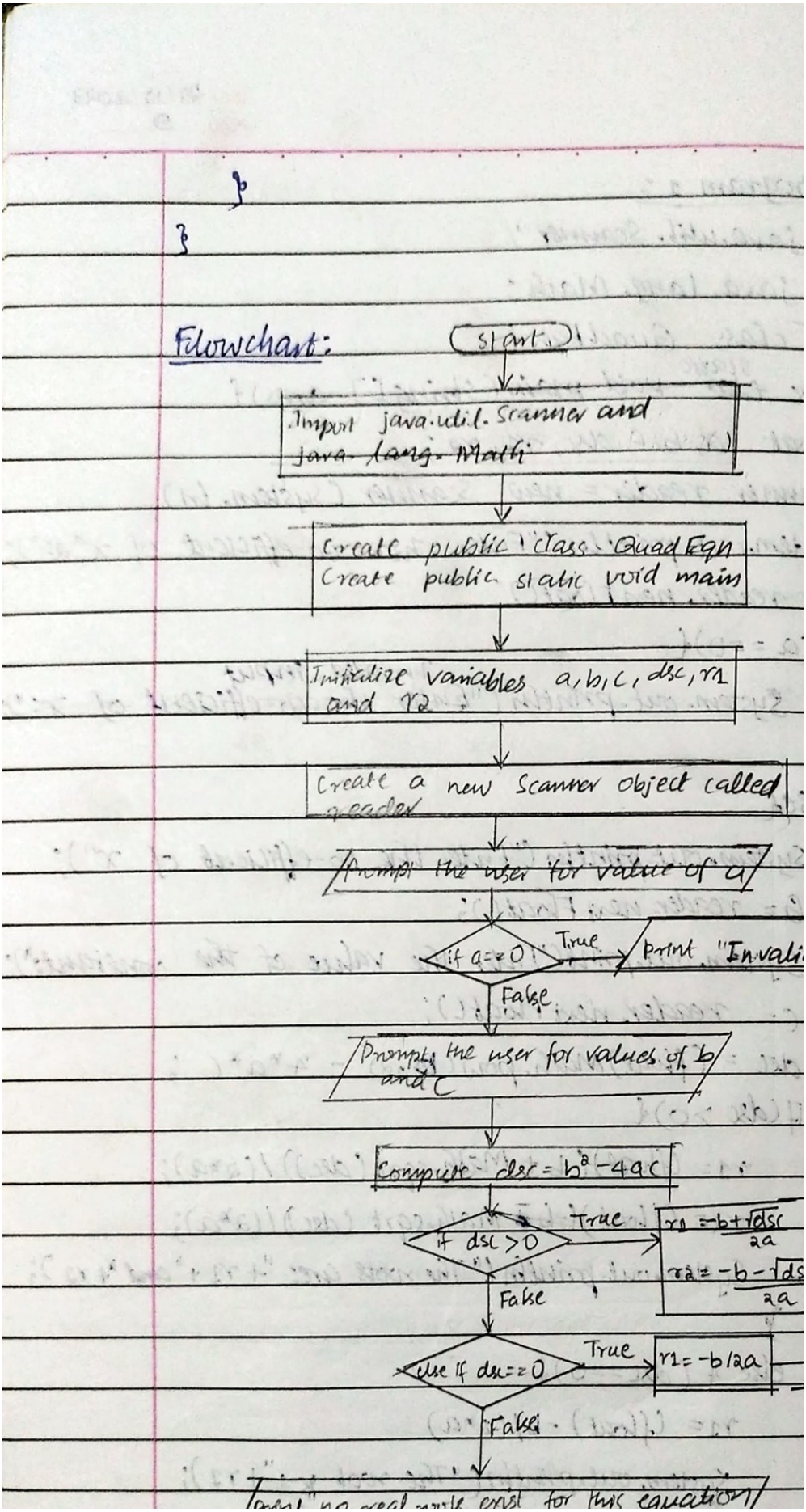


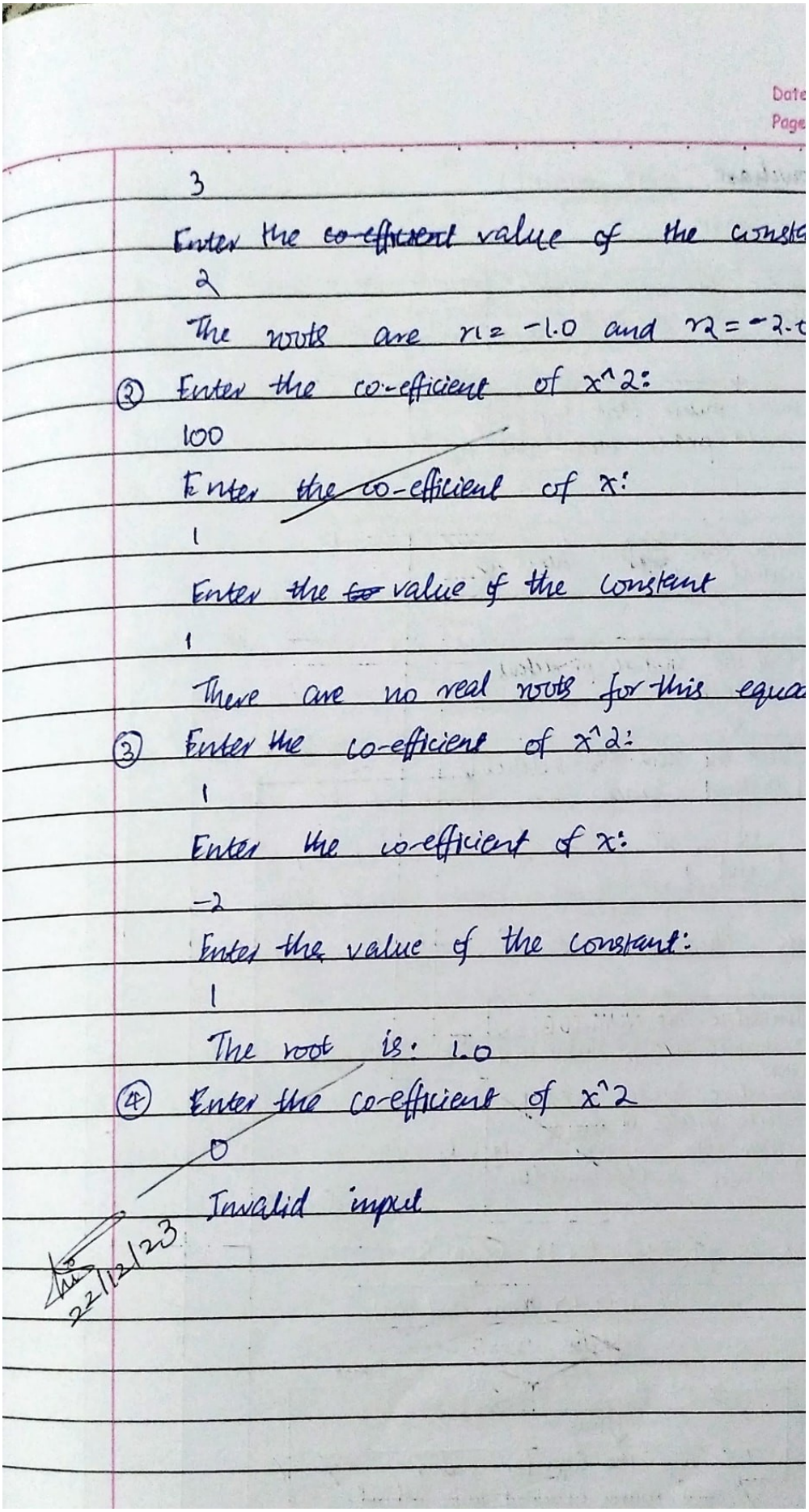
```
Lab Program 1:
import java.util. Scanner;
import java.lang. Math;
public class QuadEqn{
  public static void main(String[] args){
    float a, b, c, dsc, r1, r2;
    Scanner reader= new Scanner(System.
    System.out.println("Enter two co-efficie
    a = reader.nextFloat();
    if(a==0){
       System.out.println("Enter the co-effic   Invalid input
    }
    else{
      System.out.println("Enter the co-efficient
      b= reader.nextFloat();
      System.out.print("Enter the value of th
      c= reader.nextFloat();
      dsc = (float)Math.pow(b,2) - 4*a*c
      if(dsc>0){
        r1= (float)(-b + Math.sqrt(dsc))/(2*
        r2= (float)(-b - Math.sqrt(dsc))/(2*a
        System.out.println("The roots are: "+r1
      }
      else if(dsc==0){
        r1= (float) -b/(2*a)
        System.out.println("The root is: "+r1
      }
```

}

}

Flowchart:


start
Import java.util.Scanner and java.lang.Math;
Create public class QuadEqn
Create public static void main
Initialize variables a, b, c, dsc, r1 and r2
Create a new Scanner object called reader
Prompt the user for value of a
if a==0
True
Print "Invali
False
Prompt the user for values of b and c
Compute dsc = b^2 - 4ac
if dsc > 0
True
r1 = -b+√dsc / 2a
r2 = -b-√ds / 2a
False
else if dsc==0
True
r1 = -b/2a
False
"no real roots exist for this equation"



3

Enter the co-efficient value of the consta

2

The roots are r1 = -1.0 and r2 = -2.0

③ Enter the co-efficient of x^2:

100

Enter the co-efficient of x:

1

Enter the co value of the constant

1

There are no real roots for this equa

③ Enter the co-efficient of x^2:

1

Enter the co-efficient of x:

-2

Enter the value of the constant:

1

The root is: 1.0

④ Enter the co-efficient of x^2

0

Invalid input

22/12/23

**OUTPUT :**

```
C:\Users\bmsce\Desktop\1BM22CS024>java QuadEqn
Enter the co-efficient of x^2:
1
Enter the co-efficient of x:
3
Enter the value of the constant:
2
The roots are r1 = -1.0 and r2 = -2.0
Agneya D A 1BM22CS024
```

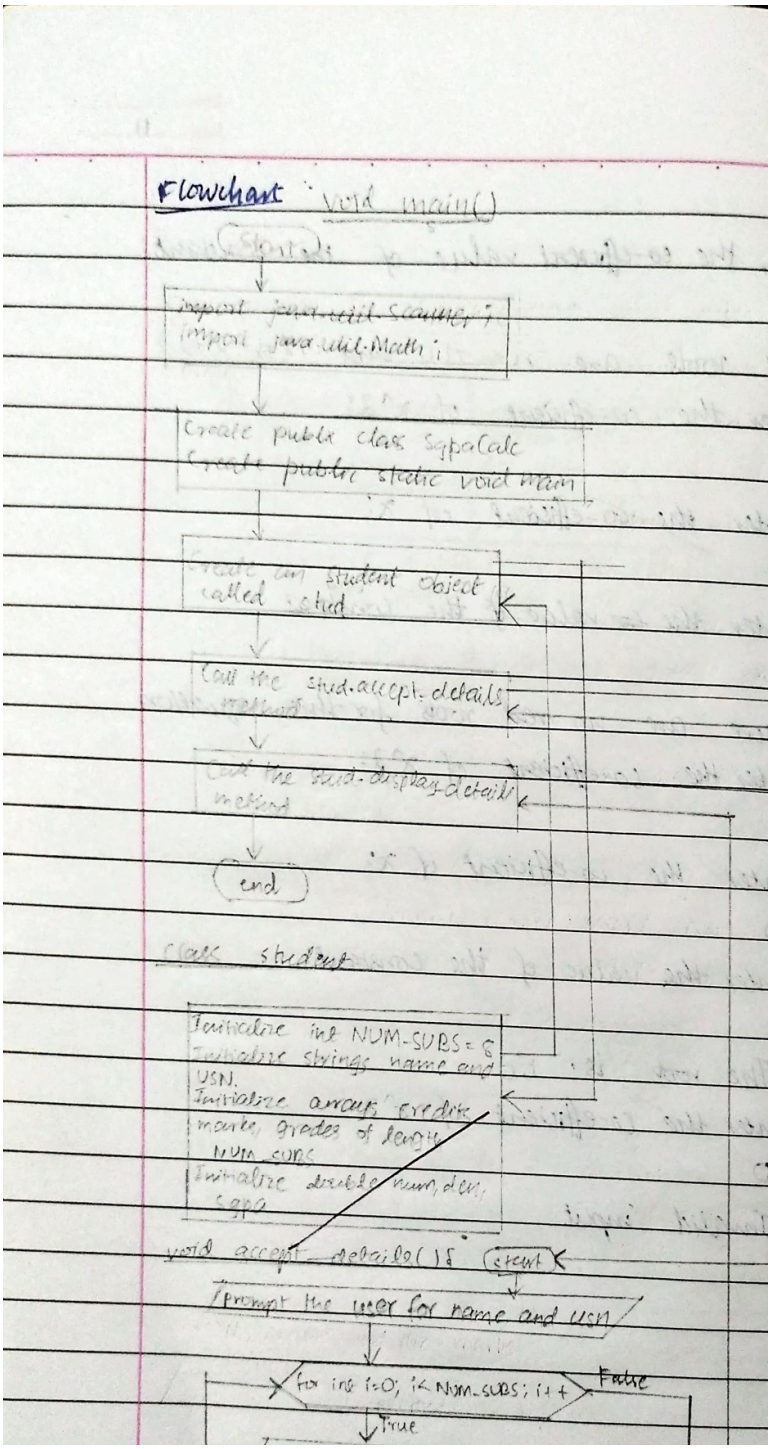
```
C:\Users\bmsce\Desktop\1BM22CS024>java QuadEqn
Enter the co-efficient of x^2:
100
Enter the co-efficient of x:
1
Enter the value of the constant:
1
There are no real roots for this equation
Agneya D A 1BM22CS024
```

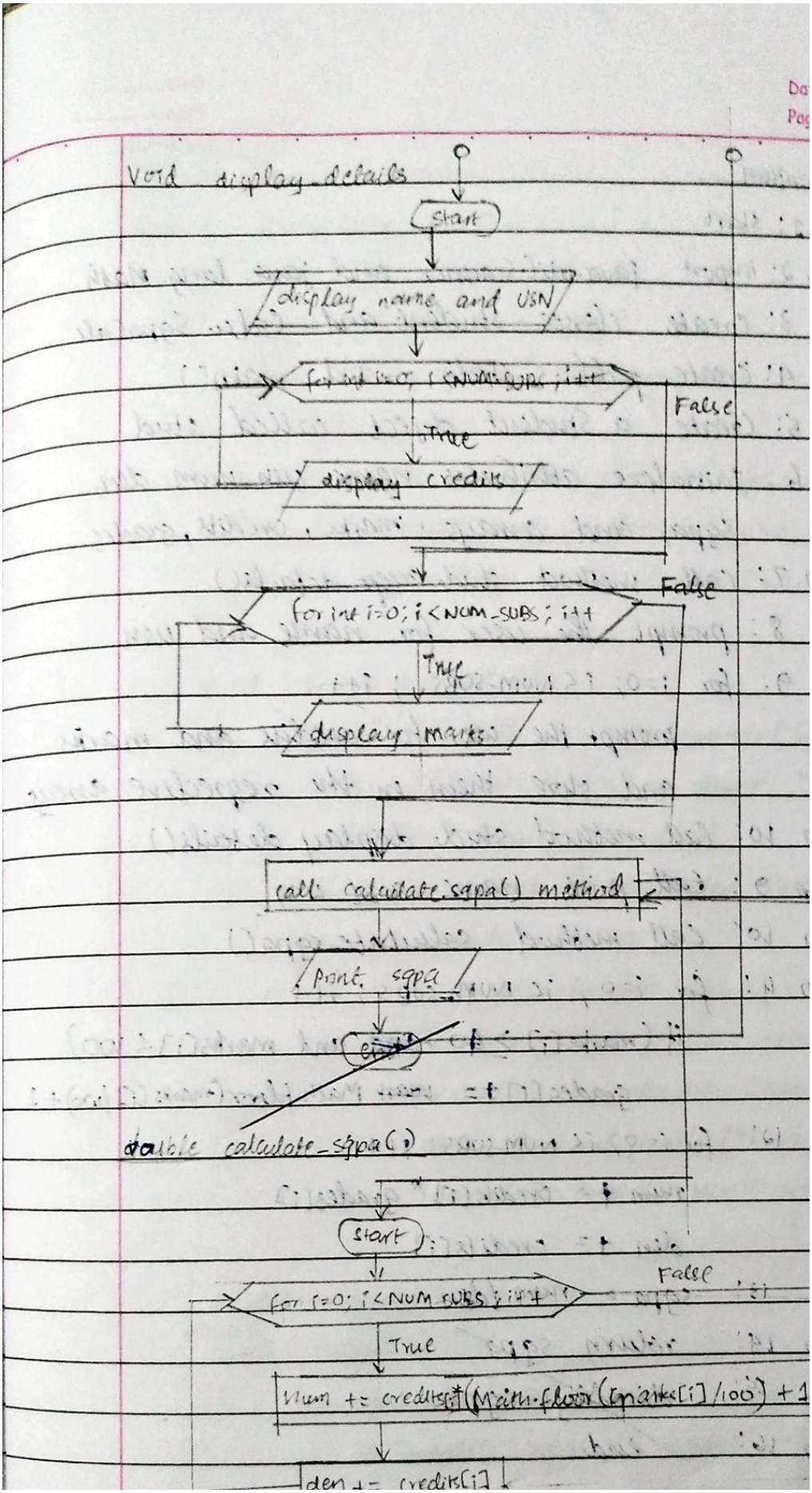
```
C:\Users\bmsce\Desktop\1BM22CS024>java QuadEqn
Enter the co-efficient of x^2:
1
Enter the co-efficient of x:
-2
Enter the value of the constant:
1
The root is: 1.0
Agneya D A 1BM22CS024
```

```
C:\Users\bmsce\Desktop\1BM22CS024>java QuadEqn
Enter the co-efficient of x^2:
0
Invalid input
```

# LAB-2: STUDENT SGPA CALCULATION

Develop a Java program to create a class Student with members usn, name, an arraycredits and an array marks. Include methods to accept and display details and amethod to calculate SGPA of a student.




Void display_details
start
display name and USN
for int i=0; i<NUM_SUBS; i++
False
True
display credits
False
for int i=0; i<NUM_SUBS; i++
True
display marks
call calculate_sgpa() method
print sgpa
end
double calculate_sgpa()
start
for i=0; i<NUM_SUBS; i++
False
True
num += credits*(Math.floor(marks[i]/100) + 1
den += credits[i]

Algorithm:

step 1: start

step 2: import java.util.Scanner and java.

step 3: Create classes student and ~~Gate~~

step 4: Create public static void main

step 5: Create a Student object called

step 6: Initialize attributes name, usn, n
sgpa, and arrays marks, credi

step 7: Call method stud.accept_details()

step 8: prompt the user for name an

step 9: for i=0; i<NUM_SUBS ; i++
prompt the user for credits a
and store them in the resp

step 10: Call method stud.display deta

step 9: ~~Call~~ print name and usn

step 10: Call method calculate_sgpa()

step 11: for i=0; i<NUM_SUBS; i++
if (marks[i] ≥ 40 ~~and~~ and mark
grades[i] += ~~math~~ Math.floor(

step 12: for i=0; i<NUM_SUBS; i++;
num += credits[i] * grades[i]
den += credits[i]

step 13: sgpa = num/den

step 14: return sgpa

step 15: display sgpa

Program:

```
import java.util.Scanner;
import java.lang.Math;
class Student {
    int NUM_SUBS = 8; double sgpa, num, den;
    String name, usn;
    double credits[] = new double[NUM_SUB
    double marks[] = new double[NUM_S
    double grades[] = new double[NUM
    void accept_details(){
        Scanner reader = new Scanner(Sy
        System.out.println("Enter name: ")
        name = reader.nextLine();
        System.out.println("Enter USN:
        usn = reader.nextLine();
        for(int i=0; i< NUM_SUBS; i++){
            System.out.println("Enter credi
            credits[i] = reader.nextDouble
            System.out.println("Enter
            marks[i] = reader.nextDoub
        }
    double calculate_sgpa(){
        for(int i=0; i<NUM_SUBS; i++){
            if(marks[i]>=40 && marks[i]<=
                grades[i] = Math.floor(mark
```

```
        num += grades[i] * credits[i];
        den += credits[i];
    }

    sgpa = num/den;
    return sgpa;

void display_details(){
    System.out.println("Name:" + nam
    System.out.println("USN:" + us
    System.out.print("Credits: ");
    for(i=0; i<NUM_SUBS; i++){
        System.out.print(credits[i] +"
    }
    System.out.println(" ");
    System.out.print("Marks: ");
    for(int i=0; i< NUM_SUBS; i++)
        System.out.print(marks[i] +
    }
    System.out.println(" ");
    System.out.println("SGPA: "
}

public class SgpaCalc {
    public static void main(String[]
        Student stud = new Student(
```

Output:

```
Enter name:
Agneya
Enter USN:
1BM22CS024
Enter credits:
4
Enter marks:
90
Enter credits:
4
Enter marks:
92
Enter credits:
3
Enter marks:
87
Enter credits:
3
Enter marks:
95
Enter credits:
3
Enter marks:
92
Enter credits:2
```

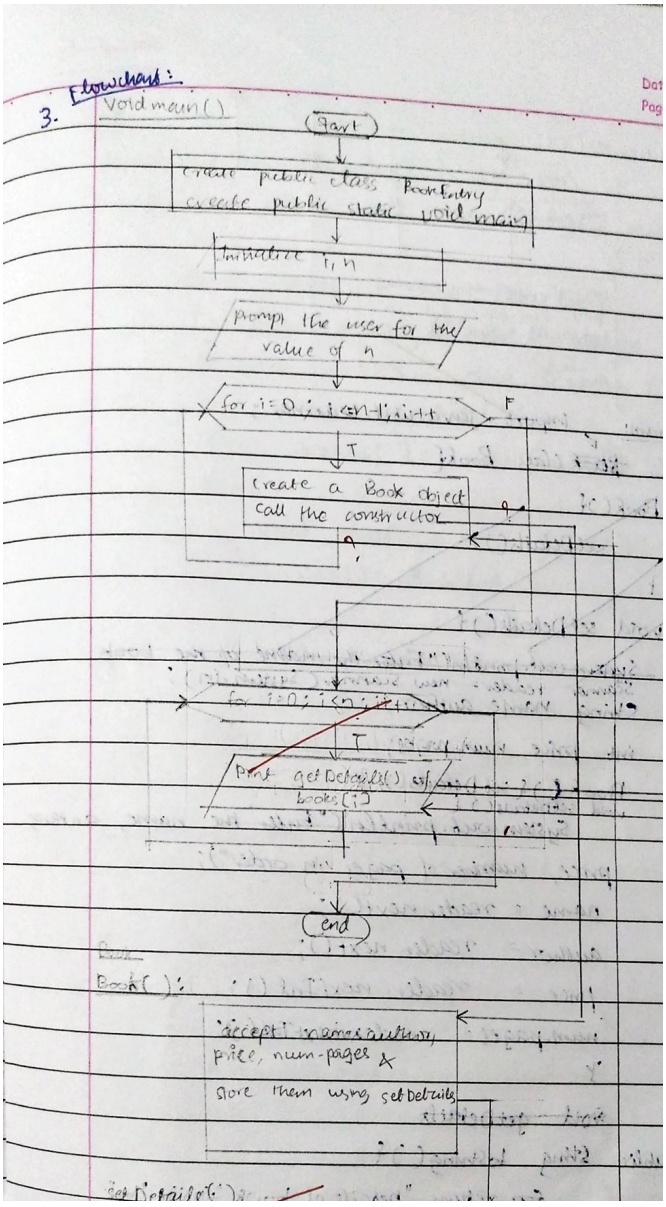
**OUTPUT :**

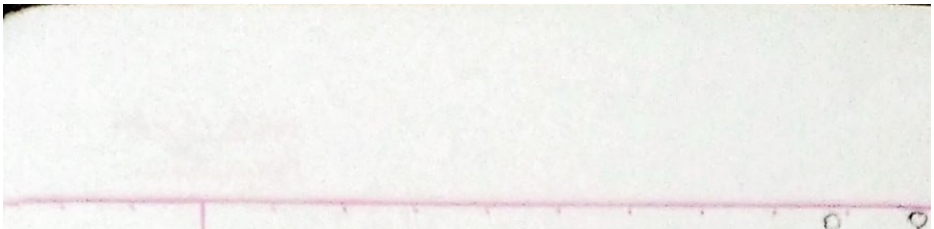
```
C:\Users\bmsce\Desktop\1BM22CS024\lab 2>java SgpaCalc
Enter name:
Agneya
ENter USN:
1BM22CS024
Enter Credits:
4
Enter marks:
90
Enter Credits:
4
Enter marks:
92
Enter Credits:
3
Enter marks:
87
Enter Credits:
3
Enter marks:
95
Enter Credits:
3
Enter marks:
92
Enter Credits:
1
Enter marks:
97
```

```
Enter marks:
97
Enter Credits:
1
Enter marks:
96
Enter Credits:
1
Enter marks:
95
Name: Agneya
USN: 1BM22CS024
Credits: 4.0 4.0 3.0 3.0 3.0 1.0 1.0 1.0
Marks: 90.0 92.0 87.0 95.0 92.0 97.0 96.0 95.0
SGPA: 9.85
```

# LAB-3: BOOK DETAILS

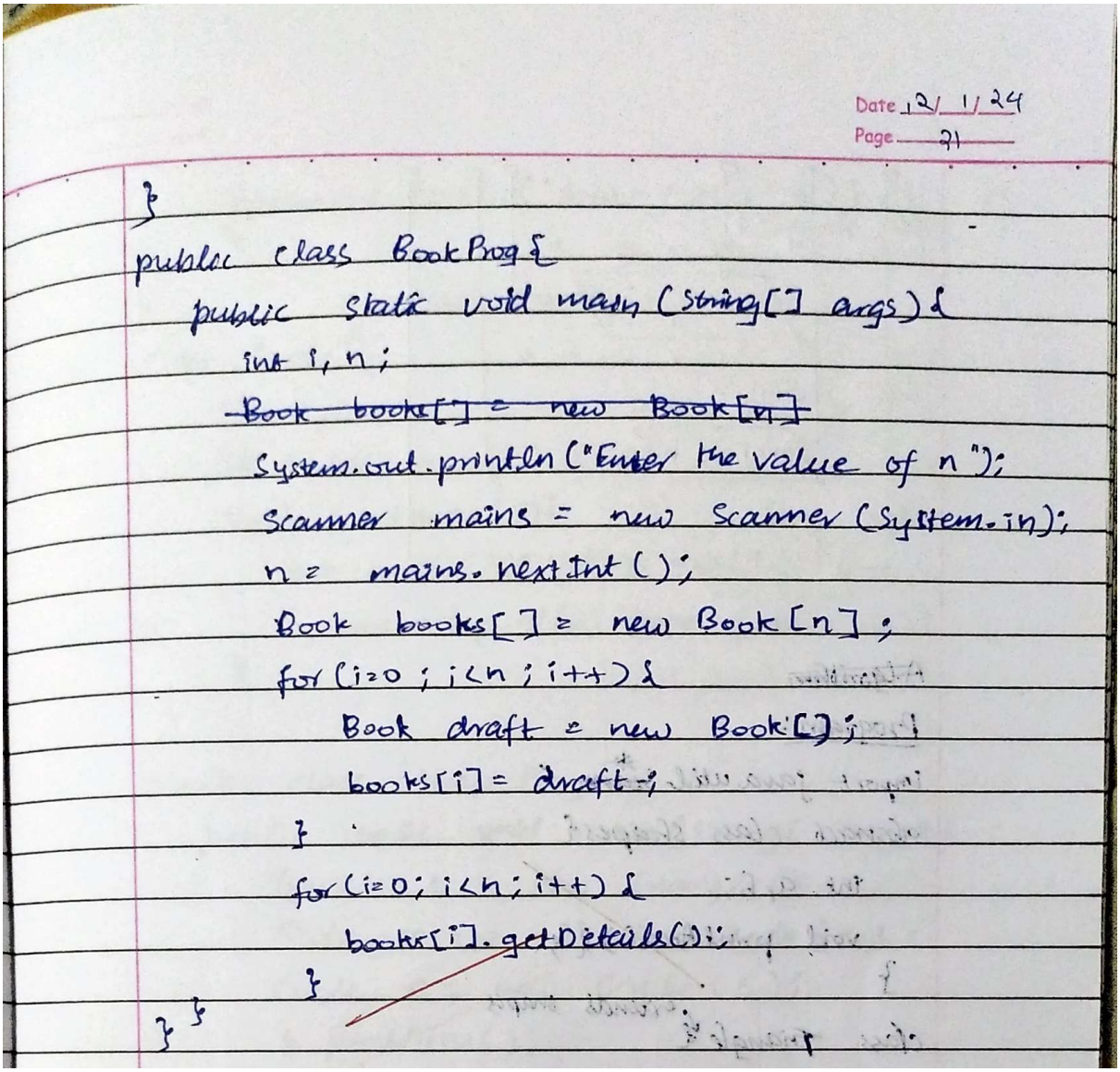
Create a class Book which contains four members: name, author, price, num_pages. Include a constructor to set the values for the members. Include methods to set andget the details of the objects. Include a toString( ) method that could display thecomplete details of the book. Develop a Java program to create n book objects.






Program:

```
import java.util.Scanner;
public class Book{
    Book(){
        setDetails();
    }
    void setDetails(){
        Scanner reader = new Scanner(System.
        String name, author;
        int price, num_pages;
        Book(){ setDetails(); }
        void setDetails(){
            System.out.println("Enter the
            price, number of pages in order");
            name = reader.next();
            author = reader.next();
            price = reader.nextInt();
            num_pages = reader.nextInt();
        }
        void getDetails
    Public String toString(){
```



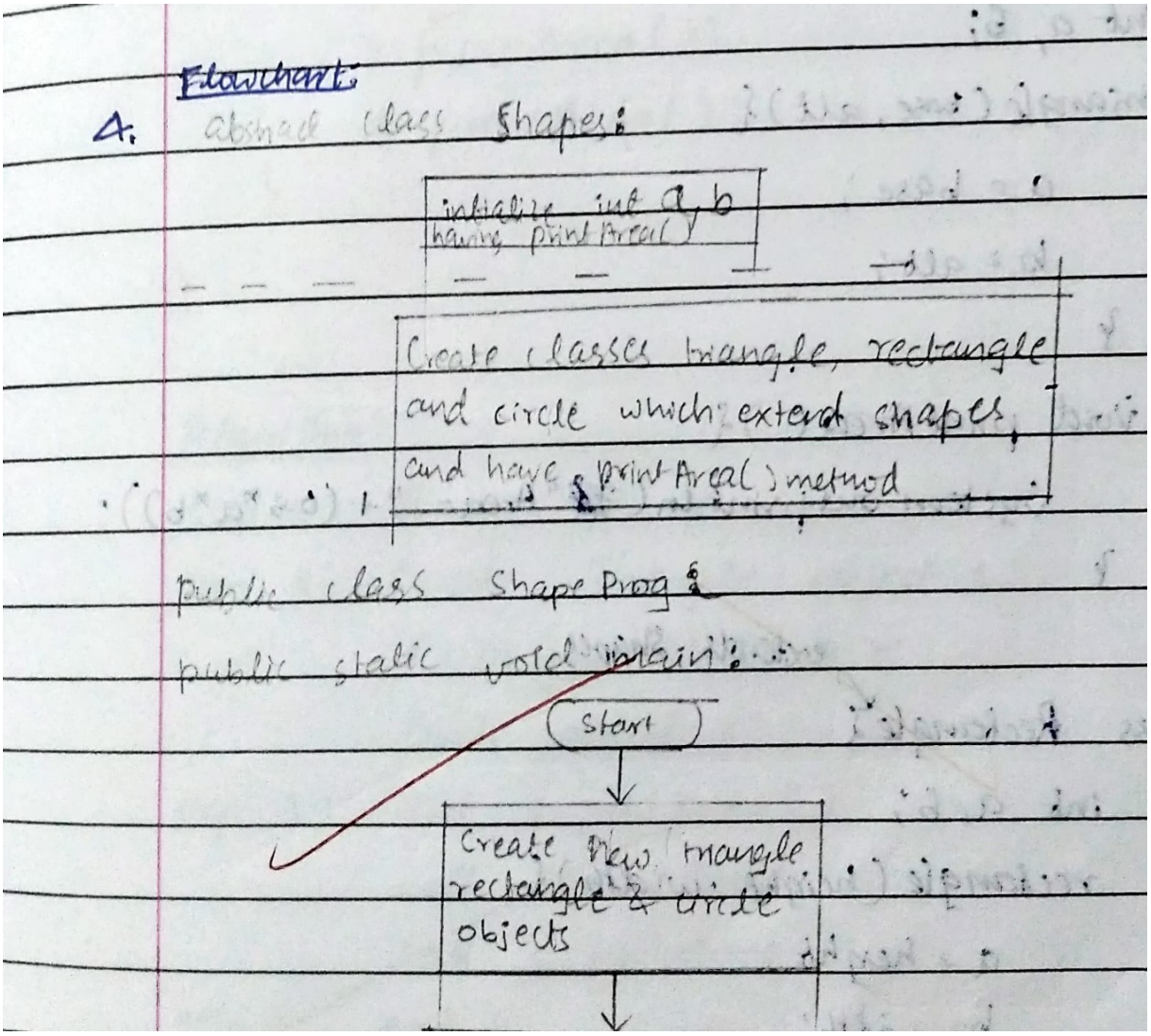
```
Date 12/1/24
Page 21

}
public class BookProg{
    public static void main(String[] args){
        int i, n;
        Book books[] = new Book[n];
        System.out.println("Enter the value of n");
        Scanner mains = new Scanner(System.in);
        n = mains.nextInt();
        Book books[] = new Book[n];
        for(i=0; i<n; i++){
            Book draft = new Book();
            books[i] = draft;
        }
        for(i=0; i<n; i++){
            books[i].getDetails();
        }
}}
```

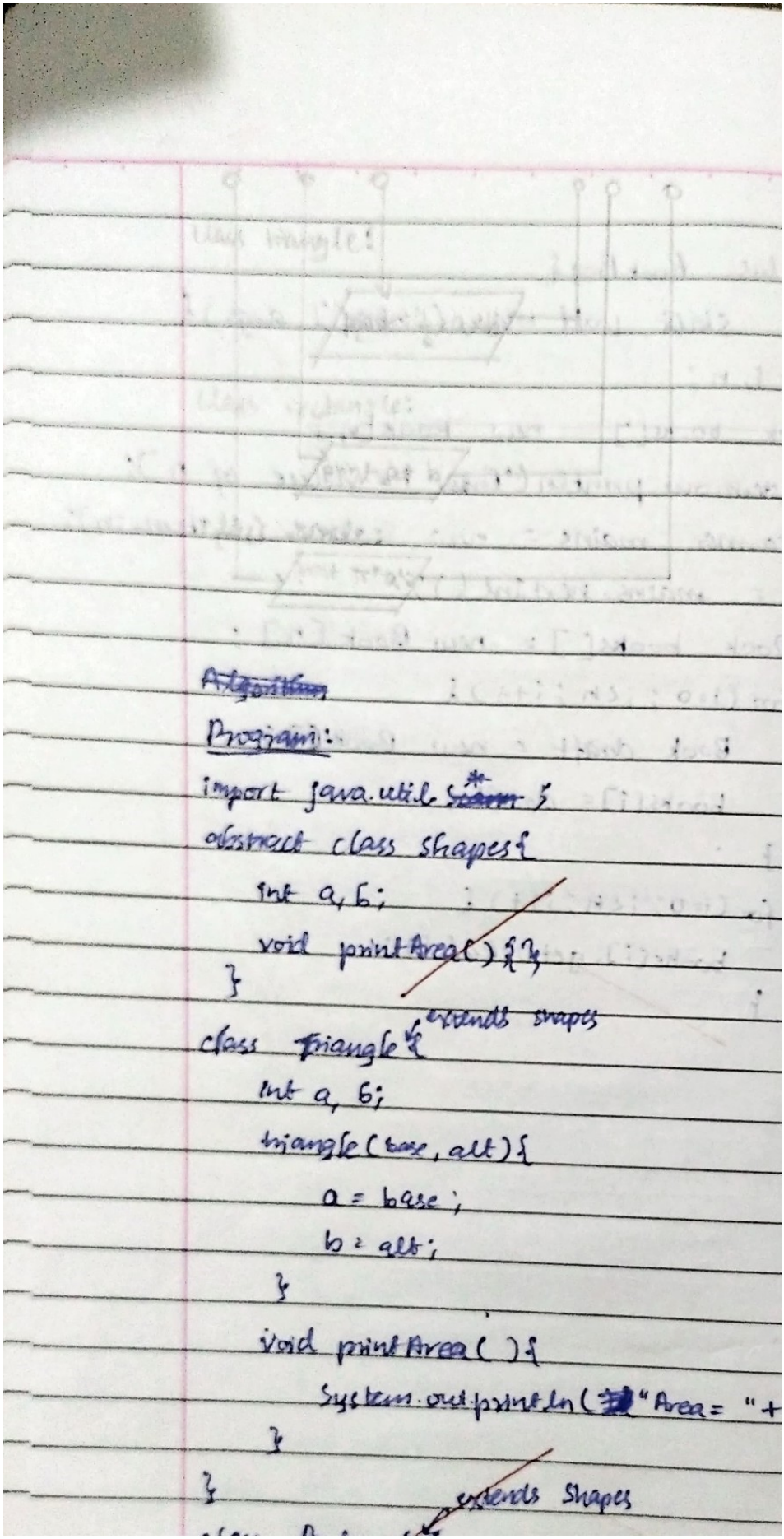
**OUTPUT :**

```
Enter the value of n:
2
Enter the name, author, price, number of pages in order:
James AtomicHabits 300 200
Enter the name, author, price, number of pages in order:
Cruyff MyTurn 400 174
Details of book:
Name: James
Author: AtomicHabits
Price: 300
Num pages: 200
Details of book:
Name: Cruyff
Author: MyTurn
Price: 400
Num pages: 174
1BM22CS024 Agneya D A
```

# LAB-4: AREA CALCULATION

Develop a Java program to create an abstract class named Shape that contains twointegers and an empty method named printArea( ). Provide three classes namedRectangle, Triangle and Circle such that each one of the classes extends the classShape. Each one of the classes contain only the method printArea( ) that prints thearea of the given shape.





Program:

```
import java.util.*;
abstract class shapes{
    int a, b;
    void printArea(){};
}
class Triangle extends shapes{
    int a, b;
    Triangle(base, alt){
        a = base;
        b = alt;
    }
    void printArea(){
        System.out.println("Area = "+
    }
}
extends Shapes
```

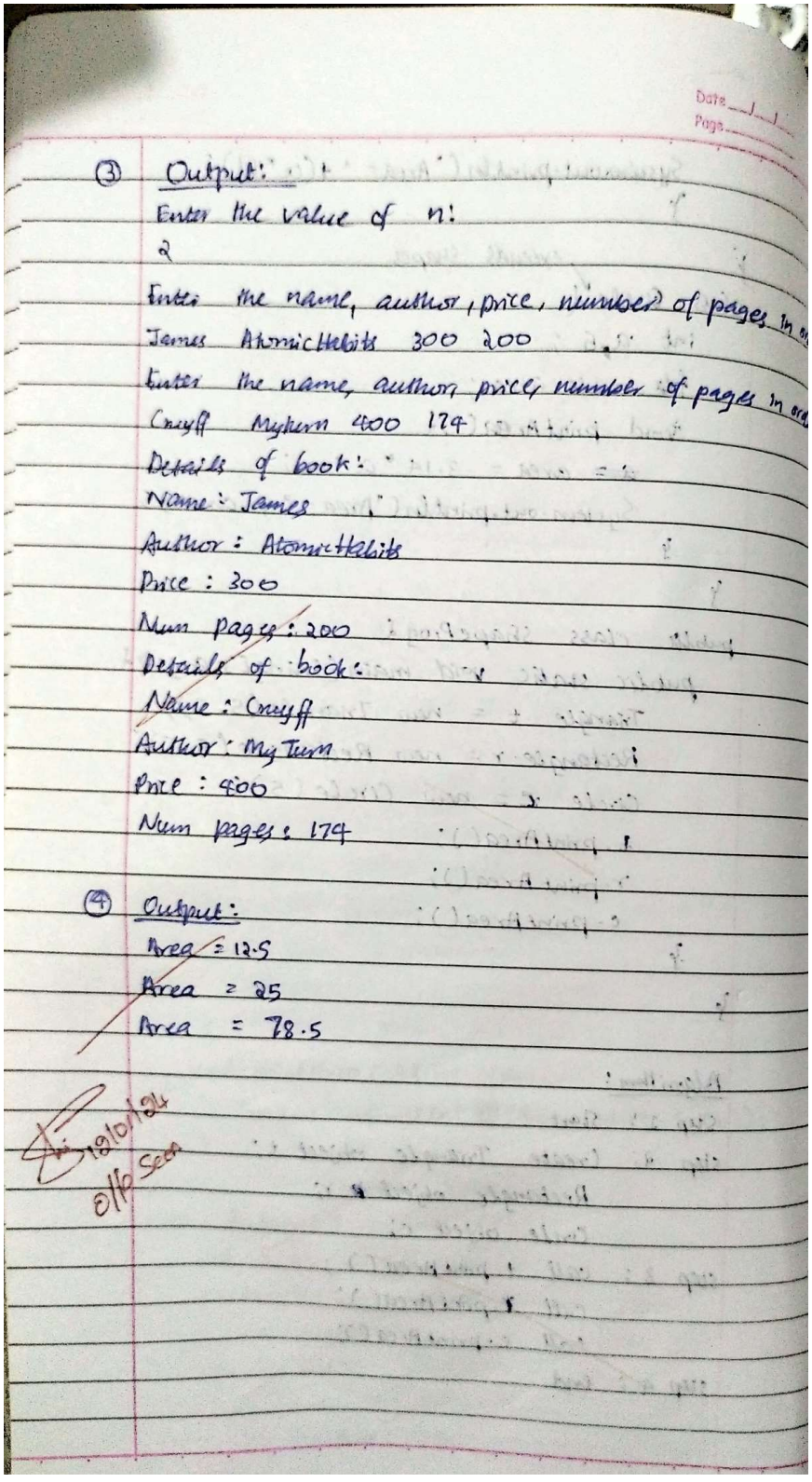
```
        System.out.println("Area = " +(a * b));
        }
}
class Circle extends Shapes{
    int a,b;
    double area;
    void printArea(){
        area = 3.14 * a * a;
        System.out.println("Area = " + area
    }
}
public class ShapeProg{
    public static void main(String[] ar
        Triangle t = new Triangle(5,5)
        Rectangle r = new Rectangle(5,
        Circle c = new Circle(5);
        t.printArea();
        r.printArea();
        c.printArea();
    }
}
```

Algorithm:

Step 1: Start

step 2: Create Triangle object t;

Rectangle object r;



③ Output:

Enter the value of n:
2
Enter the name, author, price, number of pages in or
James AtomicHabits 300 200
Enter the name, author, price, number of pages in or
Cruyff Myturn 400 179
Details of book:
Name: James
Author: AtomicHabits
Price: 300
Num pages: 200
Details of book:
Name: Cruyff
Author: My Turn
Price: 400
Num pages: 179

④ Output:

Area = 12.5
Area = 25
Area = 78.5

18/01/24
O/P seen

**OUTPUT :**

```
Area =12.5
Area =25
Area =78.5
1BM22CS024 Agneya D A
```

## LAB-5: BANK ACCOUNT DETAILS

Develop a Java program to create a class Bank that maintains two kinds of account for its customers, one called savings account and the other current account. Thesavings account provides compound interest and withdrawal facilities but no cheque book facility. The current account provides cheque book facility but no interest. Current account holders should also maintain a minimum balance and if the balance falls below this level, a service charge is imposed.Create a class Account that stores customer name, account number and type of account. From this derive the classes Cur-acct and Sav-acct to make them more specific to their requirements. Include the necessary methods in order to achieve the following tasks:

a) Accept deposit from customer and update the balance.

b) Display the balance.

c) Compute and deposit interest

d) Permit withdrawal and update the balance

Check for the minimum balance, impose penalty if necessary and update the balance.

(5) Program :

```
import java.util.Scanner; import java.lang.Math
class Account{
    String name;
    long accno;
    String acctype;
}

class SavAcct extends Account{
    double bal, interest_rate = 0.04;
    SavAcct(String nam, string long accnum
        name = nam;
        accno = accnum;
        bal = start;
        acctype = "savings";
    }
```

```
        bal += amount;
    }
    double withdraw(double amount){
        bal -= amount;
        return amount;
        if(bal< min_ami
        return amount;
    }
    double addInterest(double time){
    bal = bal*(1+interest_rate/(tim
    bal = bal*pow((1+interest_rate/4
    }
}
class CurrAcct extends Account{
    double bal, charge_rate = 0.05, min_a
    CurrAcct(String nam, long acenum, doubl
        acctype = "current";
        bal = start;
        name = nam;
        acno = acnum;
    }
    boolean chequeBook = true;
    void deposit(double amount){
        bal += amount;
    }
    double withdraw(double amount){
```

```
        bal = bal - charge_rate * bal;
    }
}

public class Bank{
    public static void main(String[] arg
        SavAcct sav = new SavAcct("Agneya
                                  1,3000);
        CurAcct cur = new CurAcct("Agneya
        Scanner reader = new Scanner(System.i
        System.out.println("Opening a Savin
        System.out.println("Enter your nam
        String name = reader.nextLine();
        System.out.println("Account number
        long acnum = reader.nextLong();
        System.out.println("Initial deposit:")
        double start = reader.nextDou
        SavAcct sav = new SavAcct(name, acu
        System.out.println("Opening a curren
        System.out.println("Enter yourm name
        name = reader.nextLine();
        System.out.println("Account number
        acnum = reader.nextLong();
        System.out.println("Initial deposit")
        start = reader.nextDouble();
        CurAcct cur = new CurAcct(nam
```

```
cur.deposit(double);
System.out.println("Withdrawing 20
Savings account");
sav.withdraw(2000);
System.out.println("Withdrawing "+(amo
"from current account");
cur.withdraw(amount+2000);
System.out.println("How many yea
passed since depositing in the sa
account?:");
double years = reader.nextDouble
sav.addInterest(years);
System.out.println("Amount in savi
+ sav.bal);
System.out.println("Amount in curr
+ cur.bal);
    }
}
```

Algorithm:

step 1: Start

step 2: Prompt the user for name of
holder, account number and in
and create two objects sav (
and cur (of type CurAcct)

step 3: Deposit ~~2000~~ amount to savings accoun

sav. withdraw (2000)

step 8: sav. bal -= 2000

step 9: withdraw amount + 2001 from account by calling cur. withdraw

step 10: cur. bal -= amount (here amount parameter)

step 11: charge service charge for goi the minimum balance by de charge rate from cur. bal.

step 12: prompt the user for number since depositing in the sav

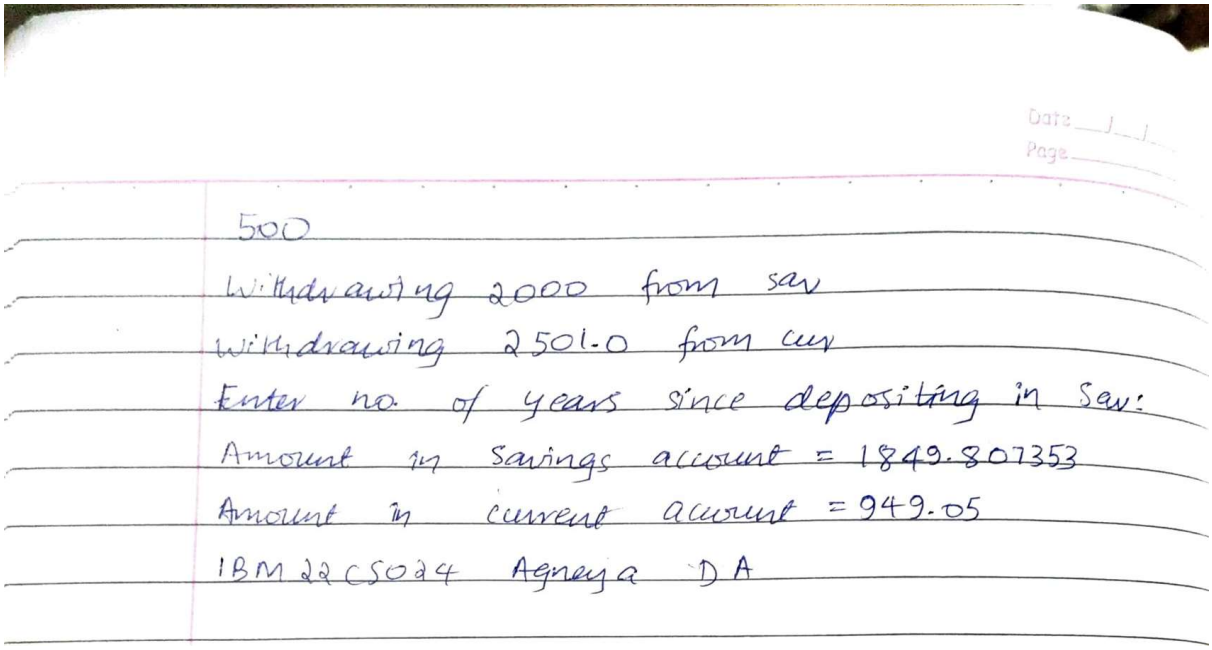
step 13: Add the compound interest by performing bal = bal (1 + interes

step 14: Display balances of both ac

step 15: End.

Output:

Opening savings account!
Enter your name:
Agneya
Account number:
1
Initial deposit:
3000
Opening current account!
Account number:
2

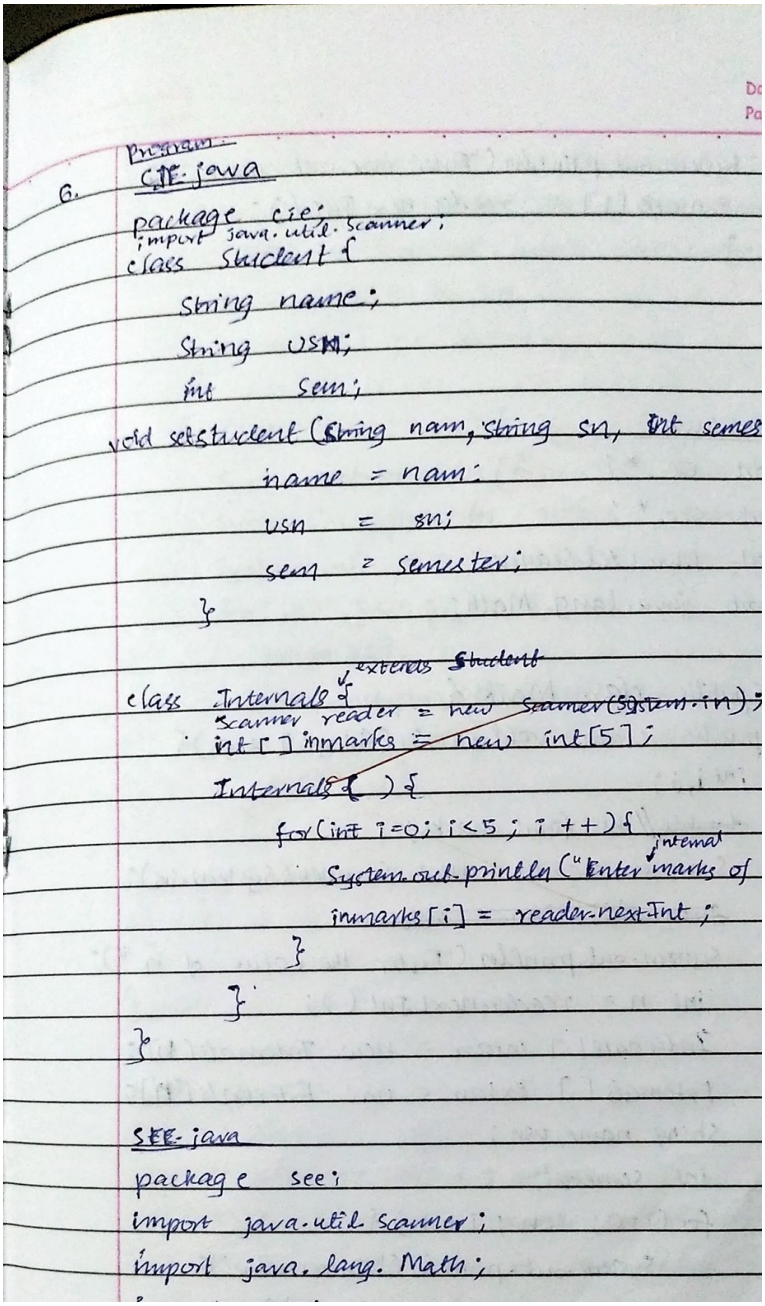



**OUTPUT :**

```
PS C:\Users\bmsce\Desktop\1BM22CS024\lab 4> cd "c:\Users\bm
Opening a savings account!
Enter your name:
Agneya
Account number:
1
Initial deposit:
3000
Opening a current account!
Account number:
2
Initial deposit:
3000
What amount should be deposited to the Savings acccount?
400
What amount should be deposited to the current acccount?
500
Withdrawing 2000 from sav
Withdrawing 2501.0 from cur
Enter the no. of years since depositing in sav:
7
Amount in savings account = 1849.8073536575516
Amount in current account = 949.05
1BM22CS024 Agneya D A
PS C:\Users\bmsce\Desktop\1BM22CS024\lab 4>
```

# LAB-6: CALCULATION OF MARKS

Create a package CIE which has two classes- Student and Internals. The class Personal has members like usn, name, sem. The class internals has an array that stores the internal marks scored in five courses of the current semester of the student. Create another package SEE which has the class External which is a derived class of Student. This class has an array that stores the SEE marks scored in five courses of the current semester of the student. Import the two packages in a file that declares the final marks of n students in all five courses.



Program:

6. CIE.java

```
package cie;
import java.util.Scanner;
class Student {
    String name;
    String usn;
    int sem;
void setstudent (String nam, String sn, int semes
        name = nam;
        usn = sn;
        sem = semester;
    }

class Internals extends Student {
    Scanner reader = new Scanner(System.in);
    int [] inmarks = new int[5];
    Internals( ) {
        for(int i=0; i<5; i++){
            System.out.println("Enter internal marks of
            inmarks[i] = reader.nextInt;
        }
    }
}
```

SEE.java

```
package see;
import java.util.Scanner;
import java.lang.Math;
```

```
            System.out.println("Enter external mar
            exmark[i] = reader.nextInt();
        }
    }
}
```

Marks.java

```
import cie.*;
import see.*;
import java.util.Scanner;
import java.lang.Math;

class public class Marks{
    public static void main(String[] args
        int i,j;
        double //int final marks;
        Scanner reader = new Scanner(Syste
        Internals[] intarr = new i;
        System.out.println("Enter the value
        int n = reader.nextInt();
        Internals[] intarr = new Internals
        Externals[] extarr = new Externals
        String name, usn;
        int semester;
        for(i=0; i<n; i++){
            System.out.println("Enter name");
```

```
Externals studex = new Externals();
studin.setStudent(name, usn, sem
studex.setStudent(name, usn, semest
intarr[i] = studin;
extarr[i] = studex;
}
for(i=0; i<n; i++){
System.out.println("name: "+intarr[i].name);
System.out.println("USN: "+intarr[
System.out.println("Sem: "+intarr[i
for(j=0; j<5; j++){
intarr[i].
System.out.println("Course"+(j+1)+":"
(intarr[i].marks[j]+Math.ceil(ex
ks[i]/2));
}
System.out.println("");
}
}
}
```

Algorithm:

step 1: Start

step 2: initialize int i, j,

step 3: Create a new Scanner called reac

step 4: Prompt the user for the value of

prompt the users for the nam
semester of the student.
step 8: Create new ~~int~~ ~~stud~~ Internals
& Externals object studex.
step 9: While creating the objects,
for(i=0; i<5; i++){
Enter the marks scored in
}
step 10: Store studin in inmarr[i] & st
extarr[i]
step 11: Exit the for loop after the us
step 12: for(~~int~~ i=0; i<n; i++){
print name, usn & sem
step 13: for(j=0; j< ~~j~~ 5; j++){
print the final marks whic
inmarr[i].inmarks[j]+Math.ceil(
exmarks[j]/2) in course j+
step 14: After the condition fails,
step 15: Print a new line
step 16: Exit the for loop after the
step 17: End.

Output:

Enter the value of n
2
Enter name:

Enter internal marks of course 2:
46
Enter internal marks of course 3:
47
Enter internal marks of course 4:
48
Enter internal marks of course 5:
49
Enter external marks of course 1:
100
Enter external marks of course 2:
99
Enter external marks of course 3:
98
Enter external marks of course 4:
97
Enter external marks of course 5:
96
Enter name:
Aman
Enter USN:
034
Enter semester:
1
Enter internal marks of course 1:
45

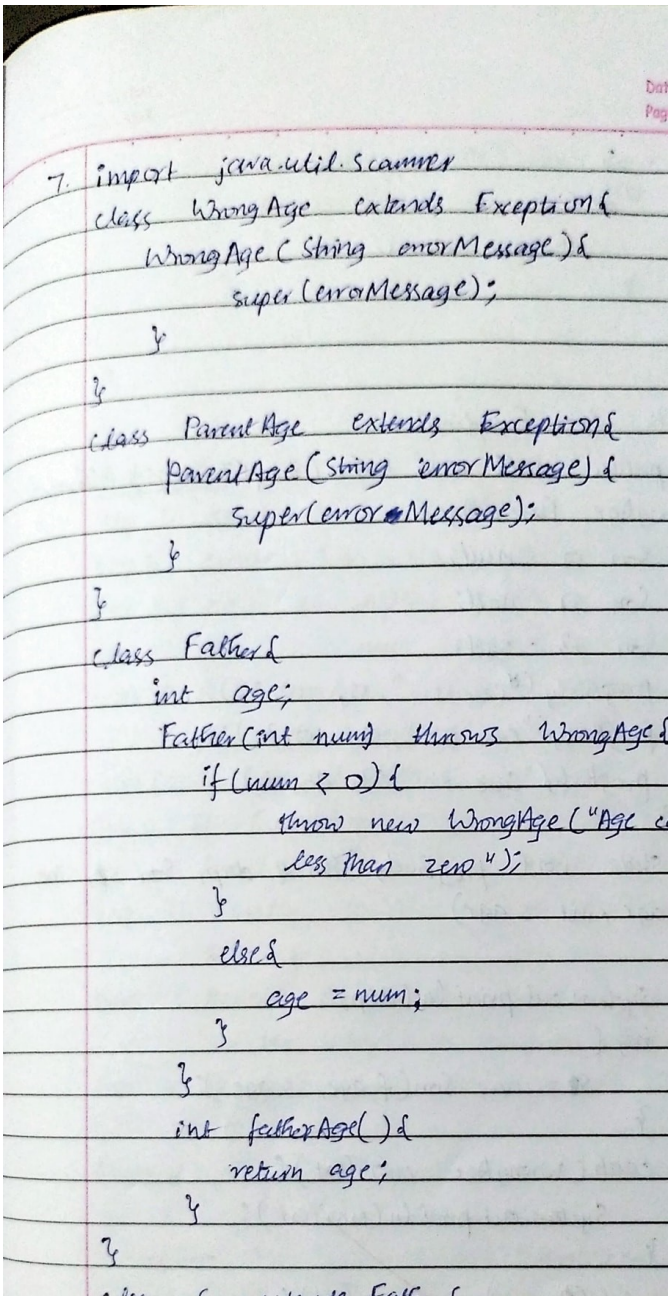
**OUTPUT :**

```
Enter the value of n
2
Enter name:
Agneya
Enter usn:
024
Enter semester:
3
Enter internal marks of course 1:
45
Enter internal marks of course 2:
46
Enter internal marks of course 3:
47
Enter internal marks of course 4:
48
Enter internal marks of course 5:
49
Enter external marks of course 1:
100
Enter external marks of course 2:
99
Enter external marks of course 3:
98
Enter external marks of course 4:
97
Enter external marks of course 5:
96
Enter name:
Aman
Enter usn:
034
Enter semester:
1
Enter internal marks of course 1:
45
```

```
Enter internal marks of course 2:
46
Enter internal marks of course 3:
47
Enter internal marks of course 4:
48
Enter internal marks of course 5:
49
Enter external marks of course 1:
70
Enter external marks of course 2:
75
Enter external marks of course 3:
80
Enter external marks of course 4:
85
Enter external marks of course 5:
90
Name: Agneya
USN: 024
Sem 3
Course 1:95.0
Course 2:96.0
Course 3:96.0
Course 4:97.0
Course 5:97.0

Name: Aman
USN: 034
Sem 1
Course 1:80.0
Course 2:84.0
Course 3:87.0
Course 4:91.0
Course 5:94.0

1BM22CS024 Agneya D A
PS C:\Users\bmsce\Desktop\1BM22CS024\lab 6>
```

# LAB-7: EXCEPTION HANDLING

Write a program that demonstrates handling of exceptions 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 the input age<0. In Son class, implement a constructor that cases both father and son’s age and throws an exception if son’s age is >=father’s age.



```
7. import java.util.Scanner
class WrongAge extends Exception{
    WrongAge(String errorMessage){
        super(errorMessage);
    }
}
class ParentAge extends Exception{
    ParentAge(String errorMessage){
        super(errorMessage);
    }
}
class Father{
    int age;
    Father(int num) throws WrongAge{
        if(num < 0){
            throw new WrongAge("Age
            less than zero");
        }
        else{
            age = num;
        }
    }
    int fatherAge(){
        return age;
    }
}
```

```
        }
        else {
            this.age = num2;
        }
    }
}
public class Exception1 {
    public static void main (String[] a
WrongAge, ParentAge {
    Son s1 = null;
    Son s2 = null;
    Son s3 = null;
    progBody ("case 1: ", s1, -10, 30);
    progBody("case 2: ", s2, 10, 30);
    progBody("case 3: ", s3, 45, 19);
    }
    static void progBody (String disp,
f_age, int s_age)
    {
    System.out.println (disp);
    try {
        s2 = new Son(f_age, s_age);
    }
    catch (WrongAge errorText){
        System.out.println (errorText);
    }
    catch (ParentAge errorTex
```

```
            System.out.println("Son's age:
            s1.age);
            }
        }
    }
}
```

Algorithm:

Step 1: Start

Step 2: Create Son objects s1, s2 & s3.

Step 3: print the display text

Step 4: try s = new Son(f_age, s_age);

Step 5: if WrongAge exception is thrown, the error message (if f_age < 0),

~~Step 6: if error message.~~

Step 6: If ParentAge exception is thrown f_age < s_age), then print error

Step 7: Finally, if s1 != null, print s.fa & s.age;

Step 8: Repeat the process for s2 & s3 the execution of progBody

Step 9: End

Output:

Case 1:

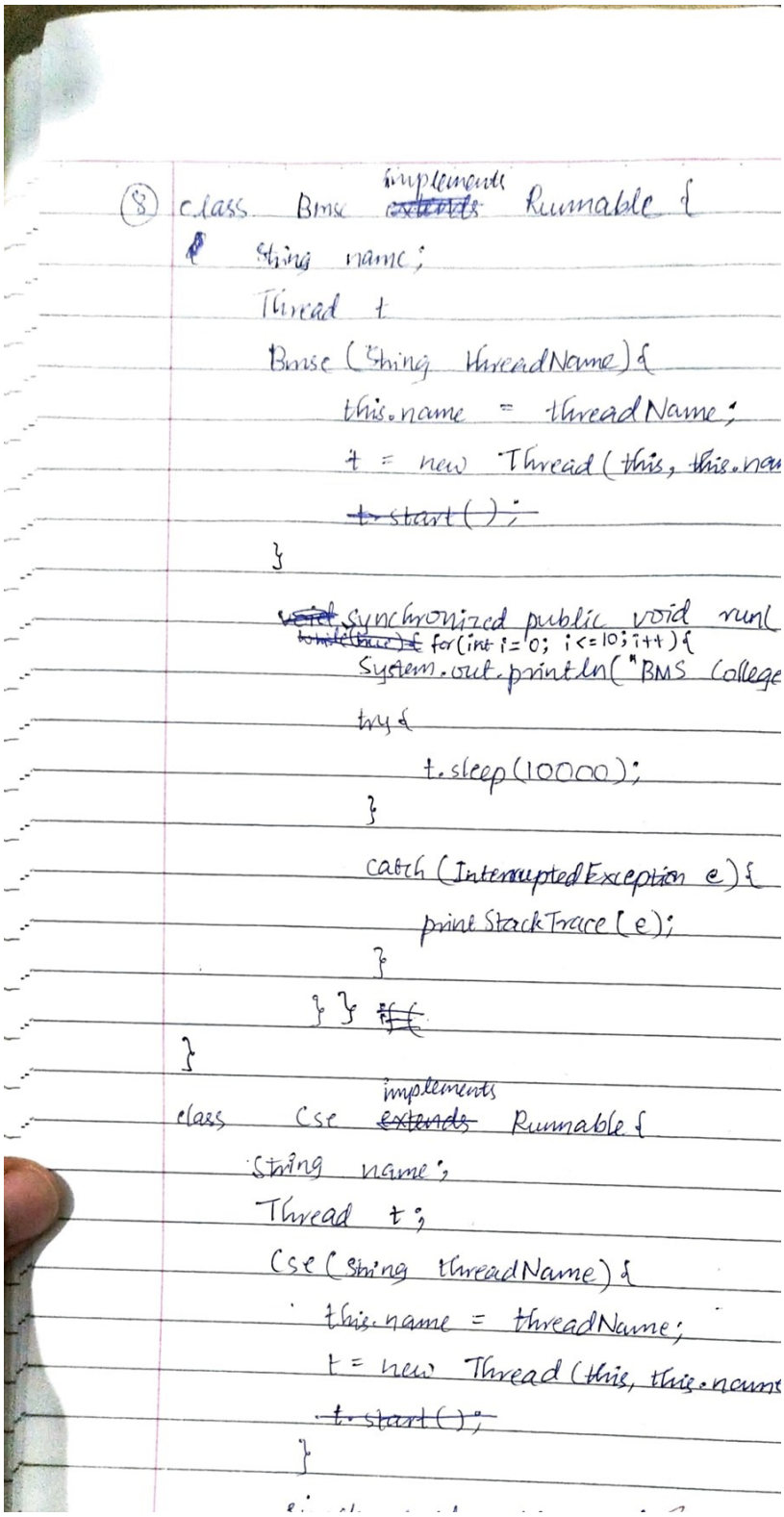
WrongAge: Age can't be less than zero

**OUTPUT :**

```
Case 1:
WrongAge: Age can't be les than zero
Case 2:
ParentAge: The son's age can't be greater than that of the father's
Case 3:
Father's age: 50
Son's age: 21
1BM22CS024 Agneya D A
PS C:\Users\bmsce\Desktop\1BM22CS024\Lab 7>
```

# LAB-8: MULTITHREADING

Write a program which creates two threads, one thread displaying “BMS College of Engineering” once every ten seconds and another displaying “CSE” once every two seconds.



```
(8) class Bmse implements Runnable {
    String name;
    Thread t
    Bmse (String threadName){
        this.name = threadName;
        t = new Thread (this, this.nam
        t.start();
    }
    synchronized public void run(
    for(int i=0; i<=10; i++){
        System.out.println("BMS College
        try{
            t.sleep(10000);
        }
        catch (InterruptedException e){
            printStackTrace(e);
        }
    }}
}
class Cse implements Runnable {
    String name;
    Thread t;
    Cse(String threadName){
        this.name = threadName;
        t = new Thread (this, this.name
        t.start();
    }
```

```
    }
  }
 }
}
class public class Thread1 {
  public static void main (String[] arg
    Bmsc bms = new Bmsc("BMS");
    Cse cs = new Cse("CS");
    bms.t.start();
    cs.t.start();
  }
}
```

Algorithm:

step 1: Start

step 2: create new thread bms of type Bm
threadName = "BMS".

step 3: Declare String variable name & initializ
step hold the value of the passed th
parameter threadName.

step 4: create a new Thread object t
passing bms & bms.name as th
ters.

Step 5: Create a new Thread objec cs of
with threadName = "CS";

step 6: Declare String variable name & i

Step11: try Sleep(10000)
step 12: If InterruptedException is thrown.
error message.
step 13: start thread cse
step 14: for(int i=0; i<= 30; i++){
print "CSE".
step 15: If InterruptedException is thro
error message.
step 16: After the loop conditions fai
loops & stop the ~~string~~ Threa
step 17: stop.

Output:

BMS college of engineering
CSE
CSE
CSE
CSE
CSE
BMS college of engineering
CSE
CSE
CSE
CSE
CSE
BMS college of engineering.

**OUTPUT :**

```
1BM22CS024 Agneya D A
CSE
BMS College of Engineering
CSE
CSE
CSE
CSE
BMS College of Engineering
CSE
CSE
CSE
CSE
CSE
BMS College of Engineering
```

}

## LAB-9: AWT

09) 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 and Num2 is displayed in the Result field when the Divide button is clicked.

If Num1 or Num2 were not an integer, the program would throw a

NumberFormatException. If Num2 were Zero, the program would throw an

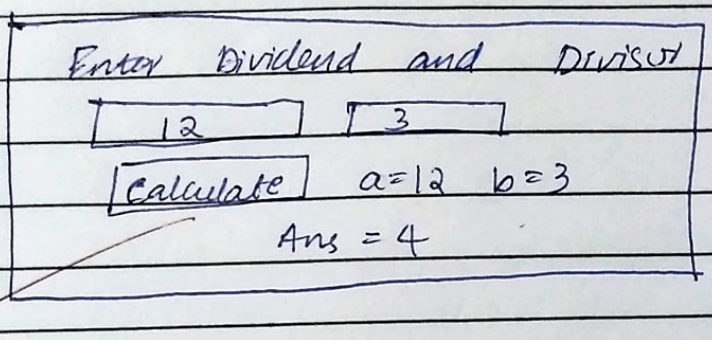
Arithmetic Exception Display the exception in a message dialog box.

9. import javax.swing.*;
import java.awt.*;
import java.awt.event.*;
class SwingDemo{
SwingDemo(){
JFrame jfrm = new JFrame("Divide
jfrm.setSize(275,150);
jfrm.setLayout(new FlowLayout(
jfrm.setDefaultCloseOperation(JFram
_CLOSE);
JLabel jlab = new JLabel("Enter Divi
JTextField ajtf = new JTextField(8);
JTextField bjtf = new JTextField(8);
JButton button = new JButton("Cal
JLabel err = new JLabel();
JLabel alab = new JLabel();
JLabel blab = new JLabel();
jfrm.add
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);

```
bjtf.addActionListener(l);
button.addActionListener(new ActionL
    public void actionPerformed(ActionE
        try{
            int a = Integer.parseInt(aj
            int b = Integer.parseInt(bjt
            int ans = a/b;
            alab.setText("a = "+a);
            blab.setText("b = "+b);
            anslab.setText("Ans = "+an
        }
        catch(NumberFormatException e)
            alab.setText("");
            blab.setText("");
            anslab.setText("");
            err.setText("Enter i= only
        }
        catch(ArithmeticException e){
            alab.setText("");
            blab.setText("");
            anslab.setText("");
            err.setText("B cannot tak
                zero.");
        }
    }
});
```

```
        });
    }
}
```

Output:




23.02.24

- setSize()

Resizes a component to have the width & height.

setLayout()

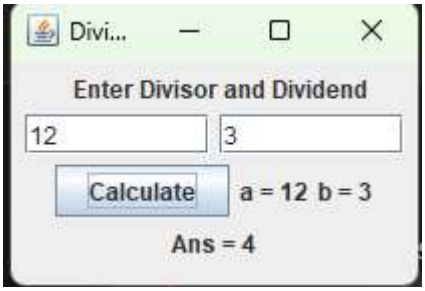
It allows us to set the layout of the to FlowLayout, BorderLayout, CardLayo

actionPerformed()

It helps manage user interactions wit components.

setText()

It is used to set the text inside


Divi...
Enter Divisor and Dividend
12
3
Calculate
a = 12 b = 3
Ans = 4