LAB PROGRAM 1 :

WRITE UP :

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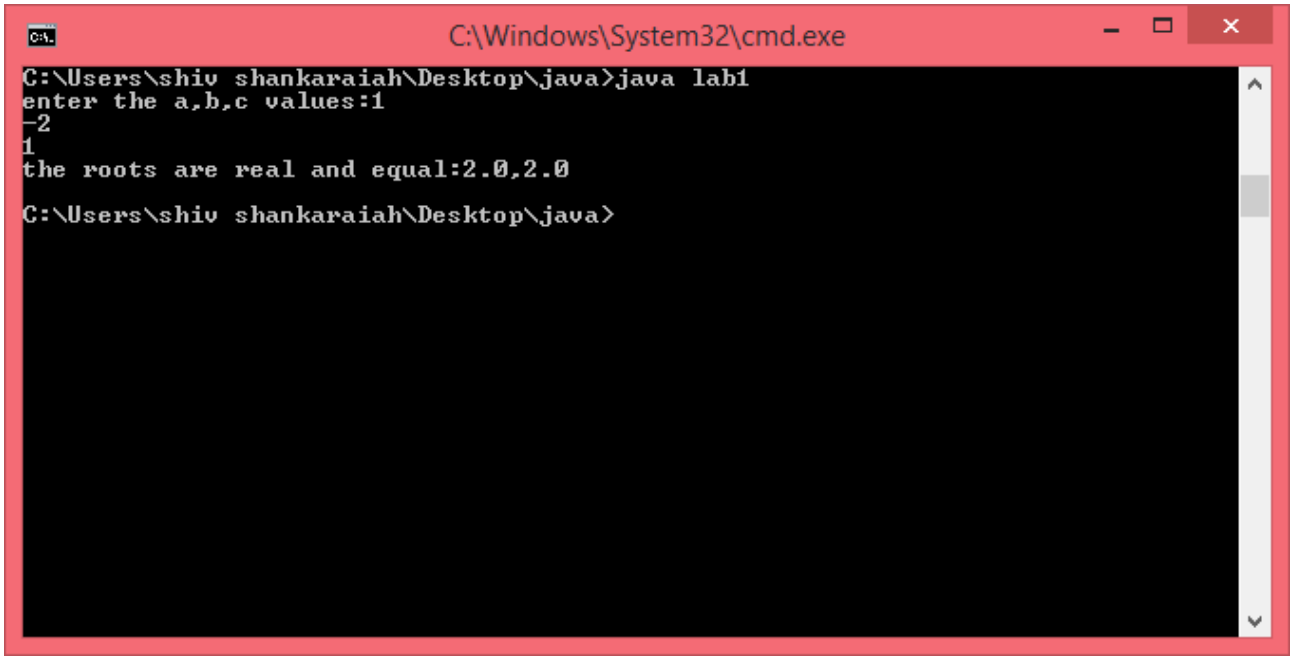
LAB Programs

lab 1:

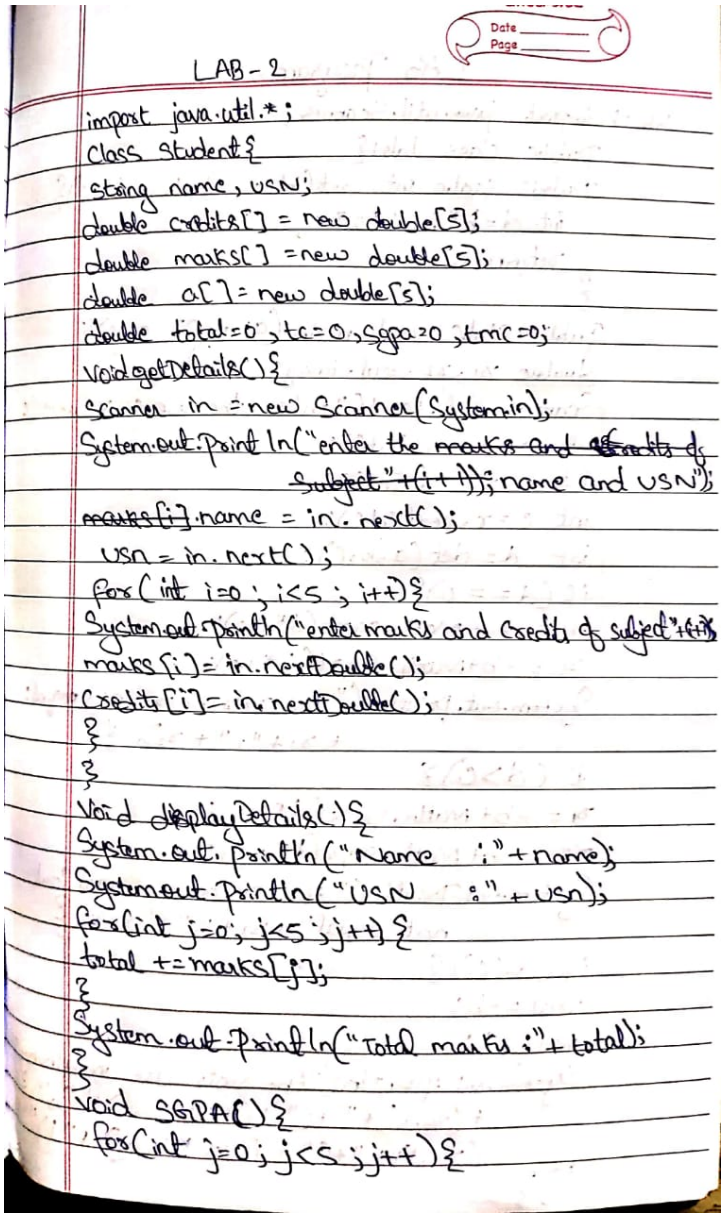
```
import java.util.Scanner;
Public class lab1{
Public Static int det(int a, int b, int c){
  int d=b*b-4*a*c;
  return d;
}
Public Static void main(String[] args){
double r1,r2,real,imag;
Scanner.out.print("enter the a,b,c values:");
int a=x.nextInt();
int b=x.nextInt();
int c=x.nextInt();
int d=det(a,b,c);
if(d==0){
r1=-b+Math.sqrt(d*1.0);
r2=-b+Math.sqrt(d*1.0);
System.out.println("the roots are real and equal:
                    +r1+","+r2);}
if(d>0){
r1=-b+Math.sqrt(d*1.0);
r2=-b+Math.sqrt(d*1.0);
System.out.println("the roots are real but
          not equal"+r1+","+r2);}
if(d<0){
real=-b;
imag=d;
System.out.println("the roots are imaginary"
      +(real)+"i"+"("+(+1.0*imag)+"i),"+
      (real)+"+("+(-1.0*imag)+"i)");
}}}
```

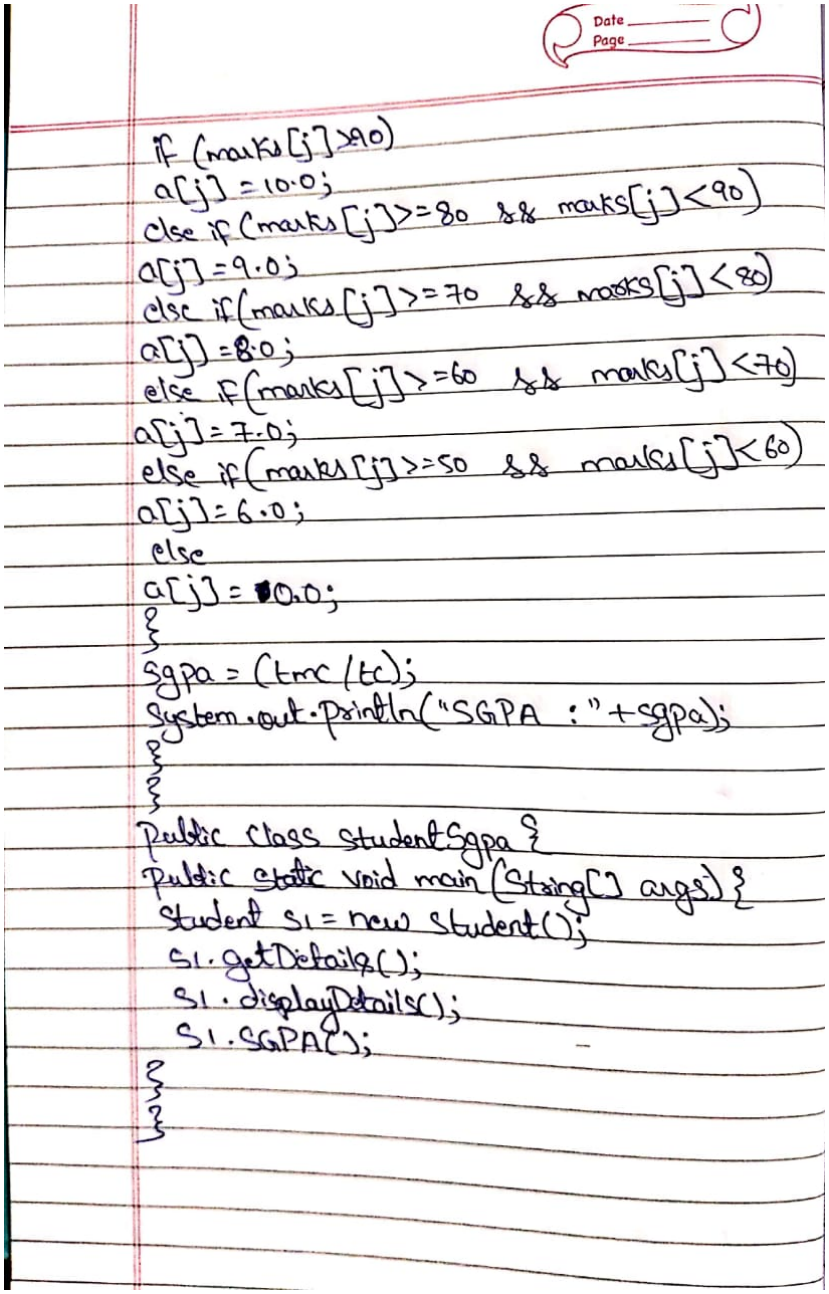
Caption

OUTPUT :



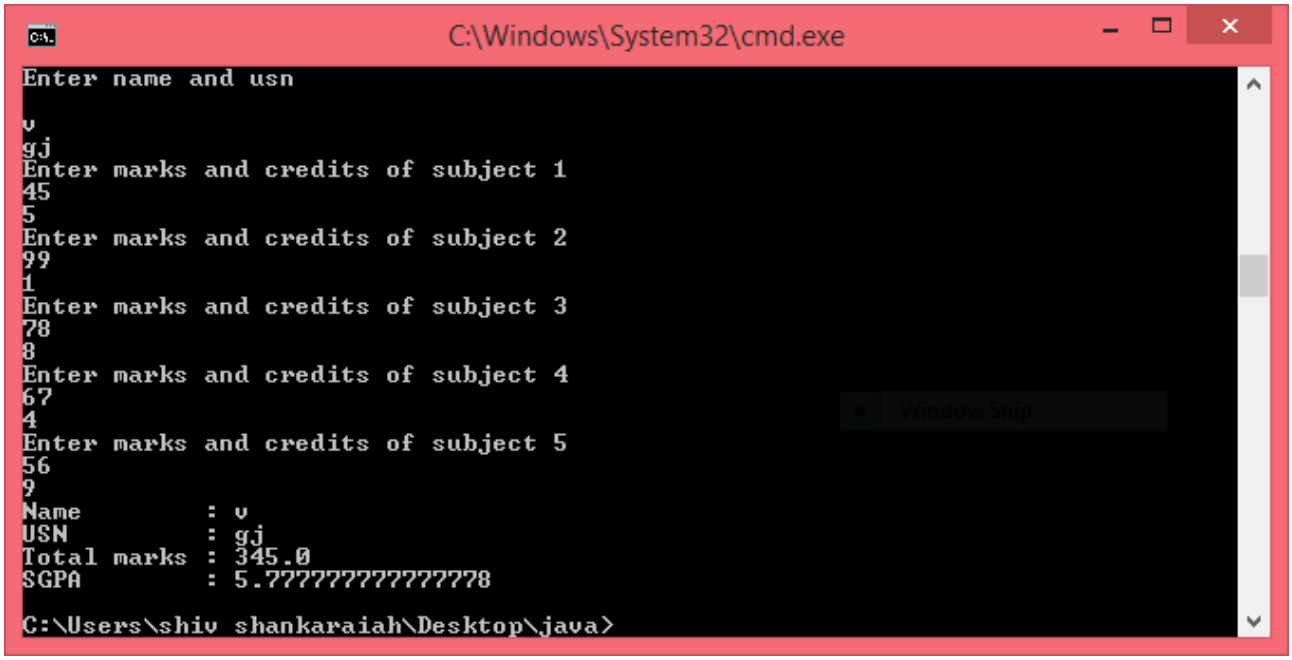
LAB PROGRAM 2 :
WRITE UP :





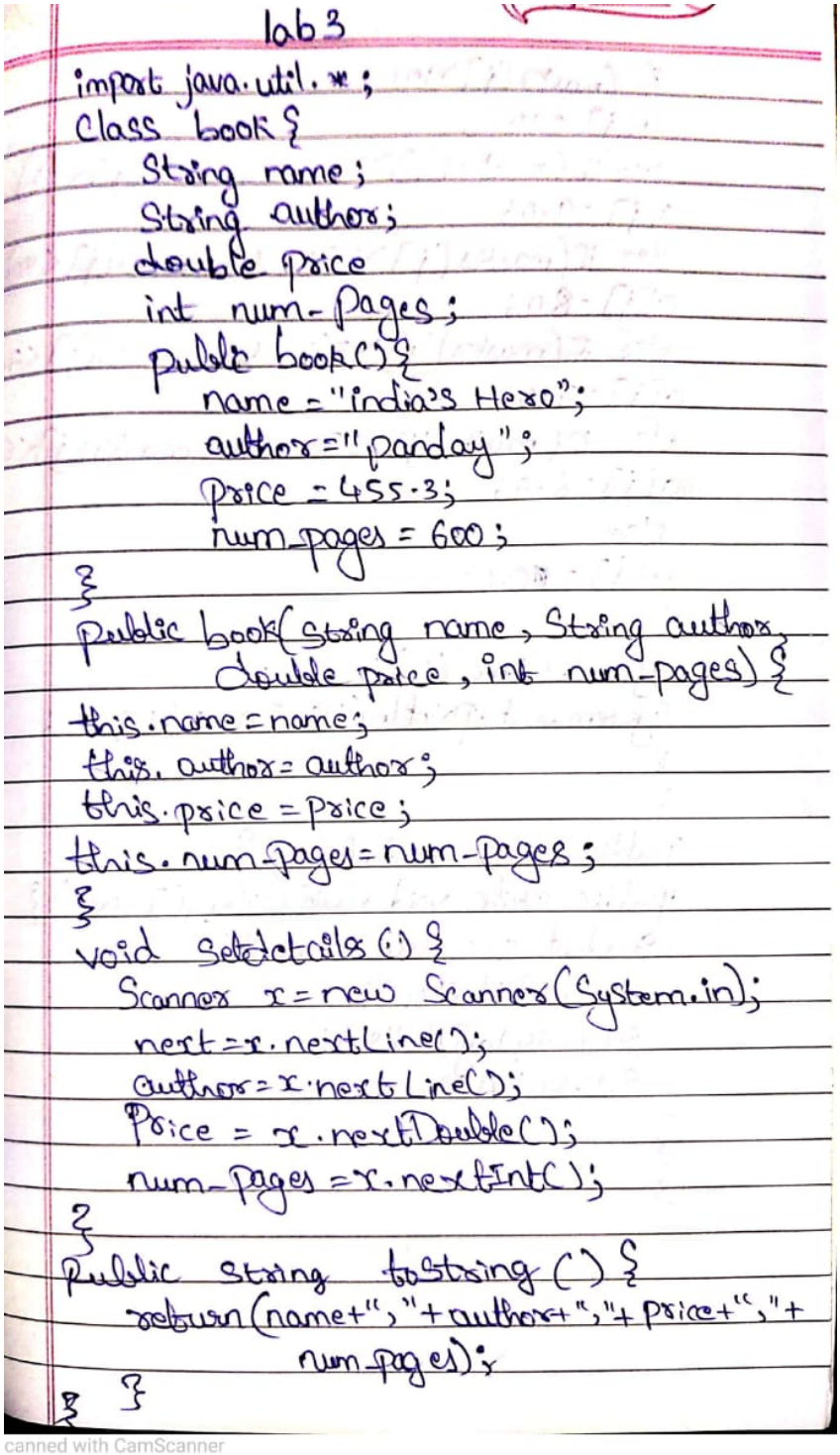
```
if (marks[j]>90)
a[j] = 10.0;
else if (marks[j]>=80 && marks[j]<90)
a[j] =9.0;
else if(marks[j]>=70 && marks[j]<80)
a[j] =8.0;
else if(marks[j]>=60 && marks[j]<70)
a[j]=7.0;
else if(marks[j]>=50 && marks[j]<60)
a[j]=6.0;
else
a[j] = 0.0;
}
sgpa = (tmc/tc);
System.out.println("SGPA :"+sgpa);
}
}
Public class studentSgpa {
Public static void main(String[] args){
 Student s1 = new Student();
 s1.getDetails();
 s1.displayDetails();
 s1.SGPA();
}
}
```

OUTPUT :



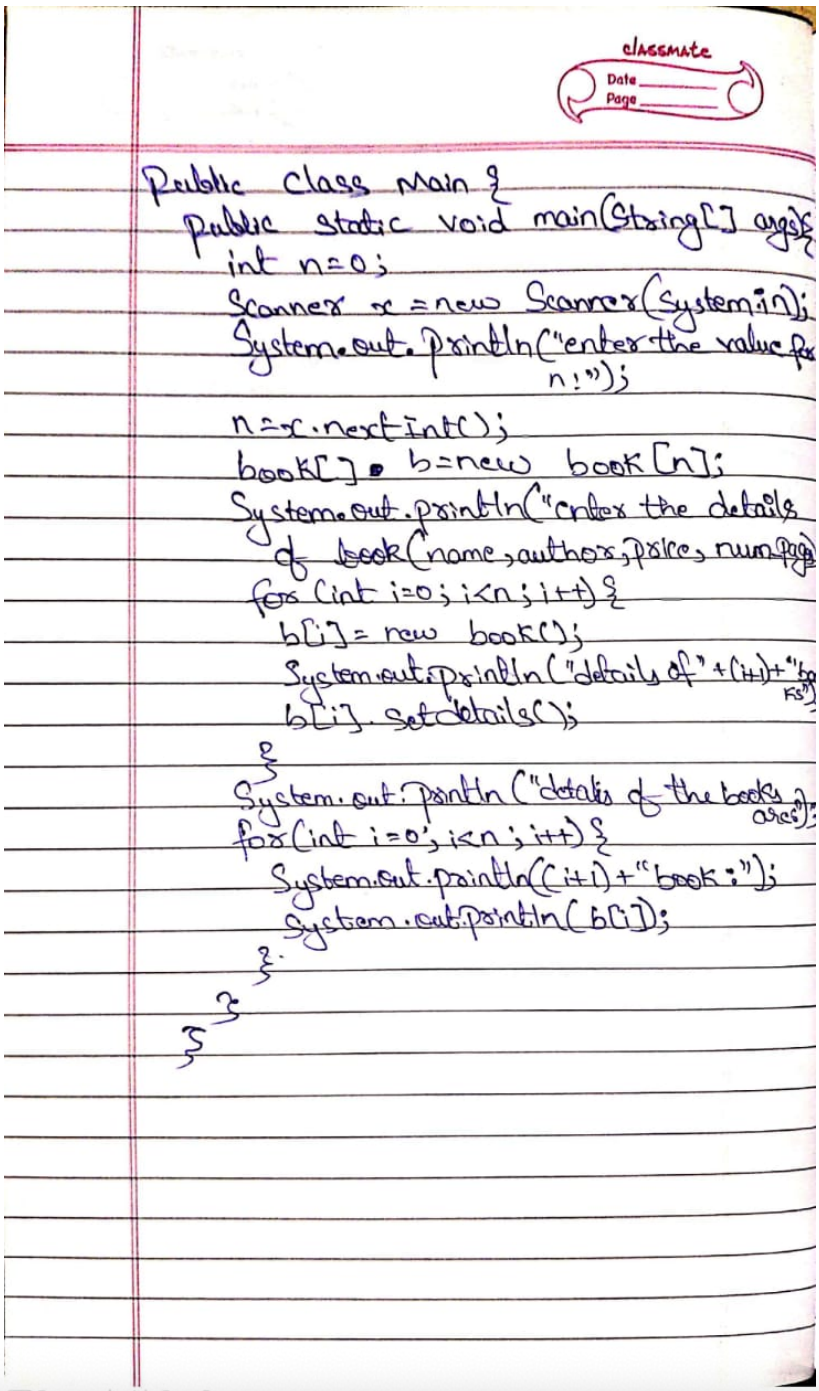
LAB PROGRAM 3 :

WRITE UP :



lab 3

```
import java.util.*;
Class book{
    String name;
    String author;
    double price
    int num_pages;
    Public book(){
        name = "India's Hero";
        author = "panday";
        price = 455.3;
        num_pages = 600;
}
Public book(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(){
    Scanner x = new Scanner(System.in);
    next = x.nextLine();
    author = x.nextLine();
    Price = x.nextDouble();
    num_pages = x.nextInt();
}
Public String toString(){
    return(name+","+author+","+price+","+
            num_pages);
}
}
```



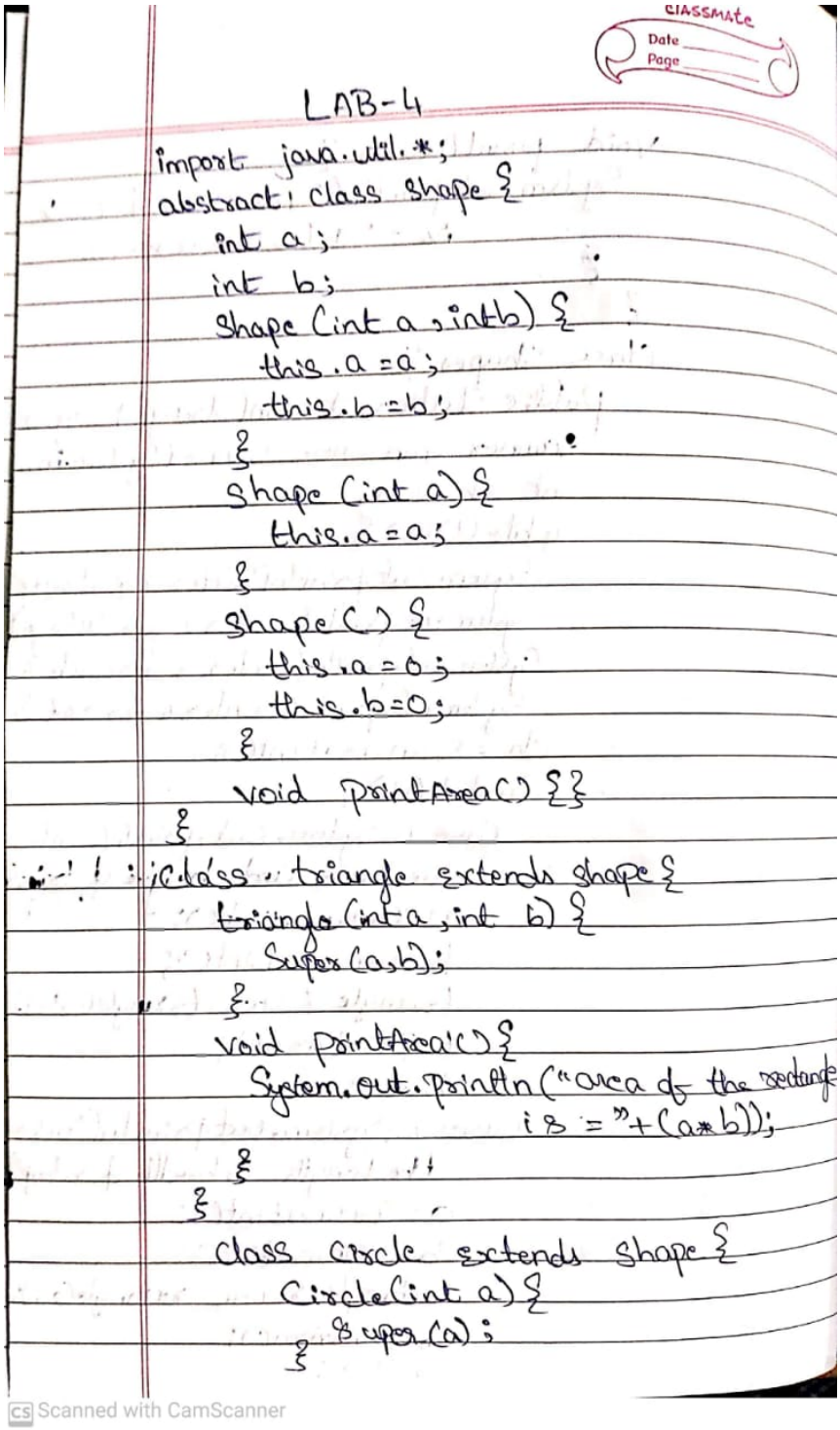
```
Public class Main {
  Public static void main(String[] args){
    int n=0;
    Scanner x = new Scanner(System.in);
    System.out.println("enter the value for
                        n:");
    n=x.nextInt();
    book[] b=new book[n];
    System.out.println("enter the details
      of book(name,author,price,numpages)
    for(int i=0;i<n;i++){
      b[i]= new book();
      System.out.println("details of"+(i+1)+"
      b[i].setdetails();
    }
    System.out.println("details of the books
    for(int i=0;i<n;i++){
      System.out.println((i+1)+"book:");
      System.out.println(b[i]);
    }
  }
}
```


OUTPUT :

```
Desktop — -zsh — 80×24
Last login: Thu Nov  5 23:27:25 on ttys000
vasanthkumar@Vasanths-Air ~ % cd Desktop
vasanthkumar@Vasanths-Air Desktop % javac Main.java
vasanthkumar@Vasanths-Air Desktop % java Main
enter the value for n:2
enter the details of book(name,author,price,num_pages)
details of 1 book:
tiger
ravi
345
890
details of 2 book:
india's hero
ananymous
450
6700
the details of the books are:
1 book:
tiger,ravi,345.0,890
2 book:
india's hero,ananymous,450.0,6700
vasanthkumar@Vasanths-Air Desktop %
```

LAB PROGRAM 4 :

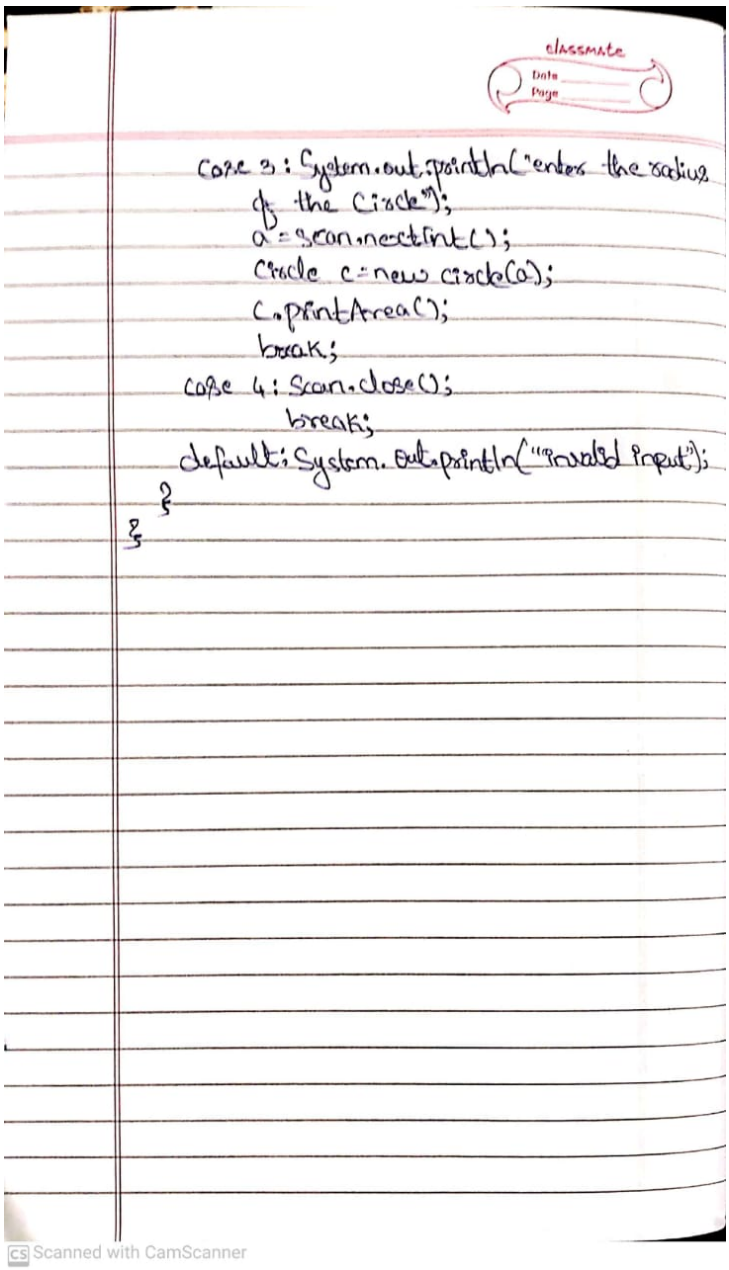
WRITE UP :



LAB-4

```
import java.util.*;
abstract class Shape {
    int a;
    int b;
    Shape (int a, int b) {
        this.a = a;
        this.b = b;
    }
    Shape (int a) {
        this.a = a;
    }
    Shape () {
        this.a = 0;
        this.b = 0;
    }
    void printArea() {}
}
class triangle extends Shape {
    triangle (int a, int b) {
        super(a,b);
    }
    void printArea() {
        System.out.println("area of the rectangle
                is = " + (a*b));
    }
}
class circle extends Shape {
    Circle(int a) {
        super(a);
    }
```

```
void printArea() {
    System.out.println("the area of circle
        is =" + (3.14 * a * a));
    }
}
Class Shapes {
    Public Static void main(String[] args) {
    Scanner scan = new Scanner(System.in);
    int ch, a, b;
    while (true) {
        System.out.println("Enter 1 for triangle");
        System.out.println("enter 2 for rectangle");
        System.out.println("enter 3 for circle");
        System.out.println("enter 4 for exit");
    ch = scan.nextInt();
    Switch(ch) {
        Case 1: System.out.println("enter
            the base and height of triangle
            ");
            a = scan.nextInt();
            b = scan.nextInt();
            triangle t = new triangle(a,b);
            t.printArea();
            break;
        Case 2: System.out.println("enter
            the length & breadth of rectangle");
            a = scan.nextInt();
            b = scan.nextInt();
            rectangle r = new rectangle(a,b);
            r.printArea();
            break;
```


classmate
Date
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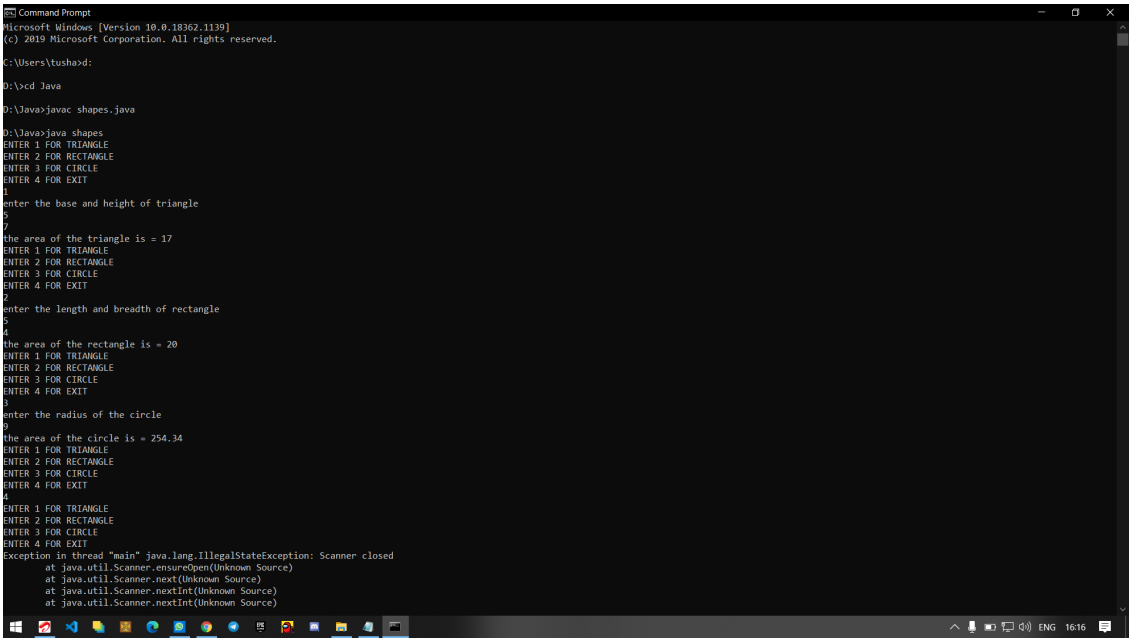
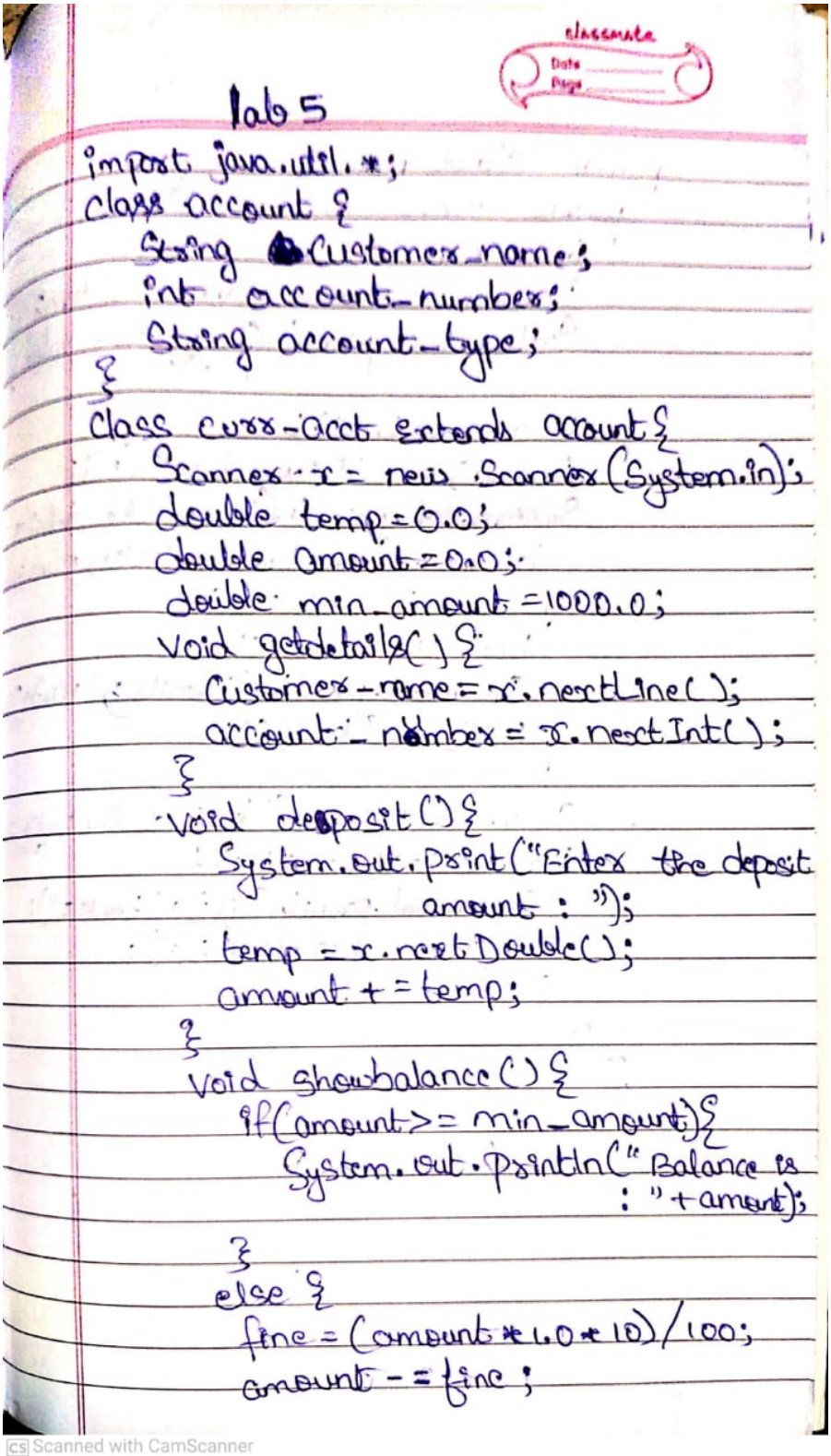
case 3: System.out.println("enter the radius of the Circle");
a = scan.nextInt();
Circle c = new circle(a);
c.printArea();
break;
case 4: Scan.close();
break;
default: System.out.println("Invalid Input");
}
}
Scanned with CamScanner

OUTPUT :


Command Prompt
Microsoft Windows [Version 10.0.18362.1139]
(c) 2019 Microsoft Corporation. All rights reserved.
C:\Users\tusha>d:
D:\>cd Java
D:\Java>javac shapes.java
D:\Java>java shapes
ENTER 1 FOR TRIANGLE
ENTER 2 FOR RECTANGLE
ENTER 3 FOR CIRCLE
ENTER 4 FOR EXIT
1
enter the base and height of triangle
5
7
the area of the triangle is = 17
ENTER 1 FOR TRIANGLE
ENTER 2 FOR RECTANGLE
ENTER 3 FOR CIRCLE
ENTER 4 FOR EXIT
2
enter the length and breadth of rectangle
5
4
the area of the rectangle is = 20
ENTER 1 FOR TRIANGLE
ENTER 2 FOR RECTANGLE
ENTER 3 FOR CIRCLE
ENTER 4 FOR EXIT
3
enter the radius of the circle
9
the area of the circle is = 254.34
ENTER 1 FOR TRIANGLE
ENTER 2 FOR RECTANGLE
ENTER 3 FOR CIRCLE
ENTER 4 FOR EXIT
4
ENTER 1 FOR TRIANGLE
ENTER 2 FOR RECTANGLE
ENTER 3 FOR CIRCLE
ENTER 4 FOR EXIT
Exception in thread "main" java.lang.IllegalStateException: Scanner closed
at java.util.Scanner.ensureOpen(Unknown Source)
at java.util.Scanner.next(Unknown Source)
at java.util.Scanner.nextInt(Unknown Source)
at java.util.Scanner.nextInt(Unknown Source)
ENG
16:16

LAB PROGRAM 5 :

WRITE UP :



lab 5

```
import java.util.*;
class account {
    String customer_name;
    int account_number;
    String account_type;
}
class curr_acct extends account{
    Scanner x = new Scanner(System.in);
    double temp = 0.0;
    double amount = 0.0;
    double min_amount = 1000.0;
    void getdetails() {
        customer_name = x.nextLine();
        account_number = x.nextInt();
    }
    void deposit() {
        System.out.print("Enter the deposit
                amount : ");
        temp = x.nextDouble();
        amount += temp;
    }
    void showbalance() {
        if(amount >= min_amount){
            System.out.println(" Balance is
                : " + amount);
        }
        else {
        fine = (amount * 1.0 * 10)/100;
        amount -= fine;
```

```
        System.out.println("the fine imposed"
                                    +fine);
        System.out.println("Balance is :"+amount);
    }
}
void withdrawal(){
    System.out.Print("Enter the withdrawal
                            amount : ");
    temp = x.nextDouble();
    amount -= temp;
}
}
class Sav_acct extends account{
    Scanner x = new Scanner(System.in);
    double temp = 0.0;
    double amount = 0.0;
    double interest = 0.0;
    void getdetails(){
        Customer_name = x.nextLine();
        account_number = x.nextInt();
    }
    void deposit(){
        System.out.println("Enter the
                        amount : ");
        temp = x.nextDouble();
        amount += temp;
    }
    void Showbalance(){
        System.out.println("Balance is :"
                                    +amount);
    }
```

```
Void withdrawall{
    System.out.print("Enter the withdrawal
                        amount :");
    temp= x.nextDout();
    amount -= temp;
}
Void interest() {
    interest = (amount * 1.0 * 3)/100;
    amount += interest;
    System.out.println("interest added
                        : "+ interest);
    System.out.println("Balance is :"
                        +amount);
}
}
public class Main {
    Public Static void main(String[] args{
    int opt=0;
    String type=null;
    Scanner x = new Scanner(System.in);
    System.out.println("Welcome to the
                        bank Service");
    System.out.println("Enter the type
        of account (curr-acct/Sav-acct)");
    type =x.nextLine();
    if( type.equals("curr_acct")){
        Curr_Acct a= new Curr_acct();
        System.out.println("Enter the
            Coustomer_name,account_number
                        :");
```

```
a.getdetails();
while(true){
System.out.println("press 1: Accepts
detail deposit & Update the balance");
System.out.println("press 2: display
the balance");
System.out.println("press 3: withdrawal
and update the balance");
System.out.println("Enter option:");
opt=x.nextInt();
Switch(opt){
  Case 1: a.deposit();
          a.Showbalance();
          break;
  Case 2: a.Showbalance();
          break;
  Case 3: a.withdrawal();
          a.Showbalance();
          break;
}
}
}

if (type.equals("sav_acct")){
  Sav_acct a= new Sav_acct();
  System.out.println("Enter the
  Costomer_name, account number:");
  a.getdetails();
  while(true){
  System.out.println("press 1:
  Accept deposit and update balance");
```

```
System.out.println("press 2: display
        the balance");
System.out.println("press3 : Compute
        and deposit interest");
System.out.println("press 4:
 withdrawal and update the balance");
System.out.print("Enter option:");
opt = x.nextInt();
switch(opt){
 case 1 : a.deposit();
          a.showbalance();
          break;
 case 2 : a.showbalance();
          break;
 case 3 : a.intrest();
          a.showbalance();
          break;
 case 4 : a.withdrawal();
          a.showbalance();
          break;
}
}
}
```


Desktop — java Main — 80×24

```
Welcome to the bank service
Enter the the of account (curr_acct/sav_acct)
curr_acct
Enter the customer_name,account_number:
vasanth
12345
press 1 : Accept deposit and update the balance
press 2 : Display the balance
press 3 : Withdrawal and update the balance
Enter option : 1
Enter the deposit amount : 12000
Balance is : 12000.0
press 1 : Accept deposit and update the balance
press 2 : Display the balance
press 3 : Withdrawal and update the balance
Enter option : 2
Balance is : 12000.0
press 1 : Accept deposit and update the balance
press 2 : Display the balance
press 3 : Withdrawal and update the balance
Enter option : 3
Enter the withdrawal amount : 11500
the fine imposed : 50.0
Balance is : 450.0
```