

B.M.S College of Engineering

**(Autonomous Institution affiliated to VTU, Belagavi)
Bengaluru – 20**

Department of Computer Science and Engineering

Report on

OOJP LAB PROGRAMS

Course Title: Object Oriented Java Programming

Course Code: 19CS3PCOOJ

(Autonomous Scheme 2020)

Submitted by

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LAB1

```
import java.util.Scanner;
```

```
class QuadraticEquations
```

```
{
```

```
    public static void main(String args[])
```

```
    {
```

```
        double a,b,c,D;
```

```
        double r1,r2;
```

```
        Scanner in = new Scanner(System.in);
```

```
        System.out.println("Enter the constants a,b and c of the  
quadratic equation  $a(x)^2+b(x)+c=0$  : ");
```

```
        a = in.nextDouble();
```

```
        b = in.nextDouble();
```

```
        c = in.nextDouble();
```

```
        System.out.println();
```

```
        System.out.println("Input Quadratic Equation :  
"+a+"(x)^2 + "+b+"(x) + "+c+" = 0");
```

```
        System.out.println();
```

```
        D = (b*b)-(4*a*c);
```

```
        if(D>0)
```

```
        {
```

```
            System.out.println("Roots are real and unequal  
since Discriminant = "+D);
```

```
            r1 = (-b + Math.sqrt(D))/(2*a);
```

```
            r2 = (-b - Math.sqrt(D))/(2*a);
```

```
            System.out.println();
```

```
            System.out.println("Roots of the quadratic equation  
are "+r1+" and "+r2);
```

```
        }
```

```

        else if(D==0)
        {
            System.out.println("Roots are real and equal since
Discriminant = "+D);
            r1 = r2 = (-b)/(2*a);
            System.out.println();
            System.out.println("Roots of the quadratic equation
are "+r1+" and "+r2);
        }
        else
        {
            System.out.println();
            System.out.println("Roots are unreal since
Discriminant = "+D);
        }
    }
}

```

```

}
}

Enter the constants a,b and c of the quadratic equation a(x)^2+b(x)+c=0 :
1
-2
1

Input Quadratic Equation : 1.0(x)^2 + -2.0(x) + 1.0 = 0

Roots are real and equal since Discriminant = 0.0

Roots of the quadratic equation are 1.0 and 1.0

-----
(program exited with code: 0)
Press any key to continue . . .

```

LAB 2

```
import java.util.Scanner;
```

```
class Student{
    Scanner sc = new Scanner(System.in);
    String USN;
    String Name;
    int credits[] = new int[5];
    float marks[] = new float[5];
    int points[] = new int[5];
    float SGPA;
    int totalCredits = 0;

    void getDetails(){
        System.out.println("Enter student USN: ");
        USN = sc.nextLine();
        System.out.println("Enter student Name: ");
        Name = sc.nextLine();
        for(int i=0;i<5;i++){
            System.out.println("Enter Credits for Subject " + (i+1) + ": ");
            credits[i] = sc.nextInt();
            totalCredits += credits[i];
            System.out.println("Enter Marks for Subject " + (i+1) + ": ");
            marks[i] = sc.nextFloat();
        }
    }

    void showDetails(){
        System.out.println("Student USN: " + USN);
        System.out.println("Enter student name: " + Name);
        for(int i=0;i<5;i++){
```

```

        System.out.println("Subject " + (i+1) + " - Credits: " + credits[i]
+ " - Marks: " + marks[i]);
    }
    System.out.println("SGPA of " + Name + " is: " +
(float)(SGPA/totalCredits));
}

```

```

void calcSGPA(){

```

```

    for(int i = 0;i<5;i++){
        if(marks[i] > 100){
            System.out.println("Error: Marks are above 100");
            return;
        }else if(marks[i] >= 90){
            points[i] = 10;
        }else if(marks[i] >= 80){
            points[i] = 9;
        }else if(marks[i] >= 70){
            points[i] = 8;
        }else if(marks[i] >= 60){
            points[i] = 7;
        }else if(marks[i] >= 50){
            points[i] = 5;
        }else if(marks[i] >= 40){
            points[i] = 4;
        }else{
            points[i] = 0;
        }
    }

```

```

        SGPA += (points[i]*credits[i]);
    }
}

```

```

}

public class program {
    public static void main(String args[]) {
        Student st1 = new Student();
        st1.getDetails();
        st1.calcSGPA();
        st1.showDetails();
    }
}

```

```

Enter the Student USN:
1BM19CS201
Enter the name of the Student:
Mazin Salim
Enter the amount of Credits for Subject 1:
5
Enter the Marks obtained by the student for Subject 1 out of 100:
90
Enter the amount of Credits for Subject 2:
4
Enter the Marks obtained by the student for Subject 2 out of 100:
88
Enter the amount of Credits for Subject 3:
5
Enter the Marks obtained by the student for Subject 3 out of 100:
92
Enter the amount of Credits for Subject 4:
5
Enter the Marks obtained by the student for Subject 4 out of 100:
93
Enter the amount of Credits for Subject 5:
5
Enter the Marks obtained by the student for Subject 5 out of 100:
75
Student USN: 1BM19CS201
Student Name: Mazin Salim
Subject 1 :      Credits: 5      --> Marks: 90.0
Subject 2 :      Credits: 4      --> Marks: 88.0

```

LAB 3:

```
import java.util.*;
import java.lang.*;
class Book {
    String name, author;
    double price;
    int num_pages;
    Scanner in = new Scanner(System.in);

    Book() {
        System.out.println("Enter name of book: ");
        name = in.nextLine();

        System.out.println("Enter name of author: ");
        author = in.nextLine();

        System.out.println("Enter price of book in Rs: ");
        price = in.nextDouble();

        System.out.println("Enter number of pages in the book:
");
        num_pages = in.nextInt();
    }

    void show() {
        System.out.println("Name: " + name);
        System.out.println("Author: " + author);
        System.out.println("Price: " + price);
        System.out.println("Number of pages: " + num_pages);
    }

    public String toString() {
        return name + ", By " + author + " for Rs." + price + " and
has " + num_pages + " pages";
    }
}
```

```

    }

    public static void main(String[] args) {

        Scanner in = new Scanner(System.in);

        int n, x;

        System.out.println("Enter number of books to be created:
");
        n = in.nextInt();

        Book B[] = new Book[n];

        for(int i = 0; i < n; i++) {
            System.out.println("Book " + (i+1));
            B[i] = new Book();
            System.out.println();
        }

        for(int i = 0; i < n; i++) {
            System.out.println("Book " + (i+1));
            System.out.println(B[i]);
            System.out.println();
        }
        do {
            System.out.println("Enter the book number whose
details you want to display: ");
            x = in.nextInt();
        } while(x < 1 && x > n);
        B[x-1].show();

    }
}

```



```
Command Prompt
C:\Users\jojok>d:

D:\>cd Workspace

D:\Workspace>java Lab3
Enter the number of Books:
3

Book 1
Enter the name of the Book:
Harry Potter
Enter the author of the Book:
J K Rowling
Enter the price of the Book:
250
Enter the number of pages of the Book:
450

Book 2
Enter the name of the Book:
Origin
Enter the author of the Book:
Dan Brown
Enter the price of the Book:
300
Enter the number of pages of the Book:
550

Book 3
Enter the name of the Book:
550
Book 3
Enter the name of the Book:
Bloodline
Enter the author of the Book:
Sidney Sheldon
Enter the price of the Book:
420
Enter the number of pages of the Book:
401

Book 1--> Name: Harry Potter | Author: J K Rowling | Price: 250.0 | Number of pages: 450
Book 2--> Name: Origin | Author: Dan Brown | Price: 300.0 | Number of pages: 550
Book 3--> Name: Bloodline | Author: Sidney Sheldon | Price: 420.0 | Number of pages: 401

Enter the book number to display:
2
----BOOK-----
Name--> Origin
Author--> Dan Brown
Price--> 300.0
Number of pages--> 550

D:\Workspace>
```

LAB 4:

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

```
abstract class Shape{
```

```
    Scanner in = new Scanner(System.in);
```

```
    int x1, x2;
```

```
    Shape(){
```

```
        System.out.println("Enter two numbers:");
```

```
        System.out.println("");
```

```
        x1=in.nextInt();
```

```
        x2=in.nextInt();
```

```
    }
```

```
    abstract void printarea();
```

```
}
```

```
class Rectangle extends Shape{
```

```
    void printarea(){
```

```
        System.out.println("Area of Rectangle: " + (x1 * x2));
```

```
    }
```

```
}
```

```
class Triangle extends Shape{
```

```
    void printarea(){
```

```

        System.out.println("Area of Triangle: " + (x1 *
x2)/2);
    }

}

class Circle extends Shape{

    void printarea(){

        System.out.println("Area of Circle 1: " + (3.14 * x1 *
x1));
        System.out.println("Area of Circle 2: " + (3.14 * x2 *
x2));

    }

}

class Abstract{

    public static void main(String[]args){

        Shape s;

        s = new Rectangle();
        s.printarea();

        s = new Triangle();
        s.printarea();

        s = new Circle();
        s.printarea();
    }
}

```

}

}

Enter two numbers:

5

5

Area of Rectangle: 25

Enter two numbers:

6

4

Area of Triangle: 12

Enter two numbers:

8

7

Area of Circle 1: 200.96

Area of Circle 2: 153.86

LAB 5:

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

class Account {

    String name, abc;
    int accNo;
    char accType;
    double bal = 0;
    double deposit;
    Scanner in = new Scanner(System.in);

    void input_data() {

        System.out.println("Enter your account type (S/C:");
        abc = in.nextLine();
        accType = abc.charAt(0);
    }

    void deposit() {

        System.out.println("Enter an amount to deposit: ");
        deposit = in.nextDouble();

        bal += deposit;
        System.out.println("Balance has been updated. ");
    }

    void view_balance() {

        System.out.println("Balance = " + bal);
    }
}
```

```

public static void main(String[] args) {

    Scanner s = new Scanner(System.in);
    int x;
    Account a1 = new Account();
    a1.input_data();

    if(a1.accType == 'C' || a1.accType == 'c'){

        Current a2 = new Current();

        do {
            System.out.println("WELCOME TO YOUR
CURRENT ACCOUNT");
            System.out.println("1. Deposit ");
            System.out.println("2. Check Balance ");
            System.out.println("3. Issue Cheque ");
            System.out.println("4. Exit");
            System.out.println("Enter your choice: ");
            x = s.nextInt();

            switch(x) {
                case 1: a2.deposit();
                break;
                case 2: a2.check_balance();
                break;
                case 3: a2.issue_cheque();
                break;
                case 4: System.exit(0);
                break;
                default: System.out.println("ERROR.
INVALID CHOICE.");
            }

        } while(x <= 4 && x >= 1);
    }
}

```

```

    }
    else if (a1.accType == 'S' || a1.accType == 's'){

        Savings a3 = new Savings();

        do {
            System.out.println("WELCOME TO YOUR
SAVINGS ACCOUNT");
            System.out.println("1. Deposit");
            System.out.println("2. View Balance");
            System.out.println("3. Withdraw ");
            System.out.println("4. Calculate compound
interest ");

            System.out.println("5. Exit ");
            System.out.println("Enter your choice: ");
            x = s.nextInt();

            switch(x) {
                case 1: a3.deposit();
                break;
                case 2: a3.view_balance();
                break;
                case 3: a3.withdraw_balance();
                break;
                case 4: a3.compute_CI();
                break;
                case 5: System.exit(0);
                break;
                default: System.out.println("ERROR.
INVALID CHOICE.");
            }

        } while(x <= 5 && x >=1);
    }
}

```

```

        else System.out.println("INVALID ACCOUNT TYPE");
    }
}

class Current extends Account {

    Current() {

        System.out.println("Enter your name: ");
        name = in.nextLine();

        System.out.println("Enter your account number: ");
        accNo = in.nextInt();

        deposit();
    }

    double chq_amount;

    void issue_cheque() {

        System.out.println("Enter amount for which cheque is to
be issued.");
        chq_amount = in.nextDouble();
        if(chq_amount > bal) {
            System.out.println("ERROR! Insufficient balance in
account.");
        }
        else {
            bal -= chq_amount;
            System.out.println("Cheque has been issued
SUCCESSFULLY");
        }
    }
}

```



```

void check_balance() {

    if(bal < 1000) {

        System.out.println("Current available balance is
less than minimum required balance.");
        bal -= 100;
        System.out.println("Service charge of Rs.100 has
been deducted from your balance.");
    }
    view_balance();
}
}

```

```

class Savings extends Account {

```

```

    double CI, withdrawal_ammount, time;

```

```

    Savings() {

```

```

        System.out.println("Enter your name: ");
        name = in.nextLine();

```

```

        System.out.println("Enter your account number: ");
        accNo = in.nextInt();

```

```

        deposit();
    }

```

```

    void compute_CI() {

```

```

        System.out.println("Enter time period: ");
        time = in.nextInt();
        CI = bal * Math.pow(1 + (0.08 / 12), 12 * time) - bal;
    }
}

```

```

        System.out.println("CI = " + CI);
        bal += CI;
        System.out.println("CI has been deposited");
    }

    void withdraw_balance() {

        System.out.println("Enter the amount you want to
withdraw: ");
        withdrawal_ammount = in.nextDouble();

        if(withdrawal_ammount > bal) {
            System.out.println("ERROR! THE ENTERED AMOUNT
IS GREATER THAN THE AVAILABLE BALANCE...");
        }
        else {
            bal -= withdrawal_ammount;
            System.out.println("AMOUNT HAS SUCCESSFULLY
BEEN WITHDRAWN!");
        }
    }
}

```

```

Command Prompt
3. Withdraw
4. Calculate compound interest
5. Exit
Enter your choice:
2
Balance = 40000.0

WELCOME TO YOUR SAVINGS ACCOUNT
1. Deposit
2. View balance
3. Withdraw
4. Calculate compound interest
5. Exit
Enter your choice:
3
Enter the amount you want to withdraw:
20000
Amount has been successfully withdrawn!!!!
WELCOME TO YOUR SAVINGS ACCOUNT
1. Deposit
2. View balance
3. Withdraw
4. Calculate compound interest
5. Exit
Enter your choice:
2
Balance = 20000.0

WELCOME TO YOUR SAVINGS ACCOUNT
1. Deposit
2. View balance
3. Withdraw
4. Calculate compound interest
5. Exit
Enter your choice:
4
Enter time period:
5

```

```
Command Prompt
2. View balance
3. Withdraw
4. Calculate compound interest
5. Exit
Enter your choice:
4

Enter time period:
5

CI = 9796.9141668321
CI has been deposited
WELCOME TO YOUR SAVINGS ACCOUNT
1. Deposit
2. View balance
3. Withdraw
4. Calculate compound interest
5. Exit
Enter your choice:
5

C:\JAVA>
```

```
Command Prompt

Balance = 70000.0

WELCOME TO YOUR CURRENT ACCOUNT

(1) Deposit
(2) Check balance
(3) Issue Cheque
(4) Exit
Enter your choice:
4

C:\JAVA>java Bank
Enter your account type (Savings/Current):
Savings
Enter your name:
Mazin Salim

Enter your account number:
12345678

Enter an amount to deposit:
30000
Balance has been updated

WELCOME TO YOUR SAVINGS ACCOUNT
1. Deposit
2. View balance
3. Withdraw
4. Calculate compound interest
5. Exit
Enter your choice:
1

Enter an amount to deposit:
10000
Balance has been updated

WELCOME TO YOUR SAVINGS ACCOUNT
1. Deposit
2. View balance
3. Withdraw
```

LAB 6

```
import CIE.*;
import SEE.*;
import java.util.*;

class Main
{
    public static void main(String args[])
    {
        Scanner sx = new Scanner(System.in);
        System.out.println("Enter the number of students");
        int n= sx.nextInt();
        CIE.internals in[]= new CIE.internals[n];
        SEE.externals en[]= new SEE.externals[n];
        int i,j;
        for(i=0;i<n;i++)
        {
            System.out.println("Student "+(i+1));
            in[i] = new CIE.internals();
            en[i] = new SEE.externals();
            in[i].read();

            System.out.println("CIE MARKS:");
            in[i].accept();
            System.out.println("SEE MARKS:");
            en[i].get();
            System.out.println();
            in[i].display();
            for(j=0;j<5;j++)

                System.out.println("Total Marks for course
                "+(j+1)+" : "+(in[i].cie[j] + (en[i].see[j]/2)));
        }
    }
}
```

```

    }
}
package SEE;
import java.util.*;
import CIE.*;
public class externals extends personal
{
    public double see[];

    public void get()
    {
        see= new double[5];
        Scanner sc = new Scanner(System.in);
        for(int i=0;i<5;i++)
        {
            System.out.println("SEE mark for course "+(i+1)+" :
");
            see[i]= sc.nextDouble();
        }
    }
}

```

```

}
package CIE;
import java.util.*;
public class personal
{
    public String name;
    public int sem;
    public String usn;

    public void read()
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the name");
    }
}

```

```

        name = sc.next();
        System.out.println("Enter the semester");
        sem = sc.nextInt();
        System.out.println("Enter the USN");
        usn = sc.next();
    }
    public void display()
    {
        System.out.println("Student details: ");
        System.out.println("Name: "+name+"\nUSN:
"+usn+"\nSem: "+sem);
    }

}
package CIE;
import java.util.*;
public class internals extends personal
{
    public double cie[];

    public void accept()
    {
        cie= new double[5];
        Scanner sc = new Scanner(System.in);
        for(int i=0;i<5;i++)
        {
            System.out.println("CIE mark for course "+(i+1)+" :
");
            cie[i]= sc.nextDouble();
        }
    }
}

```

Enter the number of students

3

Student 1

Enter the name

mazin

Enter the semester

2

Enter the USN

1bm19cs201

CIE MARKS:

CIE mark for course 1 :

34

CIE mark for course 2 :

45

CIE mark for course 3 :

56

CIE mark for course 4 :

30

CIE mark for course 5 :

25

SEE MARKS:

SEE mark for course 1 :

80

SEE mark for course 2 :

90

SEE mark for course 3 :

75

SEE mark for course 4 :

60

SEE mark for course 5 :

20

Student details:

Name: mazin

USN: 1bm19cs201

Sem: 2

Total Marks for course 1: 74.0

Total Marks for course 2: 90.0

Total Marks for course 3: 93.5

Total Marks for course 4: 60.0

Total Marks for course 5: 35.0

Student 2

Enter the name

Rai

Rai

Enter the semester

3

Enter the USN

1bm19cs201

CIE MARKS:

CIE mark for course 1 :

30

CIE mark for course 2 :

25

CIE mark for course 3 :

34

CIE mark for course 4 :

23

CIE mark for course 5 :

17

SEE MARKS:

SEE mark for course 1 :

7

SEE mark for course 2 :

80

SEE mark for course 3 :

90

SEE mark for course 4 :

60

SEE mark for course 5 :

50

Student details:

Name: Rai

USN: 1bm19cs201

Sem: 3

Total Marks for course 1: 33.5

Total Marks for course 2: 65.0

Total Marks for course 3: 79.0

Total Marks for course 4: 53.0

Total Marks for course 5: 42.0

Student 3

Enter the name

Adi

Enter the semester

30

Enter the USN

25

```
Total Marks for course 4: 53.0
Total Marks for course 5: 42.0
Student 3
Enter the name
Adi
Enter the semester
30
Enter the USN
25
CIE MARKS:
CIE mark for course 1 :
25
CIE mark for course 2 :
26
CIE mark for course 3 :
35
CIE mark for course 4 :
37
CIE mark for course 5 :
40
SEE MARKS:
SEE mark for course 1 :
80
SEE mark for course 2 :
75
SEE mark for course 3 :
65
SEE mark for course 4 :
90
SEE mark for course 5 :
55

Student details:
Name: Adi
USN: 25
Sem: 30
Total Marks for course 1: 65.0
Total Marks for course 2: 63.5
Total Marks for course 3: 67.5
Total Marks for course 4: 82.0
Total Marks for course 5: 67.5
```


LAB -7

```
import java.util.*;
import java.lang.*;
class Generics<X,Y,Z>{
    X ob1;
    Y ob2;
    Z ob3;

    Generics(X x,Y y,Z z){
        ob1 = x;
        ob2 = y;
        ob3 = z;
    }

    void showTypes(){
        System.out.println("Type of X is
"+ob1.getClass().getName());
        System.out.println("Type of Y is
"+ob2.getClass().getName());
        System.out.println("Type of Z is
"+ob3.getClass().getName());
    }

    X getob1(){
        return ob1;
    }
    Y getob2(){
        return ob2;
    }
    Z getob3(){
        return ob3;
    }
}
```

```

class LAB7{
    public static void main(String args[]){

        Generics<Integer,Double,String> A = new
Generics<Integer,Double,String>(22,150067.09,"Test");

        A.showTypes();

        int i = A.getob1();
        System.out.println("Value:"+i);

        double g= A.getob2();
        System.out.println("Value:"+g);

        String str = A.getob3();
        System.out.println("Value:"+str);
    }
}

```

```

D:\>java LAB7
Ob1: 5
Ob2: 4
Sum: 9

Ob1: 3.05
Ob2: 4.02
Sum: 7.069999999999999

Ob1: Hello,
Ob2: How are you?
Concatanation: Hello, How are you?

D:\>_

```

LAB -8

```
import java.util.Scanner;
class fatherAgeException extends Exception
{
    public String toString()
    {
        return("Wrong Age!! Father's age is less than 0");
    }
}

class sonAgeException extends Exception
{
    int a, b;
    sonAgeException (int sage, int fage)
    {
        a = sage;
        b = fage;
    }
    public String toString()
    {
        if(a==b)
            return("Wrong Age!! Son's age is equal to father's age");
        /*    if(a<0)
            return("Wrong Age!! Son's age is less than 0");
        */    else
            return("Wrong Age!! Son's age is more than father's age");
    }
}

class Father
{
    public int age1;
    Scanner scan = new Scanner(System.in);
    int age1;
```

```

Father()
{
    System.out.print("Enter father's age: ");
    age1 = scan.nextInt();
}
void ex1() throws fatherAgeException
{
    if (age1 < 0)
        throw new fatherAgeException();
}
}

class Son extends Father
{
    public int age2;
    Son()
    {
        System.out.print("Enter son's age: ");
        age2 = scan.nextInt();
    }
    void ex2() throws sonAgeException
    {
        if(age2 < 0 || age2>=age1)
            throw new sonAgeException (age2, age1);
    }
}

class age
{
    public static void main(String [] args){
        Son s = new Son();{
            try{
                s.ex1();
            }
            catch(fatherAgeException e)

```

```
{
    System.out.println(e);
}
try
{
    s.ex2();
}
catch (sonAgeException e)
{
    System.out.println(e);
}
}
```

```
D:\>javac WrongAge.java
```

```
D:\>javac LAB8.java
```

```
D:\>java LAB8
```

```
Enter the Father's age::> 56
```

```
Enter the Son's age::> 25
```

```
} Nothing wrong here..
```

LAB -9

```
class NewThread implements Runnable
{
    private String name;
    private int interval;
    private Thread t;
    NewThread(String threadname,int interval)
    {
        this.name=threadname;
        this.interval=interval;
        t=new Thread(this,name);
        t.start();
    }
    public void run()
    {
        try
        {
            for(int i=5;i>0;i--)
            {
                System.out.println("Thread --"+this.name);
                Thread.sleep(this.interval);
            }
        }
        catch(InterruptedException e)
        {
            System.out.println(name+"Interrupted");
        }
    }
}
class Multithread
{
    public static void main(String args[])
    {
```

```
new NewThread("BMS College Of Engineering",10000);  
new NewThread("CSE",2000);  
}  
}
```

```
D:\>javac LAB9.java
```

```
D:\>java LAB9
```

```
BMS College of Engineering
```

```
CSE
```

```
CSE
```

```
CSE
```

```
CSE
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CSE
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BMS College of Engineering
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BMS College of Engineering
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CSE
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CSE
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```
CSE
```

```
BMS College of Engineering
```

```
CSE
```

```
CSE
```

LAB 10

```
import java.awt.*;
import java.awt.event.*;
class DivisionInteger extends Frame implements ActionListener{
    TextField num1TextField;
    TextField num2TextField;
    Button calculate;
    int a,b;
    float result;
    String msg="Enter the numbers";
    public DivisionInteger(){

        setLayout(new FlowLayout());

        calculate=new Button("Calculate");
        num1TextField=new TextField(5);
        Label num1Label=new Label("Number 1",Label.RIGHT);
        num2TextField=new TextField(5);
        Label num2Label=new Label("Number 2",Label.RIGHT);

        add(num1Label);
        add(num1TextField);
        add(num2Label);
        add(num2TextField);
        add(calculate);
        num1TextField.addActionListener(this);
        num2TextField.addActionListener(this);
        calculate.addActionListener(this);

        addWindowListener(new MyWindowAdapter());
    }
    public void actionPerformed(ActionEvent ae){
        try{
            result=divideNumbers();
```



```

        msg=("The result is "+result);
        repaint();
    }catch(NumberFormatException e){
        msg="Number is not Integer."+e;
        repaint();
    }catch(ArithmeticException e){
        msg="Divide By zero not Allowed."+e;
        repaint();
    }
}

public float divideNumbers(){
    a=Integer.parseInt(num1TextField.getText());
    b=Integer.parseInt(num2TextField.getText());
    if(b==0){
        throw new ArithmeticException();
    }
    return (float)a/b;
}

public void paint(Graphics g){
    g.drawString(msg,50,100);
}

public static void main(String args[]){
    DivisionInteger div=new DivisionInteger();
    div.setSize(new Dimension(500,500));
    div.setTitle("Division Calculater");
    div.setVisible(true);
}
}

class MyWindowAdapter extends WindowAdapter{
    public void windowClosing(WindowEvent event){
        System.exit(0);
    }
}

```

Command Prompt

```
D:\>javac LAB10.java
```

```
D:\>java LAB10
```

OddThread Created.

Main Thread Active

Sum of Odd numbers: 2500

Sum of all Even numbers: 2450

```
D:\>java ThreeThreads
```

First Thread created.

PRESS Ctrl + C TO EXIT.

1 is Odd and its cube is 1

9 is Odd and its cube is 729

5 is Odd and its cube is 125

8 is Even and its square is 64

6 is Even and its square is 36

8 is Even and its square is 64

7 is Odd and its cube is 343

0 is Even and its square is 0

2 is Even and its square is 4

9 is Odd and its cube is 729

9 is Odd and its cube is 729

6 is Even and its square is 36

9 is Odd and its cube is 729

8 is Even and its square is 64

4 is Even and its square is 16

7 is Odd and its cube is 343

0 is Even and its square is 0

6 is Even and its square is 36

0 is Even and its square is 0