

Lab 1

1) Quadratic Equation

```

import java.util.Scanner;
class equation {
    public static void main (String [] args) {
        double r1, r2;
        Scanner num = new Scanner (System.in);
        System.out.println ("Let the equation be");
        of the form  $a \cdot n^2 + b \cdot n + c = 0$  );
        System.out.println ("Enter value of a");
        double a = num.nextInt ();
        System.out.println ("Enter value of b");
        double b = num.nextInt ();
        System.out.println ("Enter value of c");
        double c = num.nextInt ();
        double det = (b * b) - (4 * a * c);
        double sqrt = Math.sqrt (det);
        if (det >= 0) {
            r1 = (-b + sqrt) / (2 * a);
            r2 = (-b - sqrt) / (2 * a);
            String s1 = String.format ("% .2f", r1);
            String s2 = String.format ("% .2f", r2);
            System.out.println ("Roots are Real and Distinct");
            System.out.println ("Roots are " + s1);
            + " " + "and " + s2);
        }
        else if (det == 0) {
            System.out.println ("Roots are Real and equal");
            r1 = (-b + sqrt) / (2 * a);
        }
    }
}

```

```
System.out.println("Root is");
String s3 = String.format("%.2f", s1);
System.out.println(s3);
}

else {
    System.out.println("No real roots");
}

}
```

Lab 2

- 1) Develop a Java program to create a class ~~stu~~ with members USN, name, an array marks and an array credits. Include methods to accept & display details & a method to calculate ~~SGPA~~ a student.

Soln:-

```
import java.util.Scanner;
class Student {
    private int a_credits[], total_credits = 0;
    private double a_marks[], avg, sum = 0,
    SGPA, num;
    private String name, usn;
```

```
void acceptDetails()
```

```
{  
    System.out.println("Enter student details:");
    Scanner s1 = new Scanner(System.in);
    System.out.println("Enter name :");
    name = s1.nextLine();
    System.out.println("Enter USN :");
    usn = s1.nextLine();
    a_marks = new double[5];
    a_credits = new int[5];
    a_avg = new double[5];
    for (int i=0; i<5; i++) {
```

```
        System.out.println("Enter a_marks[" + i + "]");
        a_marks[i] = s1.nextDouble();
    }
```

```
    for (int i=0; i<5; i++) {
```

```
        System.out.println("Enter a_credits[" + i + "]");
    }
```

a - Crd[i] = sc.nextInt();

{

{

void displayDetails()

{

System.out.println("name:" + name);

System.out.println("usn:" + usn);

System.out.println("Marks of students are:");

for (int i=0; i<5; i++) {

System.out.println("a-mark[" + i + "] " +

" " + a-mark[i]);

{

{

void calculate() {

num = new double[5];

for (int i=0; i<5; i++) {

if (a-mark[i] > 100) {

System.out.println("invalid marks");

{

else if (a-mark[i] >= 90) {

num[i] = 10;

{

else if (a-mark[i] >= 80 && a-mark[i] < 90) {

num[i] = 9;

{

else if (a-mark[i] >= 70 && a-mark[i] < 80) {

num[i] = 8;

{

else if (a-mark[i] >= 60 && a-mark[i] < 70) {

num[i] = 7;

{

Date: / /

else if ($a_mark[i] \geq 50$ & $a_mark[i] < 60$)
 num[i] = 5;

}

else if ($a_mark[i] \geq 40$ & $a_mark[i] < 50$)
 num[i] = 4;

}

else {

 num[i] = 0;

}

$a_cal[i] = num[i] * a_cred[i];$

sum = sum + a_cal[i];

total_cred = total_cred + a_cred[i];

}

sgpa = sum / total_cred;

System.out.println("sgpa:" + sgpa);

}

}

Lat 3

- 1) Create a class Book which contains four members: name, author, price, num - page. Include a constructor to set the values for the members. Include methods to set and get the details of the objects. Include a toString() method that would display complete details of the books. Develop a main program to create n book objects.

Sol :- import java.util.Scanner

```
class Book {
```

```
    String name, author;
```

```
    double price;
```

```
    int num - page;
```

```
    Book ()
```

```
    {}
```

```
    public Book (String name, String author, double price,  
                int num - page)
```

```
{
```

```
        this . name = name ;
```

```
        this . author = author ;
```

```
        this . price = price ;
```

```
        this . num - page = num - page ;
```

```
}
```

```
    void set () {
```

```
        Scanner s1 = new Scanner (System . in);
```

```
        System . out . println ("Enter name of book");
```

```
        name = s1 . nextLine ();
```

```
        System . out . println ("Enter author of book");
```

```
        author = s1 . nextLine ();
```

```
System.out.println ("Enter price of book");
price = sc.nextInt();
System.out.println ("Enter number of pages of book");
numPage = sc.nextInt();
```

{

```
public String toString () {
```

```
return "name: " + name + "\nauthor: " + author
+ "\nprice: " + price + "\nnumber of pages: "
+ numPage;
```

{

{

```
class Book {
```

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

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

```
System.out.println ("Enter number of books");
```

```
int n = sc.nextInt();
```

```
Book b [] = new Book [n];
```

```
for (int i=0; i<n; i++) {
```

```
b [i] = new Book ();
```

```
System.out.println ("Enter details of book");
```

```
b [i].Set ();
```

{

```
for (int i=0; i<n; i++) {
```

```
System.out.println ("Details of book " + i + ".");
```

```
System.out.println (b [i]);
```

{

{

{

Q) Write a Java program to write
Lab - 4

abstract class Shape {

 double dim1, dim2;

 abstract double printArea();

}

class Rectangle extends Shape {

 Rectangle (double a, double b) {

 dim1 = a;

 dim2 = b;

}

 double printArea () {

 System.out.println ("Inside the Rectangle");

 return dim1 * dim2;

}

}

class Triangle extends Shape {

 Triangle (double a, double b) {

 dim1 = a;

 dim2 = b;

}

 double printArea () {

 System.out.println ("Inside the Triangle");

 return dim1 * dim2 / 2;

}

}

class Circle extends Shape {

 Circle (double a) {

dim 1 = a;

{

double printArea();

System.out.println("Inside the method")
return 3.14 * dim1 * dim2;

{

{

class abc Main {

public static void main (String args[]){}

Rectangle r = new Rectangle (10, 20);

Triangle t = new Triangle (20, 30);

Circle c = new Circle (35);

System.out.println("Area of Rectangle is :" +

r.printArea());

System.out.println("Area of Triangle is :" +

t.printArea());

System.out.println("Area of Circle is :" +

c.printArea()));

{

{

Lab - 5

- a) Develop a Java program to create a class Bank Accounts that maintains two kinds of account for its customers, one called savings account & the other current account. The savings account provides compound interest and withdrawal facilities but no cheque book facilities. The current account provides cheque book facilities but no interest. Current account holder should also maintain a min balance & if balance falls below 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 curr-act & sav-act to make them more specific to their requirement.

Soln:- import java.util.Scanner;

```
abstract class Account {
    String c-name, ac-type;
    int ac-num;
    double balance;
    int minbalance = 2000;

    Account (String c-name, int ac-num, double balan)
    {
        this.c-name = c-name;
        this.ac-num = ac-num;
        this.balance = balance;
        this.ac-type = ac-type;
    }
}
```

abstract void addbal (double amount);

abstract void display();

abstract void withdrawal(double amount);

{}

class curr_acct extends Account {

curr_acct (String c-name, int acc-num, double balance);

super (c-name, acc-num, balance);

System.out.println ("Details of the customer");

System.out.println ("Customer name : " + c-name);

"\t Account number: " + acc-num + "\t Balance: " +

balance + "Account type: " + current);

{}

void addbal (double amount) {

this.balance += amount;

{}

void display () {

System.out.println ("The balance is : " + this.balance);

void withdrawal () {

if (this.balance < amount) {

System.out.println ("Insufficient funds");

System.out.println ("Your balance is : " + this.balance);

return;

{}

this.balance = this.balance - amount;

if (this.balance < minbalance) {

this.balance = this.balance - amount;

System.out.println ("Balance is : " + this.balance);

this.balance = this.balance - this.balance * 0.5;

```

System.out.println("A penalty of Rs." + this.balance * 0.5 +
" has been charged as minimum balance is not maintained");
System.out.println("Updated Balance: " + this.balance);
System.out.println("Cannot withdraw.");
}

```

else if (balance > minBalance) {

this.balance = this.balance - amount;

```
System.out.println("Balance is :" + this.balance);
```

}

}

}

class Sav-Acc extends Account {

```
Sav-Acc (String c-name, int acc-num, double balance)
{
```

Super (c-name, acc-name, balance);

```
System.out.println("Customer name: " + c-name +
" & Account number: " + acc-num + " & Balance: " + balance +
" Account type: Savings");
```

}

void addBal (double amount) {

this.balance += amount;

}

void display () {

```
System.out.println("The balance is : " + this.balance);
}
```

void withdraw (double amount) {

if (this.balance < amount) {

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

System.out.println("Your balance is : " + this.balance);

}

this.balance = this.balance - amount;

if (this.balance < minbalance) {

this.balance = this.balance - this.balance * 0.5;

System.out.println("A penalty of Rs." + this.balance * 0.5 +

+ " has been charged as minimum balance is not satisfied");

System.out.println("updated balance : " + this.balance);

System.out.println("Cannot withdraw");

}

else if (balance > minbalance) {

this.balance = this.balance - amount;

System.out.println("Balance is : " + this.balance);

void interest (double amount) {

int time = 3, n=1

System.out.println("Rate of interest is 0.2");

this.balance = this.balance * Math.pow(1+0.2/n, (nt));

class abc2Math {

public static void main (String args[]) {

int choice , ch , n=1;

double amount;

Scanner st = new Scanner (System.in);

Curr_acct c = new curr_acct ("john,12345,5000");

RAJDHANI

Sav-Acc : s = new Sav-Acc ("John", 12345, 5000);

System.out.println ("Print 1. For current account\nin press 2. For Savings account");

choice = sc.nextInt();

switch (choice) {

Case 1: System.out.println ("* * * * Current Account");
while (n != 0) {

System.out.println ("1. AddBalance\n2. display\n- Balance\n3. withdraw\n6. Checkbook\n5. Exit");

ch = sc.nextInt();

String receiver;

double amount;

switch (ch) {

Case 1:

System.out.println ("Enter amount to be added");

amount = sc.nextDouble();

c.addBal (amount);

break;

Case 2: c.display ();

break;

Case 3: System.out.println ("Enter amount to be withdrawn");

amount = sc.nextDouble();

c.withdraw (amount);

break;

Case 4: System.out.println ("Enter the name of the receiver");

receiver = sc.next();

System.out.println("Enter amount to be delivered
to receiver");

recamount = sc.nextIntDouble();

if (recamount > c.balance) {

System.out.println("Insufficient Balance");

}

else {

System.out.println("Amount of " + recamount
"sent to " + receiver);

c.balance = c.balance - recamount;

System.out.println("Balance : " + c.balance);

c.balance = c.balance;

}

case 5: n=0;

break;

default : System.out.println("Invalid Input");

}

3

break;

Case 2: System.out.println("**** Savings Account ****");
while (n != 0) {

System.out.println("1. AddBalance In ");

displayBalance In 3. withdraw In 4. End");

ch = sc.nextIntInt();

switch (ch) {

case 1 :

System.out.println("Enter amount to be
added");

c.addBal (amount);

break;

Date: / /

Case 2: s.display();
break;

Case 3:

```
System.out.println("Enter amount to be  
withdrawn:");  
amount = sc.nextInt();  
sc.withdraw(amount);  
break;
```

Case 4:

n = 0;

default: System.out.println("Invalid Input");
}

}

break;

default: System.out.println("Invalid Input");

}

}

}

```
(base) jathinsmacbookpro@Jathins-MacBook-Pro java % java equation
Let the quadratic equation be of the form ax^2+bx+c=0

Enter value of a
1
Enter value of b
2
Enter value of c
3
No real roots

(base) jathinsmacbookpro@Jathins-MacBook-Pro java % java equation
Let the quadratic equation be of the form ax^2+bx+c=0

Enter value of a
1
Enter value of b
-2
Enter value of c
1
Roots are Real and equal
Roots is
1.00
(base) jathinsmacbookpro@Jathins-MacBook-Pro java % java equation
Let the quadratic equation be of the form ax^2+bx+c=0

Enter value of a
1
Enter value of b
4
Enter value of c
2
Roots are real and distinct
Roots are -0.59 and -3.41
(base) jathinsmacbookpro@Jathins-MacBook-Pro java %
```

```
(base) jathinsmacbookpro@Jathins-MacBook-Pro java % java StudentMain
Enter student details:
Enter name:
jatin
Enter usn:
1BM19CS066
Enter a_mark[0]
80
Enter a_mark[1]
70
Enter a_mark[2]
90
Enter a_mark[3]
60
Enter a_mark[4]
50
Enter a_cred[0]
3
Enter a_cred[1]
4
Enter a_cred[2]
5
Enter a_cred[3]
3
Enter a_cred[4]
2
name:jatin
usn:1BM19CS066
Marks of student are:
a_mark[0]:80.0
a_mark[1]:70.0
a_mark[2]:90.0
a_mark[3]:60.0
a_mark[4]:50.0
sgpa:8.235294117647058
(base) jathinsmacbookpro@Jathins-MacBook-Pro java %
```

```
(base) jathinsmacbookpro@Jathins-MacBook-Pro java % javac lab2.java
(base) jathinsmacbookpro@Jathins-MacBook-Pro java % java StudentMain
Enter student details:
Enter name:
e
Enter usn:
3
Enter a_mark[0]
90
Enter a_mark[1]
90
Enter a_mark[2]
90
Enter a_mark[3]
90
Enter a_mark[4]
90
Enter a_cred[0]
3
Enter a_cred[1]
3
Enter a_cred[2]
3
Enter a_cred[3]
3
Enter a_cred[4]
3
name:e
usn:3
Marks of student are:
a_mark[0]:90.0
a_mark[1]:90.0
a_mark[2]:90.0
a_mark[3]:90.0
a_mark[4]:90.0
sgpa:10.0
(base) jathinsmacbookpro@Jathins-MacBook-Pro java %
```

```
(base) jathinsmacbookpro@Jathins-MacBook-Pro java % javac lab3.java
(base) jathinsmacbookpro@Jathins-MacBook-Pro java % java Bmain
Enter number of books
3
Enter details of book:0
Enter name of book
math
Enter author of book
xyz
Enter price of book
234
Enter number of pages of book
456
Enter details of book:1
Enter name of book
science
Enter author of book
cvb
Enter price of book
234
Enter number of pages of book
987
Enter details of book:2
Enter name of book
java
Enter author of book
rst
Enter price of book
134
Enter number of pages of book
345
Details of book0:
name: math
author: xyz
price: 234.0
number of pages: 456
Details of book1:
name: science
author: cvb
price: 234.0
number of pages: 987
Details of book2:
```

5
(base) jathinsmacbookpro@Jathins-MacBook-Pro java % java abs1Main
Inside the Rectangle
Area of Rectangle is:200.0
Inside the Triangle
Area of Triangle is:300.0
Inside the Circle
Area of Circle is:3846.5
(base) jathinsmacbookpro@Jathins-MacBook-Pro java %

```
Terminal Shell Edit View Window Help
java — zsh — 81x46
(base) jathinsmacbookpro@Jathins-MacBook-Pro java % java abs2Main
Details of the customer:
Customer name: jatin Account number: 12345 Balance: 50000.0 Account type: current
Customer name: jatin Account number: 12345 Balance: 50000.0 Account type: savings
Press 1.For Current account
Press 2.For Savings account
1
****Current Account****
1.AddBalance
2.displayBalance
3.withdraw
4.checkbook
5.Exit
1
enter amount to be added:
34000
1.AddBalance
2.displayBalance
3.withdraw
4.checkbook
5.Exit
2
The balance is:84000.0
1.AddBalance
2.displayBalance
3.withdraw
4.checkbook
5.Exit
3
enter amount to be withdrawn:
4000
Balance is: 76000.0
1.AddBalance
2.displayBalance
3.withdraw
4.checkbook
5.Exit
2
The balance is:76000.0
1.AddBalance
2.displayBalance
3.withdraw
4.checkbook
5.Exit
```

```
2.displayBalance
3.withdraw
4.checkbook
5.Exit
3
enter amount to be withdrawn:
4000
Balance is: 76000.0
1.AddBalance
2.displayBalance
3.withdraw
4.checkbook
5.Exit
2
The balance is:76000.0
1.AddBalance
2.displayBalance
3.withdraw
4.checkbook
5.Exit
3
enter amount to be withdrawn:
75500
A penalty of Rs. 125.0 has been charged as minimum balance is not satisfied
Updated Balance: 250.0
Cannot withdraw
1.AddBalance
2.displayBalance
3.withdraw
4.checkbook
5.Exit
2
The balance is:250.0
1.AddBalance
2.displayBalance
3.withdraw
4.checkbook
5.Exit
4
Enter the name of the receiver:
john
Enter amount to be debited to receiver:
150
Amount of 150.0 sent to john
Balance: 100.0
(base) jathinsmacbookpro@Jathins-MacBook-Pro java %
```

```
Enter name of book
math
Enter author of book
xyz
Enter price of book
234
Enter number of pages of book
456
Enter details of book:1
Enter name of book
science
Enter author of book
cvb
Enter price of book
234
Enter number of pages of book
987
Enter details of book:2
Enter name of book
java
Enter author of book
rst
Enter price of book
134
Enter number of pages of book
345
Details of book0:
name: math
author: xyz
price: 234.0
number of pages: 456
Details of book1:
name: science
author: cvb
price: 234.0
number of pages: 987
Details of book2:
name: java
author: rst
price: 134.0
number of pages: 345
(base) jathinsmacbookpro@Jathins-MacBook-Pro:java %
```

Lat-6

- Q) Create a package CIE which has two classes - Student and Internals . the class Personal has member like name, name, sem. The class Internals has an array that stores the internals 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 obtained in five courses of the current semester of the student. Import the packages in a file that declares the final marks of n student in all five courses.

Sol:-

```
package CIE;
import java.util.Scanner;
```

```
public class Student {
```

```
}
```

```
public String name;
public String usn;
public int sem;
public void display()
```

```
{
```

```
Scanner s2 = new Scanner (System.in);
```

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

```
name = s2.next();
```

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

```
usn = s2.next();
```

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

```
sem = s2.nextInt();
```

```
3
```

```
3
```

```

package CIE;
import java.util.Scanner;

public class Internals extends Student
{
    public double CIEM;
}

public void display()
{
    CIEM = new double[5];
    Scanner S1 = new Scanner(System.in);
    System.out.println("CIE marks for 5 subjects out
    of 50:");
    for (int i=0; i<5; i++)
    {
        CIEM[i] = S1.nextDouble();
        if (CIEM[i] > 50)
            System.out.println("please enter valid
            internal mark");
    }
}
}

```

```

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

```

```

public class Externals extends CIE.Student
{
    public double SEM;
}

public void display()

```

Date: / /

{

seem = new double [5];

Scanner s = new Scanner (System.in);

System.out.println ("SEE marks for 5 subjects
out of 100 : ");

for (int i=0; i<5; i++) {

seem [i] = s.nextInt ();

if (seem [i] > 100) {

System.out.println ("Please enter valid
External marks");

}

}

}

}

import CIE.*;

import SEE.*;

import java.util.Scanner;

public class main

{

public static main (String args)

{

int n;

Scanner s3 = new Scanner (System.in);

System.out.println ("Enter the number of Students");

n = s3.nextInt ();

CIE.Student st[] = new CIE.Student [n];

CIE.Internal st_in[] = new CIE.Internal [n];

SEE.External st_en[] = new SEE.External [n];

for (int i=0; i<n; i++)

{

st[i] = new CIE.Student();

```
inS[i] = new IIE.Internal();
enS[i] = new SEE.External();
stS[i].display();
inS[i].display();
enS[i].display();
System.out.println("Total marks of student " +
stS[i].name + " in 5 subjects are : ");
for (int j=0; j<5; j++)
{
    System.out.println(inS[i].ciemS[j] + enS[i].sumS[j]);
}
```

Lab - 7

a) Write a program to demonstrate generator with multiple object parameter.

Class Multiple Gen < T, V, J > {

T obj1;

V obj2;

J obj3;

Multiple Gen (T o1, V o2, J o3) {

o1 = o1;

o2 = o2;

o3 = o3;

}

void typeDisplay () {

System.out.println ("Type of T is " + o1.getClassName()
getName());

System.out.println ("Type of V is " + o2.getClassName()
getName());

System.out.println ("Type of J is " + o3.getClassName()
getName());

}

T geto1 () {

return o1;

}

V geto2 () {

return o2;

}

```
T getob3 () {
    return ob3;
```

3

3

```
class GenMain {
```

```
public static void main (String args) {
```

```
Multiple Gen < Integer, String, Double > mgobj = new
```

```
Multiple Gen < Integer, String, Double > (100, "Tata", 99.9)
```

```
mgobj. type Display();
```

```
int a = mgobj. getob1();
```

```
System. out. println ("Value : " + a);
```

```
String b = mgobj. getob2();
```

```
System. out. println ("Value : " + b);
```

```
double c = mgobj. getob3();
```

```
System. out. println ("Value : " + c);
```

3

3

Lab - 8

Q) Write a program that demonstrates handling of exception in inheritance tree. Let's suppose we create a base class called "Father" and derived class called "Son". 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 takes both father's and son's age and throws an exception if son's age is \geq father's age.

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

```
class WrongAge extends Exception {
    double age;
    WrongAge (double n) {
        age = n;
    }
}
```

```
public String toString () {
    return "Age of son" + age + " is invalid";
}
```

```
}
```

```
class Father {
    double fage;
    Father (double father - age) {
        fage = father - age;
    }
}
```

```
}
```

```
class Son extends Father {
```

```
    double sage;
```

```
    Son (double sage, double age) {
```

```
        super (age);
```

```
        sage = age;
```

```
}
```

```
void calculate () throws WrongAge {
```

```
    if (sage >= age) {
```

```
        throw new WrongAge (WrongAge (sage));
```

```
}
```

```
else {
```

```
    System.out.println ("The age of father is: " + age);
```

```
    System.out.println ("The age of son is: " + sage);
```

```
}
```

```
}
```

```
3
```

```
class EneMain {
```

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

```
    Scanner s1 = new Scanner (System.in);
```

```
    System.out.println ("Enter father's age: ");
```

```
    double f = s1.nextInt ();
```

```
    System.out.println ("Enter son's age: ");
```

```
    double s = s1.nextInt ();
```

```
    Son sa = new Son (f, s);
```

```
    try {
```

```
        sa.calculate ();
```

```
}
```

```
    catch (WrongAge e) {
```

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

```
}
```

```
3
```

```
3
```

Lab - 9

Q) Write a program which creates two threads, one thread displaying "BMS college of Engineering" every ten seconds and another displaying "CSE" once every two seconds.

Class Thread1 implements Runnable

Thread t;

String name;

int time;

Thread1 (String threadname, int time) {

name = threadname;

thr. time = time;

t = new Thread (thr, name);

System.out.println ("Thread: " + t);

t.start();

}

public void run() {

try {

for (int i=5; i>0; i--) {

System.out.println (name);

Thread.sleep (time);

}

}

Catch (InterruptedException e) {

System.out.println ("name + " Interrupting Thread");

}

System.out.println (name + " Entering Thread");

3

3

3

Date: / /

class Threadmain {

public static void main (String args[]) {

Thread t1 = new Thread1 ("BMS College Of
Engineering", 10000);

Thread t2 = new Thread2 ("CSE", 2000);

}

}

Lab - 10

Q) Write a program that creates a user interface to perform integer division. The user enters two numbers in the text fields, Num1 and Num2. The division of Num1 and Num2 is displayed in the Result when the divide button is clicked. If Num1 or Num2 were not an integer, the program would throw a NumberFormat Exception. If Num2 were zero, the program would throw an Arithmetic Exception. Display the exception in a message dialog box.

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

```
class SampleDialog extends Dialog implements ActionListener
```

{

```
IntDivision obj;
```

```
SampleDialog ( Frame parent, String title ) {
```

```
super ( parent, title, false );
```

```
obj = ( IntDivision ) parent;
```

```
setLayout ( new FlowLayout () );
```

```
setSize ( 100, 50 );
```

```
add ( new Label ( obj. msg ) );
```

```
Button b;
```

```
add ( b = new Button ( "OK" ) );
```

```
b. add ActionListener ( this );
```

{

```
public void actionPerformed ( ActionEvent ae ) {
```

```
dispose ();
```

{

{

class IntDivision extends Frame implements ActionListener
{

 Button calculate;

 TextField int1;

 TextField int2;

 double Result;

 int a, b;

 String msg = "Enter the Two Number";

 Dialog SampleDialog;

 public SampleDialog

 public IntDivision () {

 setLayout (new FlowLayout ());

 calculate = new Button ("calculate");

 int1 = new TextField (10);

 label n1 = new Label ("Number 1", Label.RIGHT);

 int2 = new TextField (10);

 label n2 = new Label ("Number 2", Label.RIGHT);

 add (n1);

 add (int1);

 add (n2);

 add (int2);

 add (calculate);

 int1 . add ActionListener (this);

 int2 . add ActionListener (this);

 calculate . add ActionListener (this);

 add WindowListener (new WindowAdapter());

public void actionPerformed (ActionEvent e) {

try {

result = onDivision();

msg = ("The final result is: " + result);
repaint();

}

catch (NumberFormatException e) {

msg = ("The number is not an integer");
repaint();

}

catch (ArithmeticException e) {

msg = ("The integer cannot be divided by zero");
repaint();

SampleDialog dia = new SampleDialog (this, "Calculator");
dia.setSize (new Dimension (600, 300));
dia.setVisible (true);

}

}

public double onDivision () {

a = Integer.parseInt (int1.getText());

b = Integer.parseInt (int2.getText());

if (b == 0) {

throw new ArithmeticException();

}

return (double) a/b;

}

public void paint (Graphics g) {

g.drawString (msg, 200, 200);

}

```
public static void main (String args [ ] ) {  
    IntDivision d = new IntDivision ();  
    d. setSize ( new Dimension ( 500, 500 ));  
    d. setTitle ( " Integer Division " );  
    d. setVisible ( true );
```

{}

3

class MyWindowAdapter extends WindowAdapter {

```
public void windowClosing ( WindowEvent event ) {  
    System. exit ( 0 );
```

3

Enter the number of students:

2

Name: j

USN:

1234

Semester:

4

CIE Marks for 5 subjects out of 50:

45

46

34

41

48

SEE Marks for 5 subjects(out of 100):

89

98

97

90

86

Total marks of student j in 5 subjects are:

89.5

95.0

82.5

86.0

91.0

Name:

y

USN:

34567

Semester:

4

CIE Marks for 5 subjects out of 50:

45

34

23

49

50

SEE Marks for 5 subjects(out of 100):

90

97

93

94

87

```
Name:  
y  
USN:  
34567  
Semester:  
4  
CIE Marks for 5 subjects out of 50:  
45  
34  
23  
49  
50  
SEE Marks for 5 subjects(out of 100):  
90  
97  
93  
94  
87  
Total marks of student y in 5 subjects are:  
90.0  
82.5  
69.5  
96.0  
93.5  
(base) jathinsmacbookpro@Jathins-MacBook-Pro lab6 %
```

```
(base) jathinsmacbookpro@Jathins-MacBook-Pro java % javac lab7.java
(base) jathinsmacbookpro@Jathins-MacBook-Pro java % java GenMain
Type of T is java.lang.Integer
Type of V is java.lang.String
Type of J is java.lang.Double
Value: 100
Value: jathin
Value: 99.99
(base) jathinsmacbookpro@Jathins-MacBook-Pro java %
```

```
Enter father's age:  
45  
Enter son's age:  
50  
Input invalidAge if son 50.0 is invalid  
|(base) jathinsmacbookpro@Jathins-MacBook-Pro java % java ExeMain  
Enter father's age:  
45  
Enter son's age:  
19  
The age of Father is: 45.0  
The age of Son is: 19.0
```

```
(base) jathinsmacbookpro@Jathins-MacBook-Pro java % javac labb9.java
(base) jathinsmacbookpro@Jathins-MacBook-Pro java % java ThreadMain
[thread:Thread[BMS College of Engineering,5,main]
[thread:Thread[CSE,5,main]
BMS College of Engineering
CSE
CSE
CSE
CSE
CSE
BMS College of Engineering
CSE Exiting Thread
BMS College of Engineering
BMS College of Engineering
BMS College of Engineering
BMS College of Engineering
BMS College of Engineering Exiting Thread
(base) jathinsmacbookpro@Jathins-MacBook-Pro java %
```

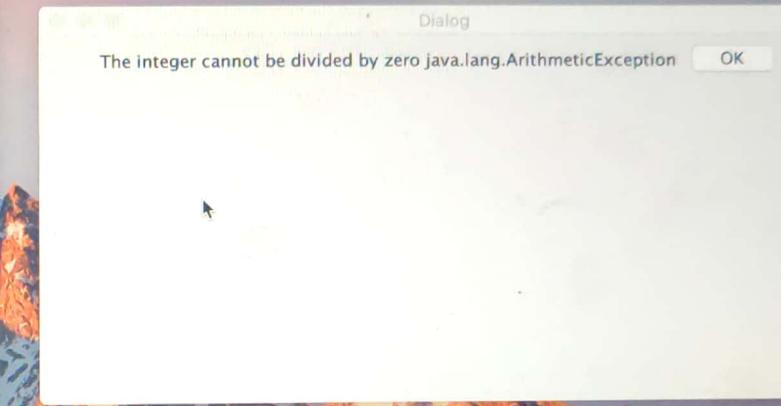
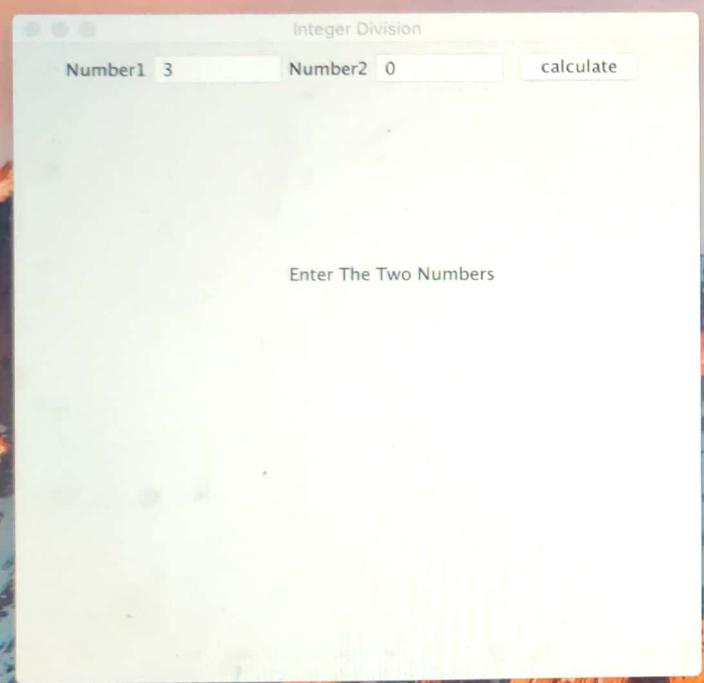
Integer Division

Number1

Number2

calculate

Enter The Two Numbers



Integer Division

Number1 3

Number2 5

calculate

The final result is: 0.6