

# OOJ-RECORD

1 | Develop a Java program that prints all real solutions to the quadratic equation  $ax^2+bx+c = 0$ . Read in a, b, c and use the quadratic formula. If the discriminate  $b^2 - 4ac$  is negative, display a message stating that there are no real solutions.

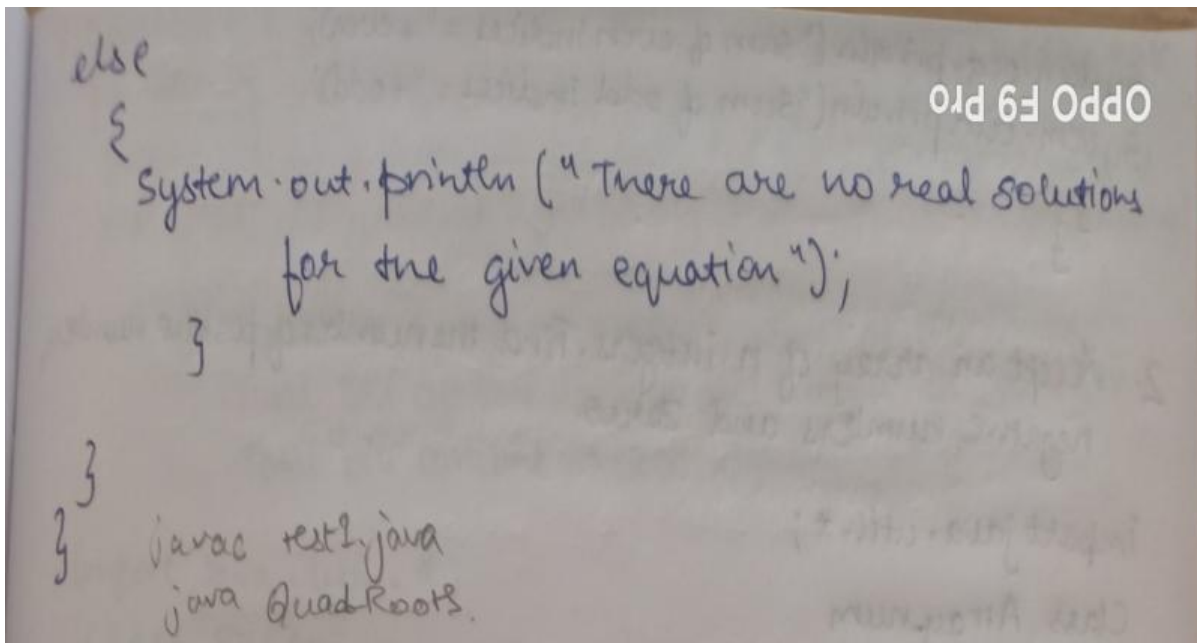
The image shows a handwritten Java program on a piece of paper. The code is for a class named 'QuadRoots' that takes three command-line arguments (a, b, c) and prints the real solutions to the quadratic equation  $ax^2+bx+c = 0$ . It uses the quadratic formula and checks the discriminant  $b^2 - 4ac$  to determine if there are real solutions. The code is written in a cursive, handwritten style.

```

Program
import java.util.*;
public class QuadRoots
{
    public static void main(String args[])
    {
        double a, b, c, d, r1, r2;
        System.out.println("Enter the values of a, b and c");
        Scanner sc = new Scanner(System.in);
        a = sc.nextDouble();
        b = sc.nextDouble();
        c = sc.nextDouble();
        d = (b*b) - (4*a*c);

        if (d > 0)
        {
            r1 = (-b + Math.sqrt(d)) / (2*a);
            r2 = (-b - Math.sqrt(d)) / (2*a);
            System.out.println("root1 = " + r1 + " root2 = " + r2);
        }
        else if (d == 0)
        {
            r1 = r2 = -b / (2*a);
            System.out.println("root1 = root2 = " + r1);
        }
    }
}
    
```

OPPO F9 Pro



```
Command Prompt
Microsoft Windows [Version 10.0.18362.1882]
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C:\Users\Nikita>set path =
C:\Users\Nikita>set path = "C:\Program Files\Java\jdk1.8.0_261\bin"
C:\Users\Nikita>cd desktop
C:\Users\Nikita\Desktop>cd OOD_LAB
C:\Users\Nikita\Desktop\OOD_LAB>java Quad_Roots
Enter the values of a,b and c
1 -3 10
There are no real solutions for the given equation

C:\Users\Nikita\Desktop\OOD_LAB>java Quad_Roots
Enter the values of a,b and c
1 -3 -10
Root1=5.0Root2=-2.0

C:\Users\Nikita\Desktop\OOD_LAB>java Quad_Roots
Enter the values of a,b and c
4 -4 1
Root1=Root2=0.5

C:\Users\Nikita\Desktop\OOD_LAB>
```

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

### LAB-2

06/10/20

```
import java.util.Scanner;

class Student
{
    private int grade[];
    private String usn;
    private String name;
    private int cr[];
    private int marks[];
    private int double sum = 0.0;
    private int double total = 0.0;

    private int cr = new int[5];
    private int marks = new int[5];
    private int grade = new int[7];
    private double sgpa;

    void getDetails()
    {
        System.out.println("Enter the student details:");
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter name:");
        name = sc.next();
    }
}
```

else  
grade[i] = 0;

}

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

{  
sum += (cr[i] \* grade[i]);

total += (cr[i] \* 10);

}

sgpa = ((sum / total) \* 10);

}

void display()

{

System.out.println("SGPA of " + name + " with  
usn " + usn + " is " + sgpa);

}

}

class StudentMain

{

public static void main(String args[])

{

Student s1 = new Student();

s1.getDetails();

s1.calculate();

s1.display();

}

}

system.out.println("Enter USN:");  
usn = sc.next();

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

{  
system.out.println("Enter marks in sub" + (i+1) + ":");  
marks[i] = sc.nextInt();

system.out.println("Enter the credits for sub" +  
(i+1) + ":");

3     cr[i] = sc.nextInt();  
}

void calculate()

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

{  
if (marks[i] > 90 && marks[i] <= 100)  
grade[i] = 10;

else if (marks[i] > 80 && marks[i] <= 90)  
grade[i] = 9;

else if (marks[i] > 70 && marks[i] <= 80)  
grade[i] = 8;

else if (marks[i] > 60 && marks[i] <= 70)  
grade[i] = 7;

else if (marks[i] > 50 && marks[i] <= 60)  
grade[i] = 6;

else if (marks[i] > 40 && marks[i] <= 50)  
grade[i] = 4;

Command Prompt

```
Enter Name:
Nikita
Enter USN:
1BM19CS103
Enter marks in Subject1:
90
Enter the credits for Subject1:
4
Enter marks in Subject2:
80
Enter the credits for Subject2:
4
Enter marks in Subject3:
85
Enter the credits for Subject3:
5
Enter marks in Subject4:
90
Enter the credits for Subject4:
3
Enter marks in Subject5:
88
Enter the credits for Subject5:
4
187.0
200.0
9.350000000000001
SGPA of Nikita with USN 1BM19CS103 is:9.350000000000001

C:\Users\Nikita\Desktop\OOJ_LAB>
```



3 II 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 and get the details of the objects. Include a toString() method that could display the complete details of the book. Develop a Java program to create n book objects

LAB-3

13-10-20

```
import java.util.Scanner;  
class Book
```

```
{  
    private String name, author;  
    private double price;  
    private int numPages;
```

```
Book()
```

```
{  
    name = "Famous Five";  
    author = "Enid blyton";  
    price = 200.00;  
    numPages = 350;  
}
```

```
void getDetails()
```

```
{  
    Scanner sc = new Scanner(System.in);  
    System.out.println("Enter book name:");  
    name = sc.next();  
    System.out.println("Enter author:");  
    author = sc.next();  
    System.out.println("Enter the number of pages:");  
    numPages = sc.nextInt();  
    System.out.println("Enter the price");  
    price = sc.nextDouble();  
}
```

```
public String toString()
```

```
{  
    String temp = "Book Name: " + name + "\nAuthor: " + author  
        + "\nNumber of Pages" + numPages + "\nPrice" + price;  
    return temp;  
}
```

```
class BookMain1
```

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

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

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

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

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

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

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

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

```
{  
    System.out.println("Enter book " + (i+1) + " details");
```

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

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

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

```
    }  
}
```



C:\Users\Nikita\Desktop\OOJ\_LAB>java BookMain1

Enter number of books:

3

Enter Book1 details:

Enter Book name:

Famous five

Enter author:

Enid blyton

Enter the number of pages:

200

Enter the price:

150

Enter Book2 details:

Enter Book name:

Merchant of venice

Enter author:

william shakespeare

Enter the number of pages:

400

Enter the price:

200

Enter Book3 details:

Enter Book name:

secret

Enter author:

henry

Enter the number of pages:

600

Enter the price:

450

Book Name:Famous five

Author:Enid blyton

Number of pages200

Price150.0

Book Name:Merchant of venice

Author:william shakespeare

Number of pages400

Price200.0

Book Name:secret

Author:henry

Number of pages600

Command Prompt

Famous five

Enter author:

Enid blyton

Enter the number of pages:

200

Enter the price:

150

Enter Book2 details:

Enter Book name:

Merchant of venice

Enter author:

william shakespeare

Enter the number of pages:

400

Enter the price:

200

Enter Book3 details:

Enter Book name:

secret

Enter author:

henry

Enter the number of pages:

600

Enter the price:

450

Book Name:Famous five

Author:Enid blyton

Number of pages200

Price150.0

Book Name:Merchant of venice

Author:william shakespeare

Number of pages400

Price200.0

Book Name:secret

Author:henry

Number of pages600

Price450.0

C:\Users\Nikita\Desktop\OOJ\_LAB>

4 III Develop a Java program to create an abstract class named Shape that contains two integers and an empty method named printArea( ). Provide three classes named Rectangle, Triangle and Circle such that each one of the classes extends the class Shape. Each one of the classes contain only the method printArea( ) that prints the area of the given shape

### LAB 4 and LAB 5

03-11-2020

#### Abstract class program::

```
import java.util.Scanner;  
abstract class shape  
{
```

```
    int a, b;  
    abstract void printArea();  
}
```

```
3  
class Rectangle extends shape
```

```
{  
    void printArea()  
    {  
        System.out.println("Area of Rectangle = " + a * b);  
    }  
}
```

```
3  
class Triangle extends shape
```

```
{  
    void printArea()  
    {  
        System.out.println("Area of Triangle = " + (a * b) / 2);  
    }  
}
```

```

class Circle extends shape
{
    void printArea()
    {
        System.out.println("Area of circle = " + (3.14 * r * r));
    }
}

```

```

class Shapemain
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        Rectangle r = new Rectangle();
        Triangle t = new Triangle();
        Circle c = new Circle();
        System.out.println("Enter length and breadth");
        r.a = sc.nextInt();
        r.b = sc.nextInt();
        r.printArea();
        System.out.println("Enter height and base");
        t.a = sc.nextInt();
        t.b = sc.nextInt();
        t.printArea();
        System.out.println("Enter radius : ");
        c.a = sc.nextInt();
        c.printArea();
    }
}

```

Command Prompt

C:\Users\Nikita\Desktop>cd ooj\_lab

C:\Users\Nikita\Desktop\OOJ\_LAB>java Shapemain

Enter length and breadth:

4

5

Area of Rectangle=20

Enter height and base:

6

4

Area of Triangle=12.0

Enter radius:

4

Area of Circle=50.272

C:\Users\Nikita\Desktop\OOJ\_LAB>java bankmain

enter the bank details

enter your name

5 III 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. The savings 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 Curr-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.

### Inheritance (Bank) Program

```

import java.util.*;

class account
{
    private String name;
    private long account number;
    private int account type;
    double balance;
    void getdata()
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter your name");
        name = sc.next();
        System.out.println("Enter account number");
        account number = sc.nextLong();
        System.out.println("Choose the account type");
        System.out.println("1. Savings account");
        System.out.println("2. Current account");
        account type = sc.nextInt();
    }
    int return-account-type()
    {
        return account type;
    }
}

class savings extends account
{
    Scanner sc = new Scanner(System.in);
    double amount;
    void get-sav-balance()
    {
        System.out.println("Enter the amount to be
        placed in your savings account");
        amount = sc.nextDouble();
        balance + = amount;
    }
}
    
```



```

3 void display-sav-balance()
{
    System.out.println("balance = " + balance);
}

void compute-sav-interest()
{
    System.out.println("Interest of 5% shall be
        added to your balance");
    balance = balance + (.05 * balance);
}

void withdraw-sav()
{
    System.out.println("enter the amount to be
        withdraw");
    amount = sc.nextDouble();
    balance = balance - amount;
}

3
class current extends account
{
    Scanner sc = new Scanner(System.in);
    double amount;
    final double min-balance = 5000;
    void get-cur-balance()
    {
        System.out.println("enter the amount to be placed
            in your current account");
        amount = sc.nextDouble();
        balance + = amount;
    }
}

```

```

void display_curr_balance()
{
    System.out.println("balance = " + balance);
}

void compute_curr_service_charges()
{
    if (balance < min_balance)
    {
        System.out.println("service tax of Rs 500 shall be levied");
        balance = balance - 500;
    }
    else
    {
        System.out.println("minimum balance is maintained");
    }
}

void withdraw_curr()
{
    System.out.println("enter the amount to be withdrawn");
    amount = sc.nextDouble();
    balance = balance - amount;
}

```

```

class BankMain
{
    public static void main(String args[])
    {
        int type;
        System.out.println("enter the bank details");
        account a = new account();
        a.getdata();
    }
}

```

```

    type = a.return_account_type();
    if (type == 1)
    {
        System.out.println("Savings Account");
        Savings sav = new Savings();
        Sav.get_sav_balance();
        Sav.get_display_sav_balance();
        Sav.compute_sav_interest();
        Sav.display_sav_balance();
        sav.withdraw_sav();
        Sav.display_sav_balance();
    }
}

```

```

if (type == 2)
{
    System.out.println("Current Account");
    Current cur = new Current();
    cur.get_cur_balance();
    cur.display_cur_balance();
    cur.compute_cur_service_charges();
    cur.display_cur_balance();
    cur.withdraw_cur();
    cur.display_cur_balance();
}
}
}

```

```
C:\Users\Nikita\Desktop\00J_LAB>java bankmain
enter the bank details
enter your name
nikita
enter the account_number
1234567890
choose the account type
1.savings account
2.current account
1
SAVINGS ACCOUNT
enter the amount to be placed in your savings account
5000
balance=5000.0
interest of 5% shall be added to your balance
balance=5250.0
enter the amount to be withdrawn
2000
balance=3250.0

C:\Users\Nikita\Desktop\00J_LAB>java bankmain
enter the bank details
enter your name
nikita
enter the account_number
1234567890
```

```
Select Command Prompt
enter the account_number
1234567890
choose the account type
1.savings account
2.current account
1
SAVINGS ACCOUNT
enter the amount to be placed in your savings account
5000
balance=5000.0
interest of 5% shall be added to your balance
balance=5250.0
enter the amount to be withdrawn
2000
balance=3250.0

C:\Users\Nikita\Desktop\00J_LAB>java bankmain
enter the bank details
enter your name
nikita
enter the account_number
1234567890
choose the account type
1.savings account
2.current account
2
CURRENT ACCOUNT
enter the amount to be placed in your current account
4000
balance=4000.0
service tax of rs.500 shall be levied
balance=3500.0
enter the amount to be withdrawn
1000
balance=2500.0

C:\Users\Nikita\Desktop\00J_LAB>
```



6 IV 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.

17-11-20

LAB - 6.

```
package CIE ;
import java.util.*;
public class student
{
    public String usn;
    public String name;
    public int sem;
    public void accept()
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter usn:");
        usn = sc.next();
        System.out.println("Enter name:");
        name = sc.next();
        System.out.println("Enter semester:");
        sem = sc.nextInt();
    }
}
```



```
package CIE;
```

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

```
public class internal extends CIE.Student
```

```
{  
    public double ciemarks[] = new double[5];  
    public void getc()
```

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

```
{  
        System.out.println("Enter the see CIE mark out  
        of 50 in subject "+(i+1));
```

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

```
        ciemarks[i] = sc.nextDouble();
```

```
    }
```

```
}
```

```
package SEE;
```

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

```
public class external extends CIE.Student
```

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

```
    public double seemarks[] = new double[5];  
    public void gete()
```

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

```
{  
        System.out.println("Enter the see mark out of  
        100 in subject "+(i+1));
```

```
        seemarks[i] = sc.nextDouble();
```

```
    }
```

```

import CIE.*;
import SEE.*;
import java.util.*;
class total
{
    public static void main (String args[])
    {
        Scanner sc = new Scanner (System.in);
        int n;
        double total = 0;
        System.out.println("Enter the number of students");
        n = sc.nextInt();

        CIE.internals c1[] = new CIE.internals[n];
        SEE.externals s1[] = new SEE.externals[n];
        for (int i = 0; i < n; i++)
        {
            c1[i] = new CIE.internals();
            s1[i] = new SEE.externals();
            c1[i].accept();
            c1[i].get();
            s1[i].get1();
        }
        for (int i = 0; i < n; i++)
        {
            System.out.println("Student " + (i + 1));
            System.out.println("Name: " + c1[i].name
                + " USN: " + c1[i].usn + " SEM: " + c1[i].se
            );
        }
    }
}

```

```

System.out.println("Total marks : ");
for (int j = 0 ; j < s ; j++)
{
    total = ci[c[i]].ciemarks[j] + (s1[i].seemarks[j]);
    System.out.println("subject" + (j+1) + " = " + ci[c[i]].ciemarks[j] + " + " + s1[i].seemarks[j] + " = " + total);
}
}
}

```

Command Prompt

C:\Users\Nikita\Desktop\007\_LAB\Package>java total

Enter the number of students

2

Enter usn:

1bm19cs103

Enter name:

nikita

Enter semester:

3

Enter the cie mark out of 50 in subject1

45

Enter the cie mark out of 50 in subject2

46

Enter the cie mark out of 50 in subject3

47

Enter the cie mark out of 50 in subject4

48

Enter the cie mark out of 50 in subject5

49

Enter the see mark out of 100 in subject1

80

Enter the see mark out of 100 in subject2

89

Enter the see mark out of 100 in subject3

98

Enter the see mark out of 100 in subject4

88

Enter the see mark out of 100 in subject5

90

Enter usn:

1bm19cs102

Enter name:

abcd

Enter semester:

3

Enter the cie mark out of 50 in subject1

46

Enter the cie mark out of 50 in subject2

47

Enter the cie mark out of 50 in subject3

Command Prompt

```
Enter the cie mark out of 50 in subject1
46
Enter the cie mark out of 50 in subject2
47
Enter the cie mark out of 50 in subject3
44
Enter the cie mark out of 50 in subject4
43
Enter the cie mark out of 50 in subject5
49
Enter the see mark out of 100 in subject1
90
Enter the see mark out of 100 in subject2
99
Enter the see mark out of 100 in subject3
98
Enter the see mark out of 100 in subject4
99
Enter the see mark out of 100 in subject5
97
Student1
Name:nikitaUSN:1bm19cs103SEM:3
Total Marks
Subject1=85.0
Subject2=90.5
Subject3=96.0
Subject4=92.0
Subject5=94.0
Student2
Name:abcdUSN:1bm19cs102SEM:3
Total Marks
Subject1=91.0
Subject2=96.5
Subject3=93.0
Subject4=92.5
Subject5=97.5
C:\Users\Nikita\Desktop\OOJ_LAB\Package>
```

00:54:41





24-11-2020

LAB-7 : Generics

```
Class Generics < T, V, S >
```

```
{
```

```
    T obj1 ;
```

```
    V obj2 ;
```

```
    S obj3 ;
```

```
    Generics ( T obj1 , V obj2 , S obj3 )
```

```
{
```

```
    this . obj1 = obj1 ;
```

```
    this . obj2 = obj2 ;
```

```
    this . obj3 = obj3 ;
```

```
}
```

```
public void print()
```

```
{
```

```
    System.out.println (obj1);
```

```
    System.out.println (obj2);
```

```
    System.out.println (obj3);
```

```
}
```

```
}
```



```
class Genericmain
```

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

```
{ Generic <String, Integer, String> obj = new
```

```
Generic <String, Integer, String> ("WEEK", 7,
```

```
"LAB-PROGRAM");
```

```
obj.print();
```

```
3  
3
```

Microsoft Windows [Version 10.0.18363.1198]

(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\Nikita>cd desktop

C:\Users\Nikita\Desktop>cd OOI\_LAB

C:\Users\Nikita\Desktop\OOI\_LAB>javac Generics.java

C:\Users\Nikita\Desktop\OOI\_LAB>java Genericmain

WEEK

7

LAB-PROGRAM

8 IV 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=father's age.

### LAB - 8

Class WrongAge extends Exception

```
{  
    public String toString()  
    {  
        return "Please enter the right age:"  
            + "Son's age > Father's age";  
    }  
}
```

Class Father

```
{  
    int age;
```

```
    Father(int age1)
```

```
    {  
        age = age1;
```

```
        System.out.println("Father age : " + age);  
    }  
}
```

Class Son extends Father

```
{  
    Son (int age1)  
    {  
        Super (age1);  
        System.out.println ("son age: " + age1);  
    }  
}
```

Class AGE-main1

```
{  
    public static void main (String args[]) throws WrongAge {  
        {  
            int i = args.length;  
            int j = Integer.parseInt (args[0]);  
            int k = Integer.parseInt (args[1]);  
            if (i <= 0 || k > j)  
            {  
                throw new WrongAge ();  
            }  
            else  
            {  
                Father f = new Father (j);  
                Son s = new Son (k);  
            }  
        }  
    }  
}
```

Microsoft Windows [Version 10.0.18363.1256]  
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C:\Users\Nikita>cd desktop

C:\Users\Nikita\Desktop>cd ooj\_lab

C:\Users\Nikita\Desktop\OOJ\_LAB>java AGE\_main1

Enter Father's age:

30

Enter Son's age:

20

Father's age:30

Son's age:20

C:\Users\Nikita\Desktop\OOJ\_LAB>java AGE\_main1

Enter Father's age:

30

Enter Son's age:

35

Exception in thread "main" Please enter the right age:Son's age > Father's age  
at AGE\_main1.main(AGE\_main1.java:40)

C:\Users\Nikita\Desktop\OOJ\_LAB>



Type here to search



15:03  
28-12-2020



9 V 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.

8-12-2020

LAB-9

```
Class BMSCE implements Runnable
{
    Thread t;
    BMSCE()
    {
        t = new Thread(this, "NThread");
        System.out.println("CT:" + t);
        t.start();
    }
    public void run()
    {
        try
        {
            for (int n = 5; n > 0; n--)
            {
                System.out.println("CSE");
                Thread.sleep(2000);
            }
        }
        catch (InterruptedException ie)
        {
            System.out.println("CSE Interrupted");
        }
        System.out.println("CSE quitting");
    }
}

class thread
{
    public static void main (String s[])
    {
        BMSCE b1 = new BMSCE();
        try
        {
            // ...
        }
    }
}
```



```
for (int n=5; n>0; n--)
```

```
{  
    System.out.println("BMS COLLEGE OF ENGINEERING
```

```
    Thread
```

```
    .sleep(10000);
```

```
}  
}
```

catch (InterruptedException ie)

```
{  
    System.out.println("BMS COLLEGE OF ENGINEERING  
    @ interrupted");
```

```
}  
System.out.println("BMS COLLEGE OF  
ENGINEERING quitting");
```

```
}  
}
```

Microsoft Windows [Version 10.0.18363.1198]  
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C:\Users\Nikita>cd desktop

C:\Users\Nikita\Desktop>cd ooj\_lab

C:\Users\Nikita\Desktop\OOJ\_LAB>javac thread.java

C:\Users\Nikita\Desktop\OOJ\_LAB>java thread

CT:Thread[NThread,5,main]

BMS COLLEGE OF ENGINEERING

CSE

CSE

CSE

CSE

CSE

BMS COLLEGE OF ENGINEERING

CSE quitting

BMS COLLEGE OF ENGINEERING

BMS COLLEGE OF ENGINEERING

BMS COLLEGE OF ENGINEERING

BMS COLLEGE OF ENGINEERING quitting

C:\Users\Nikita\Desktop\OOJ\_LAB>■

10 V 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.

### LAB-10.

```
import java.awt.*;  
import java.awt.event.*;  
public class Textfielddemo extends Frame implements  
    ActionListener {  
    TextField tf1, tf2;  
    Label l;  
    Button b;  
    Textfielddemo() {  
        tf1 = new TextField();  
        tf1.setBounds(50, 50, 200, 50);  
        tf2 = new TextField();  
        tf2.setBounds(50, 100, 200, 50);  
        l = new Label();  
        l.setBounds(50, 150, 200, 50);  
        b = new Button("Divide");  
        b.setBounds(50, 200, 100, 50);  
        b.addActionListener(this);  
        add(b);  
        add(tf1);  
        add(tf2);  
        add(l);  
        setSize(800, 800);  
        setLayout(null);  
        setVisible(true);  
    }  
}
```

```

public void actionPerformed(ActionEvent e) {
    try {
        String n1 = tf1.getText();
        String n2 = tf2.getText();
        l.setText("Quotient " + (Integer.parseInt(n1) /
            Integer.parseInt(n2)));
    }
    catch (NumberFormatException z1)
    {
        l.setText("cannot divide non-numerical values");
    }
    catch (ArithmeticException ze)
    {
        l.setText("cannot divide by zero");
    }
    catch (Exception e)
    {
        System.out.println(e);
    }
}

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

```

