

LAB RECORD

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USN : 1BM19CS109

SEM : 3

SECTION : B

SUBJECT : Object Oriented Java Programming (OOJ)

BATCH : B3

LAB 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 discriminant $b^2 - 4ac$ is negative, display a message stating that there are no real solutions.

Lab : 1

①.

```
import java.util.Scanner;  
class Roots  
{  
    public static void main(String args[])  
    {  
        int a,b,c;  
        float d;  
        double x1,x2;  
        Scanner input = new Scanner(System.in);  
        System.out.println("Enter the coefficient of x^2");  
        a = input.nextInt();  
        System.out.println("Enter the coefficient of x");  
        b = input.nextInt();  
        System.out.println("Enter the constant");  
        c = input.nextInt();  
        d = ((b*b)-(4*a*c));  
        x1 = ((-b+Math.sqrt(d))/2);  
        x2 = ((-b-Math.sqrt(d))/2);  
        if(d>0)  
        {  
            System.out.println("Roots are real and distinct");  
            System.out.println("Roots are real and equal");  
        }  
    }  
}
```

```

        System.out.println("Roots are "+x1+" and "+x2);
    }
    else if(d==0)
    {
        System.out.println("Roots are real and equal");
        System.out.println("Roots are "+x1+" and "+x2);
    }
    else
    {
        System.out.println("These are no real roots");
    }
}

```

E:\java\bin\sumarray.java - Notepad++

File Edit Search View Encoding Language Settings Macro Run Plugins Window ?

roots.java sumarray.java

```

1 import java.util.Scanner;
2 class sumarray
3 {
4     public static void main(String args[])
5     {
6         int ar
7         Scanner Microsoft Windows [Version 10.0.18362.959]
8         (c) 2019 Microsoft Corporation. All rights reserved.
9         n = inp
10        array C:\Users\LENOVO>e:
11        System
12        for(i=E:>cd java\bin
13        {
14            | arr E:\java\bin>javac sumarray.java
15        }
16        for (i=E:\java\bin>java roots
17        {
18            | Enter the coefficient of x^2
19            | Sys
20            | Enter the coefficient of x
21            | Enter the constants
22            | 1
23            | ev Roots are real and equal
24            | Roots are -1.0 and -1.0
25
26        System E:\java\bin>java roots
27        for(i=1
28        {
29            | Enter the coefficient of x
30            | od Enter the coefficient of x
31            | 2
32            | Enter the constants
33            | 2
34            | There are no real roots
35
36        E:\java\bin>

```

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Java source file length: 754 lines: 33 Ln: 30 Col: 8 Sel: 0|0 Windows (CR LF) UTF-8 INS

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11:47 29-09-2020 ENG

LAB 2:

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 :

```
import java.util.Scanner;
class student {
    private String name, usn;
    private double marks[] = new double[7];
    private double credits[] = new double[7];
    private double total=0, a=0.0, totalc=0.0, totalmc=0.0;

    void getdetails() {
        Scanner input = new Scanner(System.in);
        System.out.println("Enter your USN:");
        usn = input.next();
        System.out.println("Enter your Name :");
        name = input.next();
        for (int i=0; i<7; i++) {
            System.out.println("Enter the marks and credits of subject " + (i+1));
            marks[i] = input.nextDouble();
            credits[i] = input.nextDouble();
        }
    }
}
```

```
void displaydetails() {
    System.out.println("USN : "+usn);
    System.out.println("Name : "+name);
}

void sgpac() {
    for (int i=0; i<7; i++) {
        total += marks[i];
    }
    for (int i=0; i<7; i++) {
        if (marks[i] >= 90)
            a = 10.0;
        else if (marks[i] >= 80 && marks[i] < 90)
            a = 9.0;
        else if (marks[i] >= 70 && marks[i] < 80)
            a = 8.0;
        else if (marks[i] >= 60 && marks[i] < 70)
            a = 7.0;
        else if (marks[i] >= 50 && marks[i] < 60)
            a = 6.0;
    }
}
```

```
else if(marks[i] >= 40 && marks[i] < 50)
    a = 5.0;
else
    a = 0.0;
}
for (int i=0 ; i<7 ; i++)
{
    totalc += credits[i];
    totalmc += (marks[i] * credits[i]);
}
System.out.println("Your SGPA is :" + (totalmc / totalc));
}
}

class studentSGPA
{
    public static void main (String [] args)
    {
        student s1 = new student();
        s1.getdetails();
        s1.displaydetails();
        s1.sgpac();
    }
}
```

```
 Command Prompt
E:\java\bin>java StudentSGPA
Enter your USN :
1
Enter your Name :
1
Enter the marks and credits of subject1
90
5
Enter the marks and credits of subject2
90
5
Enter the marks and credits of subject3
90
5
Enter the marks and credits of subject4
90
5
Enter the marks and credits of subject5
90
5
Enter the marks and credits of subject6
90
5
Enter the marks and credits of subject7
90
5
USN : 1
NAME : 1
Your SGPA is : 9.0
E:\java\bin>
```

Activate Windows
Go to Settings to activate Windows.



LAB 3:

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 5 :

```
import java.util.Scanner;

class Book
{
    private String name, author;
    private double price;
    private int num_pages;
    Scanner input = new Scanner(System.in);

    Book()
    {
        name = "Harry Potter";
        author = "J.K. Rowling";
        price = 265.05;
        num_pages = 223;
    }

    public String toString()
    {
        return ("NAME OF THE BOOK IS : "+name +
                " AUTHOR OF THE BOOK IS : "+author+
                " PRICE OF THE BOOK IS : "+price+
                " NUMBER OF PAGES OF THE BOOK ARE : "+numPages);
    }
}
```

```
void getdetails()
{
    System.out.println("Enter the name of the book");
    name = input.next();
    System.out.println("Enter the author name");
    author = input.next();
    System.out.println("Enter the price of the book");
    price = input.nextDouble();
    System.out.println("Enter the number pages of the book");
    num-pages = input.nextInt();
    System.out.println(" ");
}
```

```
void displaydetails()
{
    System.out.println("NAME OF THE BOOK IS :" + name);
    System.out.println("AUTHOR OF THE BOOK IS :" + author);
    System.out.println("PRICE OF THE BOOK IS :" + price);
    System.out.println("NUMBER OF PAGES OF THE BOOK ARE :" + num-page);
    System.out.println(" ");
}
```

```
class Bookmain
{
    public static void main(String args[])
    {
        int n;
        Scanner input = new Scanner(System.in);
        Book b1 = new Book();
        System.out.println(b1);
        System.out.println("Enter the number of books");
        n = input.nextInt();
        Book s[] = new Book[n];
        for(int i=0; i<n; i++)
        {
            s[i] = new Book();
            System.out.println("Enter the details of book "+(i+1));
            s[i].getdetails();
        }
        for(int i=0; i<n; i++)
        {
            System.out.println("Details of book "+(i+1)+" are");
            s[i].displaydetails();
        }
    }
}
```

```
cmd Command Prompt  
E:\java\bin>javac Bookmain.java  
E:\java\bin>java Bookmain  
NAME OF THE BOOK IS : Harry Potter AUTHOR OF THE BOOK IS : J.K.Rowling PRICE OF THE BOOK IS : 265.05 NUMBER OF PAGES OF THE BOOK ARE : 223  
Enter the number of books  
2  
Enter the details of book 1  
Enter the name of the book  
Adventures_of_Tom_Sawyer  
Enter the author name  
Mark_Twain  
Enter the price of the book  
330  
Enter the number of pages of the book  
300  
  
Enter the details of book 2  
Enter the name of the book  
Alice_in_Wonderland  
Enter the author name  
Lewis_carrol  
Enter the price of the book  
225  
Enter the number of pages of the book  
200  
  
Details of book 1 are  
NAME OF THE BOOK IS : Adventures_of_Tom_Sawyer  
AUTHOR OF THE BOOK IS : Mark_Twain  
PRICE OF THE BOOK IS : 330.0  
NUMBER OF PAGES OF THE BOOK ARE : 300  
  
Details of book 2 are  
NAME OF THE BOOK IS : Alice_in_Wonderland  
AUTHOR OF THE BOOK IS : Lewis_carrol  
PRICE OF THE BOOK IS : 225.0  
NUMBER OF PAGES OF THE BOOK ARE : 200  
  
E:\java\bin>
```

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LAB 4:

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:

```
abstract class Shape
{
    double num1,num2;
    abstract double printArea();
}

class Rectangle extends Shape
{
    Rectangle(double a, double b)
    {
        num1 = a;
        num2 = b;
    }
    double printArea()
    {
        System.out.println("Area of the rectangle is:");
        return num1*num2;
    }
}
```

```
class Triangle extends Shape
{
    Triangle( double a , double b )
    {
        num1 = a ;
        num2 = b ;
    }
    double printArea()
    {
        System.out.println("Area of the triangle is : ");
        return num1 * num2 / 2 ;
    }
}

class Circle extends Shape
{
    Circle( double a )
    {
        num1 = a ;
    }
}
```

```
double pointArea()
{
    System.out.println("Area of Circle is :");
    return 3.14 * num1 * num1;
}
```

```
Class ShapeMain
{
    public static void main(String args[])
    {
        Rectangle r = new Rectangle(10,10);
        Triangle t = new Triangle(10,5);
        Circle c = new Circle(5);
        System.out.println(r.pointArea());
        System.out.println(t.pointArea());
        System.out.println(c.pointArea());
    }
}
```

```
cmd Command Prompt
Microsoft Windows [Version 10.0.18362.1139]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\LENOVO>e:
E:\>cd java\bin
E:\java\bin>javac Shapemain.java
E:\java\bin>java Shapemain
Area of the rectangle is :
100.0
Area of the triangle is :
25.0
Area of the circle is :
78.5

E:\java\bin>
```

Activate Windows
Go to Settings to activate Windows.



LAB 5:

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:

- Accept deposit from customer and update the balance.
- Display the balance.
- Compute and deposit interest
- Permit withdrawal and update the balance
- Check for the minimum balance, impose penalty if necessary and update the balance

Lab 5 :

```
import java.util.Scanner;
class Bank
{
    String savings, current;
}
class Account extends Bank
{
    double balance = 10,000;
    String customer-name;
    long account-number;
    Scanner input = new Scanner(System.in);
    void get-details()
    {
        System.out.println("Enter the name");
        customer-name = input.next();
        System.out.println("Enter the account number");
        account-number = input.nextLong();
    }
}
```



```
class Curr_acct extends Account
{
    double deposit_amount=0;
    double minimum_balance=1000;
    double withdrawal_amount=0;
    void deposit()
    {
        System.out.println("Enter the balance to be deposited");
        deposit_amount = input.nextDouble();
        balance += deposit_amount;
        System.out.println("Your balance amount is Rs. " + balance);
    }
    void withdrawal()
    {
        System.out.println("Enter the withdrawal amount");
        withdrawal_amount = input.nextDouble();
        if (withdrawal_amount > balance)
        {
            System.out.println("Your balance is less than your withdrawal amount");
        }
    }
}
```

```
else
{
    balance = balance - withdrawal_amount;
    System.out.println("Your balance is :" + balance);
    if (balance < minimum_balance)
    {
        balance = balance + 100;
        System.out.println("You lost Rs.100 due to the
                           insufficient minimum balance");
        System.out.println("Now your balance is :"
                           + balance);
    }
}
}

class Sav-acct extends Account
{
    double deposit_amount = 0;
    double years = 3;
    double rate_of_interest = 5;
    double withdrawal_amount;
```

```
void deposit()
{
    System.out.println("Enter the balance to be deposited");
    deposit_amount = input.nextDouble();
    balance += deposit_amount;
    System.out.println("Your balance is :" + balance);
}

void withdrawal()
{
    System.out.println("Enter the withdrawal amount");
    withdrawal_amount = input.nextDouble();
    if (withdrawal_amount > balance)
    {
        System.out.println("Your balance is less than
                           your withdrawal amount");
    }
    else
    {
        balance = balance - withdrawal_amount;
        System.out.println("Your balance is :" + balance);
    }
}
```

```
    }  
    void interest()  
    {  
        double interest_amount;  
        interest_amount = balance * (Math.pow(1 + (rate_of_interest  
                                         * 0.01)), (years)) - 1);  
        System.out.println("Your amount you gained in  
                           interest is :" + interest_amount);  
        balance += interest_amount;  
        System.out.println("Your total balance is :" + balance);  
    }  
  
class Accountmain  
{  
    public static void main(String args[])  
    {  
        Scanner input = new Scanner(System.in);  
        Account a = new Account();  
        a.getdetails();
```

```
int type_of_account;
System.out.println("Enter the type of account
                    1. Current account 2. Savings account");
type_of_account = input.nextInt();
if (type_of_account == 1)
{
    Curr_acct b = new Curr_acct();
    int n;
    Loop : for(;;)
    {
        System.out.println("Enter your choice");
        System.out.println("1. deposit 2. withdraw 3. Done");
        n = input.nextInt();
        switch(n)
        {
            case 1 :
                b.deposit();
                break;
        }
    }
}
```

Case 2 : {

b. withdrawal();

break;

}

}

case 3 : {

break Loop;

}

}

}

if (type_of_account == 2)

{

Sav_acct c = new Sav_acct();

int n;

Loop : for(;;)

{

System.out.println("1. deposit 2. withdraw 3. Done");

n = input.nextInt();

switch(n)

{

case 1 : {

c. deposit();

break;

}

case 2 : {

c. interest();

c. withdrawal();

break;

}

case 3 :

{

break Loop;

}

{

{

}

}

```
cmd Command Prompt - java Accountmain
E:\java\bin>javac Accountmain.java
E:\java\bin>java Accountmain
Enter the name
Prem_sai
Enter the account number
147852369
Enter the number of type of account 1.Current account  2.Savings account
2
Enter your choice
1.deposit  2.withdraw 3.Done
1
Enter the balance to be deposited
5000
Your balance is :15000.0
Enter your choice
1.deposit  2.withdraw 3.Done
2
Your amount you gained in interest is:2364.375000000002
Your total balance is :17364.375
Enter the withdrawal amount
15000
Your balance is :2364.375
Enter your choice
1.deposit  2.withdraw 3.Done
2
Your amount you gained in interest is:372.6846093750003
Your total balance is :2737.0596093750005
Enter the withdrawal amount
2500
Your balance is :237.0596093750005
Enter your choice
1.deposit  2.withdraw 3.Done
2
Your amount you gained in interest is:37.366520927734484
Your total balance is :274.426130302735
Enter the withdrawal amount
274
Your balance is :0.42613030273497543
Enter your choice
1.deposit  2.withdraw 3.Done
2
Your amount you gained in interest is:0.06716878896860055
Activate Windows
Go to Settings to activate Windows.
Windows Type here to search 12:03 ENG 03-11-2020
```

```
cmd Command Prompt
2
Your amount you gained in interest is:372.6846093750003
Your total balance is :2737.0596093750005
Enter the withdrawal amount
2500
Your balance is :237.0596093750005
Enter your choice
1.deposit  2.withdraw 3.Done
2
Your amount you gained in interest is:37.366520927734484
Your total balance is :274.426130302735
Enter the withdrawal amount
274
Your balance is :0.42613030273497543
Enter your choice
1.deposit  2.withdraw 3.Done
2
Your amount you gained in interest is:0.06716878896860055
Your total balance is :0.493299091703576
Enter the withdrawal amount
1
Your balance is less than your withdrawal amount
Enter your choice
1.deposit  2.withdraw 3.Done
3
E:\java\bin>
Activate Windows
Go to Settings to activate Windows.
Windows Type here to search 12:03 ENG 03-11-2020
```

LAB 6 :

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 declare the final marks of n students in all five courses.

Lab 6 :

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

public class Student
{
    public String usn, name;
    public int sem;
    Scanner input = new Scanner(System.in);
    public void getdetails()
    {
        System.out.println("Enter the usn of the student");
        usn = input.next();
        System.out.println("Enter the name of the student");
        name = input.next();
        System.out.println("Enter the sem");
        sem = input.nextInt();
    }
}
```

```
package CIE;
public class Internals extends Student
{
    public int internal_marks[] = new int[5];
    public void getdetails()
    {
        System.out.println("Enter the internal marks
                           of the student out of 50");
        for(int i=0; i<5; i++)
        {
            System.out.print("in Subject "+(i+1));
            internal_marks[i] = input.nextInt();
        }
    }
}
```

```
package SEE;
import CIE.*;
import java.util.Scanner;
public class External extends CIE.Student
{
    public int external_marks[] = new int[5];
    Scanner input = new Scanner(System.in);
    public void getdetails()
    {
        System.out.println ("Enter the SEE marks of the
                           student out of 100");
        for(int i=0, i<5, i++)
        {
            System.out.println ("in subject "+(i+1));
            external_marks[i] = input.nextInt();
        }
    }
}
```

```
import CIE.*;
import SEE.*;
import java.util.Scanner;
class Final_marks
{
    public static void main(String args[])
    {
        Scanner input = new Scanner(System.in);
        int n;
        System.out.println("Enter the number of students");
        n = input.nextInt();
        CIE.Internal I[] = new CIE.Internal[n];
        SEE.External E[] = new SEE.External[n];
        for (int i=0; i<n; i++)
        {
            System.out.println("Student "+(i+1));
            I[i] = new CIE.Internal();
            I[i].getdetails();
            E[i] = new SEE.External();
            E[i].getdetails();
        }
    }
}
```

}

int final_marks = 0;

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

{

System.out.println("Name : " + I[i].name + " In USN : "

+ I[i].USN + " In Sem : " + I[i].Sem);

System.out.println("Total marks of student " + (i+1));

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

{

final_marks = I[i].internal_marks[j] + (I[i].external_marks[j]/2);

System.out.println("Subject " + (j+1));

System.out.println(final_marks);

}

{

{

}

```
on Command Prompt
E:\java\bin\Lab_packages>java Final_marks
Enter the number of students
2
Student 1
Enter the usn of the student
123
Enter the name of the student
prem
Enter the sem of the student
3
Enter the internal marks of the student out of 50
    in Subject 1
45
    in Subject 2
42
    in Subject 3
48
    in Subject 4
47
    in Subject 5
41
Enter the SEE marks of the student out of 100
    in Subject 1
95
    in Subject 2
98
    in Subject 3
93
    in Subject 4
94
    in Subject 5
91
Student 2
Enter the usn of the student
456
Enter the name of the student
sai
Enter the sem of the student
3
Enter the internal marks of the student out of 50
    in Subject 1
47
    in Subject 2
46
    in Subject 3
42
    in Subject 4
48
    in Subject 5
46
Enter the SEE marks of the student out of 100
    in Subject 1
95
    in Subject 2
99
    in Subject 3
100
    in Subject 4
98
    in Subject 5
96
Name: prem
USN :123
Sem :3
Final marks of student 1
Subject 1
92
Subject 2
91
Subject 3
94
Subject 4
94
Subject 5
86
```

Activate Windows
Go to Settings to activate Windows.

```
on Command Prompt
91
Student 2
Enter the usn of the student
456
Enter the name of the student
sai
Enter the sem of the student
3
Enter the internal marks of the student out of 50
    in Subject 1
47
    in Subject 2
46
    in Subject 3
42
    in Subject 4
48
    in Subject 5
46
Enter the SEE marks of the student out of 100
    in Subject 1
95
    in Subject 2
99
    in Subject 3
100
    in Subject 4
98
    in Subject 5
96
Name: prem
USN :123
Sem :3
Final marks of student 1
Subject 1
92
Subject 2
91
Subject 3
94
Subject 4
94
Subject 5
86
```

Activate Windows
Go to Settings to activate Windows.

```
 Command Prompt
100
in Subject 4
98
in Subject 5
96
Name: prem
USN :123
Sem :3
Final marks of student 1
Subject 1
92
Subject 2
91
Subject 3
94
Subject 4
94
Subject 5
86
Name: sai
USN :456
Sem :3
Final marks of student 2
Subject 1
94
Subject 2
95
Subject 3
92
Subject 4
97
Subject 5
94
E:\java\bin\Lab_packages> -
```

Activate Windows
Go to Settings to activate Windows.



LAB 7 :

Write a program to demonstrate generics with multiple object parameters.

```
Lab 7: Write a program to demonstrate generics with multiple object parameters.

class Generics < T, U, V, X >
{
    T ob1;
    U ob2;
    V ob3;
    X ob4;

    Generics(T o1, U o2, V o3, X o4)
    {
        ob1 = o1;
        ob2 = o2;
        ob3 = o3;
        ob4 = o4;
    }

    void showTypes()
    {
        System.out.println("Type of T is "+ob1.getClass().getName());
        System.out.println("Type of U is "+ob2.getClass().getName());
    }
}
```

```
System.out.println("Type of V is "+ob3.getClass().  
    getName());
```

```
System.out.println("Type of X is "+ob4.getClass().  
    getName());
```

{

T getOb1()

{

return ob1;

}

U

getOb2()

{

return ob2;

}

V getOb3()

{

return ob3;

}

X getOb4()

{

return ob4;

}

```
class Genericmain
{
    Generics< Integer, String, Double, Integer > a
    = new Generics< Integer, String, Double, Integer >
        ( 100, "GENERIC", 120.654462, 14545633 )

    a.showTypes();
    int t = a.getob1();
    System.out.println("Value :" + t);

    String str = a.getob2();
    System.out.println("Value :" + str);

    double d = a.getob3();
    System.out.println("Value :" + d);

    int c = a.getob4();
    System.out.println("Value :" + c);

}
```

```
 Command Prompt
E:\java\bin>javac Genericsmain.java
E:\java\bin>java Genericsmain
Type of T is java.lang.Integer
Type of U is java.lang.String
Type of V is java.lang.Double
Type of X is java.lang.Integer
Value: 100
Value: GENRICS
Value : 120.6544562
Value : 14545633
E:\java\bin>
```

Activate Windows
Go to Settings to activate Windows.



LAB 8 :

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:

```
import java.util.Scanner;

class WrongAge extends Exception
{
    int age;
    WrongAge (int x)
    {
        age = x;
    }
    public String toString()
    {
        return "Age of son = " + age + " is incorrect";
    }
}

class Father
{
    int a;
    Father (int x)
    {
        a = x;
    }
}
```

8. do

?) + (WrongAge)

class Son extends Father

{

 int age;

 Son (int fage, int sage)

{

 super (fage);

 age = sage;

}

void compute () throws WrongAge

{

 if (age >= a)

 {

 throw new WrongAge (age);

 }

 else

 {

 System.out.println ("The Ages are entered correctly");

```
System.out.println("Father Age = " + a + "It" + "SON's AGE = "
+ age);
}
}
}

class exprmain
{
public static void main (String args[])
{
Scanner s = new Scanner(System.in);
System.out.println("Enter Father's age");
int f = s.nextInt();
System.out.println("Enter Son's age");
int so = s.nextInt();
son ss = new son(f, so);
try {
ss.compute();
}
```

```
    catch (WrongAge e) {  
        System.out.println(e);  
    }  
}
```

```
}
```

(Típusa gyökör) minden bármely szöveg

(szöveg) nemcsak csak a számokat

(szöveg) nemcsak a karaktereket

(szöveg) nemcsak 2 tör

(szöveg) nemcsak a karaktereket

(szöveg) nemcsak 0-2 tör

(szöveg) nemcsak 0-100 tör

öt

(szöveg) nemcsak 1-3 tör

```
 Command Prompt
E:\java\bin>java expmain
ENTER FATHER'S AGE
50
ENTER SON'S AGE
51
AGE OF SON=51 IS ENTERED INCORRECTLY
E:\java\bin>java expmain
ENTER FATHER'S AGE
50
ENTER SON'S AGE
42
THE AGES ARE ENTERED CORECTLY
FATHER'S AGE=50 SON'S AGE=42
E:\java\bin>java expmain
ENTER FATHER'S AGE
50
ENTER SON'S AGE
50
AGE OF SON=50 IS ENTERED INCORRECTLY
E:\java\bin>
```

Activate Windows
Go to Settings to activate Windows.



LAB 9 :

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.

Lab - 9 :

```
class Dept implements Runnable
{
    Thread mythread;
    Dept()
    {
        mythread = new Thread(this, "dept thread");
        mythread.start();
    }
    public void run()
    {
        try
        {
            for(int i=0; i<5; i++)
            {
                System.out.println("CSE");
                Thread.sleep(2000);
            }
        }
        catch(InterruptedException e)
        {
            System.out.println("CSE interrupted");
        }
    }
}
```

```
System.out.println("CSE is over");
}

class threadmain
{
    public static void main(String args[])
    {
        Dept cnt = new Dept();
        try
        {
            for(int i=0; i<5; i++)
            {
                System.out.println("BMS College of Engineering");
                Thread.sleep(10000);
            }
        }
        catch (InterruptedException e)
        {
            System.out.println("College interrupted");
        }
    }
}
```

```
    System.out.println("BMS College of Engineering is  
over");
```

```
}
```

```
{
```

```
0x Select Command Prompt
E:\java\bin>java threadmain
my thread createdThread[dept thread,5,main]
BMS College of Engineering
CSE
CSE
CSE
CSE
CSE
BMS College of Engineering
CSE is over
BMS College of Engineering
BMS College of Engineering
BMS College of Engineering
BMS College of Engineering
BMS College of Engineering is over
E:\java\bin>javac threadmain.java
E:\java\bin>java threadmain
BMS College of Engineering
CSE
CSE
CSE
CSE
CSE
BMS College of Engineering
CSE is over
BMS College of Engineering
BMS College of Engineering
BMS College of Engineering
BMS College of Engineering
BMS College of Engineering is over
E:\java\bin>
```

Activate Windows
Go to Settings to activate Windows.

LAB 10 :

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.*;
import java.applet.*;
import javax.swing.*;
```

```
public class DivisionExample extends Frame
    implements ActionListener
```

```
{
```

```
    string msg;
```

```
    Text Field num1, num2, res;
```

```
    Label l1, l2, l3;
```

```
    Button div;
```

```
    public DivisionExample()
```

```
{
```

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

```
        l1 = new Label("Dividend");
```

```
        l2 = new Label("Divisor");
```

```
        l3 = new Label("Result");
```

```
        num1 = new Text Field(10);
```

```
num2 = new TextField(10);  
res = new TextField(10);  
div = new Button("Click");  
add(l1);  
add(num1);  
add(l2);  
add(num2);  
add(res);  
add(div);  
div.addActionListener(this);  
addWindowListener(new WindowAdapter()  
{  
    public void windowClosing(WindowEvent we)  
    {  
        System.exit(0);  
    }  
});  
}
```

```
public void actionPerformed(ActionEvent ae)
{
    String arg = ae.getActionCommand();
    int num1=0, num2=0;
    if(arg.equals("click"))
    {
        if(this.num1.getText().isEmpty() && this.num2.getText().isEmpty())
        {
            msg = "Enter the valid numbers!";
            repaint();
        }
        else
        {
            num1 = Integer.parseInt(this.num1.getText());
            num2 = Integer.parseInt(this.num2.getText());
        }
    }
}
```

try

```
if (num2 == 0)
    int a = 12/0;
int num3 = num1/num2;
res.setText(string.valueOf(num3));
msg = "Operation successful ?";
repaint();
} catch (ArithemeticException e)
```

JOptionPane.showMessageDialog

```
(null, "Arithemetic Exception");
```

```
res.setText(" ");
```

```
repaint();
```

```
}
```

```
catch( NumberFormatException ex ) {
    JOptionPane.showMessageDialog( null, "NumberFormatException" );
    res.setText( "" );
    repaint();
}

}

}

public void paint( Graphics g )
{
    g.drawString( msg, 30, 70 );
}

public static void main( String args[] )
{
    DivisionExample appwin = new DivisionExample();
}
```

appwin.setSize(new Dimension(250, 150));

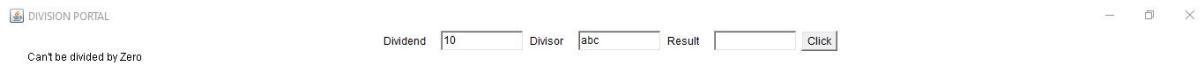
appwin.setTitle("Division Portal");

appwin.setVisible(true);

}

}





*******THANK YOU*******

*******THE END*******