

## OOJ LAB

### Questions:

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.
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.
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.
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.
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

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 declares the final marks of n students in all five courses.
7. Write a program to demonstrate generics with multiple object parameters.
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 Wrong Age( ) when the input age=father’s age.
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.
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.

```
import java.util.*;  
import java.lang.Math;  
  
public class quad
```

{

```
    static void calc(double a, double b, double c)
```

{

```
    double
```

```
    float d, r1, r2;
```

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

```
    if(d < 0)
```

{

No real solutions.

```
    System.out.println("Roots are imaginary");
```

```
// d = d + (-1);
```

```
// r = -b / (2*a);
```

```
// r = Math.sqrt(d) / (2*a);
```

```
// System.out.println("Roots are " + r + " + " + r + "i and"  
//                     " + r - " + r + "i");
```

}

```
else if(d == 0)
```

{

```
System.out.println("Roots are real and  
equal");
```

```
r = -b / (2*a);
```

```
System.out.println("Roots are " + r + " and " + r);
```

```
else
```

{

```
System.out.println("Roots are real and unequal");
```

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

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

```
System.out.println("Roots are " + r1 + " and " + r2);
```

}

```

public static void main (String [] args)
{
    Scanner sc = new Scanner (System.in);
    System.out.println ("Enter 'a' value");
    double a = sc.nextDouble();
    System.out.println ("Enter b value");
    double b = sc.nextDouble();
    System.out.println ("Enter c value");
    double c = sc.nextDouble();
    calc(a,b,c);
}

```

## Algorithm

Step 1: Start

Step 2: Accept values of  $a, b, c$  of quadratic equation from user.

Step 3: Calculate ~~discriminant~~ discriminant  

$$D = b^2 - 4ac.$$

Step 4: if  $D < 0$ , print roots are imaginary  
 Go to step 7

Step 5: if  $D == 0$  print roots are real and equal  

$$\text{root} = -b / 2a$$

print the roots. Go to step 7

Step 6: else print roots are real and unequal.  
 Calculate  $\text{root}_1 = (-b + \sqrt{D}) / (2 * a)$   
 $\text{root}_2 = (-b - \sqrt{D}) / (2 * a)$   
 print root 1 and root 2

Step 7: End

```
Enter a value- 1
Enter b value- -5
Enter c value- 6
Roots are real and unequal
Roots are
3.0000 and 2.0000
```

---

```
(program exited with code: 0)
```

```
Enter a value- 1
Enter b value- 4
Enter c value- 5
There are no real solutions
```

---

```
(program exited with code: 0)
```

```
17 geometry_ran_scripte_37mkmvsn , EXIT,  
Enter a value- 1  
Enter b value- 4  
Enter c value- 4  
Roots are real and equal  
Roots are -2.0 and -2.0
```

---

```
(program exited with code: 0)
```

## LAB-2

```
import java.util.*;  
class Student  
{  
    private String name;  
    private String usn;  
    private int n;  
    private int sum;  
    private int[] credits;  
    private int[] score;  
    private double[] marks;
```

```
Student ()  
{  
    name = "";  
    usn = "";  
    n = 0;  
    sum = 0;
```

```
void getData ()  
{  
    Scanner xx = new Scanner (System.in);  
    System.out.println ("Enter name, usn and no. of subjects");  
    name = xx.next();  
    usn = xx.next();  
    n = xx.nextInt();  
    credits = new int[n];  
    score = new int[n];  
    marks = new double[n];
```

```
int i;
```

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

```
{  
    System.out.println ("Enter credit and marks for  
    subject " + (i+1));
```

```
    credits[i] = xx.nextInt();
```

```
    marks[i] = xx.nextDouble();
```

```

if (marks[i] >= 90 & marks[i] <= 100)
    score[i] = 10
else if (marks[i] >= 80 & marks[i] <= 90)
    score[i] = 9
else if (marks[i] >= 70 & marks[i] <= 80)
    score[i] = 8
else if (marks[i] >= 60 & marks[i] <= 70)
    score[i] = 7
else if (marks[i] >= 50 & marks[i] <= 60)
    score[i] = 6
else if (marks[i] >= 40 & marks[i] <= 50)
    score[i] = 4
else
    score[i] = 0;
sum = sum + credits[i];

```

```

private void calc(int[] credits, int[] score, int sum) {
    int i;
    double sgpa, total = 0.0;
    for (i = 0; i < n; i++)
        total = total + (score[i] * credits[i]);
    sgpa = total / sum;
}

```

```

System.out.println("Sgpa is " + sgpa);
}

```

```

void printdata()
{
}

```

```

System.out.println("Name = " + name);
System.out.println("Usn = " + usn);
calc(credits, score, sum);
}

```

public class lab3

{

public static void main (String[] args)

{

Student sl = new Student();

sl.getdata();

sl.printdata();

{

private int id;

private String name;

private int age;

private double marks;

private String address;

private String city;

private String state;

private String country;

private String pincode;

private String gender;

private String email;

private String mob;

private String college;

private String branch;

private String year;

private String course;

private String fees;

private String status;

```
-->*
enter name
Anisha Nair
enter usn
1BM19CS018
enter no of subjects
3
enter credits for subject 1
5
enter marks for subject 1(below 100)
90
enter credits for subject 2
5
enter marks for subject 2(below 100)
88
enter credits for subject 3
4
enter marks for subject 3(below 100)
100
Name = Anisha Nair
Usn = 1BM19CS018
Subject 1
Credits = 5    Marks = 90.0
Subject 2
Credits = 5    Marks = 88.0
Subject 3
Credits = 4    Marks = 100.0
Sgpa is 9.64

-----  

(program exited with code: 0)
Press return to continue
```

LAB 3

P. 402 Page 10

```
import java.util.*; // Java I/O library
```

```
class Book
```

{

```
    private String name;
```

```
    private String author;
```

```
    private double price;
```

```
    private int numPages;
```

```
Book()
```

{

```
    name = "xyz";
```

```
    author = "abc";
```

```
    price = 0.0;
```

```
    numPages = 10;
```

}

```
void getData()
```

{

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

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

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

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

```
price = sc.nextDouble();
```

```
numPages = sc.nextInt();
```

```
public String toString()
```

{

```
return "Book: " + name + " Author: " +
```

```
        + author + " Price: Rs " + price +
```

```
        " No of pages: " + numPages);
```

}

class lab 4

Edith

{

public static void main(String args[])

{

Scanner xx = new Scanner (System.in)

Book

System.out.println("Enter the no. of books")

int n = xx.nextInt();

Book b[] = new Book[n];

int i;

System.out.println("Enter book details")

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

{

System.out.println("Book " + (i+1));

b[i] = new Book();

b[i].getdata();

}

System.out.println("Printing book details . . .");

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

{

System.out.println("Book " + (i+1));

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

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

}

```
Enter the no of books:  
2  
Enter the book details  
Book 1  
enter the name of book  
Norwegian Wood  
enter the name of author  
Haruki Murakami  
enter the price of book  
670  
enter the number of pages  
300  
Book 2  
enter the name of book  
The Stand  
enter the name of author  
Stephen King  
enter the price of book  
790  
enter the number of pages  
360  
Printing book details...  
Book 1  
Book: Norwegian Wood  
Author: Haruki Murakami  
Price: Rs 670.0  
No.of pages: 300  
-----  
Book 2  
Book: The Stand  
Author: Stephen King  
Price: Rs 790.0  
No.of pages: 360  
-----  
(program exited with code: 0)
```

## LAB 4

```
import java.util.*;  
abstract class Shape  
{  
    int a, b;  
    abstract void area printArea();  
}
```

```
class Rectangle extends Shape
```

```
{  
    Rectangle(int x, int y)  
    {
```

```
        a = x;
```

```
        b = y;
```

```
}
```

```
    void printArea()  
    {
```

```
        System.out.println("Area is " + (a * b));  
    }
```

```
class Triangle extends Shape  
{  
    Triangle(int x, int y)
```

```
    {  
        a = x; b = y; }  
    void printArea()  
    {  
        System.out.println("Area is " + (a * b * 0.5));  
    }
```

```
class Circle extends Shape  
{  
    Circle(int x)
```

```
    {  
        a = x; }  
    void printArea()  
    {  
        System.out.println("Area is " + (3.14 * a * a));  
    }
```

## Class Lab 4

{

public static void main (String args [])

{

Scanner sc = new Scanner (System.in);

System.out.println ("Enter the length,  
breadth of rectangle");

int l = sc.nextInt();

int b = sc.nextInt();

Rectangle r = new Rectangle (l,b);

System.out.println ("Enter base and height  
of triangle");

int ba = sc.nextInt();

int h = sc.nextInt();

Triangle t = new Triangle (ba,h);

System.out.println ("Enter the radius of circle");

int ra = sc.nextInt();

Circle c = new Circle (ra);

c.printArea();

t.printArea();

t.printArea();

}

```
enter the length and breadth of rectangle
3
4
Area is 12
enter the base and height of triangle
5
6
Area is 15.0
enter the radius of circle
4
Area is 50.24

-----
(program exited with code: 0)
```

LAB 5

```
import java.util.*;  
import java.lang.Math;  
class Account  
{  
    String name;  
    int accno;  
    char type;  
    double bal;  
    double dep;  
    double cheq;  
  
    void get(char c)  
    {  
        type = c;  
        if (c == 'S' || c == 's')  
            cheq = false;  
        else cheq = true;  
    }  
    Scanner sc = new Scanner(System.in);  
    System.out.println("Enter name, account  
    number and available balance");  
    name = sc.next();  
    accno = sc.nextInt();  
    bal = sc.nextDouble();  
  
    void putd()  
{  
        System.out.println("Account details:");  
        System.out.println("Name: " + name + "\n"  
                           "Account no: " + accno + "\n" + "Account  
                           type: " + type + "\n" + "Balance: " + bal);  
    }  
}
```

```
void dep()
```

{

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

```
System.out.println ("Enter the deposit amount");
```

```
dep = ss.nextInt();
```

```
balance = balance + dep;
```

}

```
void display()
```

{

```
System.out.println ("Balance amount is "+bal);
```

}

```
void check()
```

{

```
if (cheq == false)
```

```
System.out.println ("Cheque book facility : not  
available");
```

```
else System.out.println ("Cheque book facility:  
is available");
```

}

```
class Saving extends Account
```

{

```
double rate;
```

```
double l_with;
```

```
int n;
```

```
int ch;
```

```
double amt;
```

```
double term;
```

```
double pr;
```

```
void iil()
```

{  

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

```
System.out.println ("Enter principal amt, rate  
and years (term));
```

```
pr = ss.nextInt();
```

22

```
rate = ss.nextInt();
```

```
term = ss.nextInt();
```

```
System.out.println("Enter the number of times  
interest is compounded annually");
```

```
n = ss.nextInt();
```

```
amt = pr + Math.pow((1 + (rate / 100)), (n * term));
```

```
bal += amt;
```

```
System.out.println("Interest is compounded ad  
deponited");
```

```
} void withdraw()
```

```
{
```

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

```
System.out.println("Enter amt of money to be  
withdrawn");
```

```
dep = ss.nextInt();
```

```
if (s_with > bal)
```

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

```
else
```

```
{ balance -= s_with; }
```

```
}
```

```
} }
```

```
class Current extends Account
```

```
{
```

```
double c_with;
```

```
double per;
```

```
double min;
```

```
Current()
```

```
{ per = 100;
```

```
min = 500;
```

```
} void with_c()
```

```
{
```

```
Scanner xx = new Scanner (System.in);
System.out.println("Enter amount to be withdrawn");
if (c-with > bal)
{
    System.out.println("Insufficient funds");
    return;
}
else { bal -= c-with;
    System.out.println("Amt has been withdrawn");
    balance updated;
    if (bal < min)
    {
        System.out.println("Balance below minimum
threshold. Penalty charge = 100/-");
        if (bal < pen)
            System.out.println("Due to insufficient funds, penalty
will be deducted from account after replenishing.
Current balance = " + bal);
        else { bal -= pen;
            System.out.println("Penalty deducted. Balance = " + bal);
        }
    }
}
```

## class lab5

{

public static void main (String sss[])
{

int chh, cch;

Scanner sx = new Scanner (System.in);

System.out.println("Today out-1; Current -2");
 int ch = sx.nextInt();
 if (ch == 1)

{

```
having s = new saving();  
s.get('S');  
do {  
    System.out.println("1. Deposit money\n2. Compound Interest in  
3. Withdrawal\n4. Balance display\n5. Chequebook\n6. Exit");  
    System.out.println("Enter your choice");  
    chh = sx.nextInt();  
    switch (chh)  
    {  
        case 1: s.depl();  
        break;  
        case 2: s.ci();  
        break;  
        case 3: s.display();  
        break;  
        case 4: s.cheek();  
        break;  
        case 6: break;  
        default: System.out.println("Wrong choice!");  
        break;  
    }  
} while (chh != 6);  
  
{  
    else if (chh == 2)  
    {  
        Current cr = new current(cr());  
        cr.get('C');  
        do {  
            System.out.println("1. Deposit Money\n2. Chequebook  
in 3. Withdrawal\n4. Balance display\n5. Exit");  
            chh = sx.nextInt();  
            switch (chh)  
            {  
                case 1: cr.depl();  
                break;
```

```
case 2: u.check();  
        break;  
case 3: u.with_LL();  
        break;  
case 4: u.display();  
        break;  
case 5: break;  
default: System.out.println("Wrong!");  
        break;  
    }  
} while(cch1 != 5);  
}  
else System.out.println("Wrong!");  
}  
}
```

```
-----Welcome-----  
Savings account or current account? 1- Savings; 2- Current  
2  
Enter your name  
Anisha  
Enter the account number  
989  
Enter the current available balance in your account  
1000  
1. Deposit money  
2. Chequebook facility  
3. Withdraw money  
4. Display balance  
5. Exit  
1  
Enter the amount to be deposited  
100  
Amount has been deposited and balance has been updated  
1. Deposit money  
2. Chequebook facility  
3. Withdraw money  
4. Display balance  
5. Exit  
2  
Cheque book facility is available  
1. Deposit money  
2. Chequebook facility  
3. Withdraw money  
4. Display balance  
5. Exit  
3  
Enter the amount to be withdrawn  
500  
Amount has been withdrawn and balance has been updated  
1. Deposit money  
2. Chequebook facility  
3. Withdraw money  
4. Display balance  
5. Exit  
4  
Balance amount is 600.0  
1. Deposit money  
2. Chequebook facility  
3. Withdraw money  
4. Display balance  
5. Exit  
2  
Cheque book facility is available  
1. Deposit money  
2. Chequebook facility  
3. Withdraw money  
4. Display balance  
5. Exit  
3  
Enter the amount to be withdrawn  
300  
Amount has been withdrawn and balance has been updated  
Balance is below the minimum threshold. Service penalty charge = 100/- .  
Penalty charge has been deducted from account balance. Current balance is 200.0
```

```
1. Deposit money
2. Chequebook facility
3. Withdraw money
4. Display balance
5. Exit
3
Enter the amount to be withdrawn
200
Amount has been withdrawn and balance has been updated
Balance is below the minimum threshold. Service penalty charge = 100/- .
Due to insufficient funds, penalty charge will be deducted from account after replenishing. Current balance is 0.0
1. Deposit money
2. Chequebook facility
3. Withdraw money
4. Display balance
5. Exit
3
Enter the amount to be withdrawn
780
Insufficient funds!
1. Deposit money
2. Chequebook facility
3. Withdraw money
4. Display balance
5. Exit
4
Balance amount is 0.0
1. Deposit money
2. Chequebook facility
3. Withdraw money
4. Display balance
5. Exit
5

-----
(program exited with code: 0)
```

```
Enter your choice
3
Enter the amount of money to be withdrawn
450
Money has been withdrawn and balance has been updated
1. Deposit money
2. Calculate compound interest
3. Withdraw money
4. Display balance
5. Cheque book facility
6. Exit
Enter your choice
3
Enter the amount of money to be withdrawn
900
Insufficient balance
1. Deposit money
2. Calculate compound interest
3. Withdraw money
4. Display balance
5. Cheque book facility
6. Exit
Enter your choice
4
Balance amount is 666.985856
1. Deposit money
2. Calculate compound interest
3. Withdraw money
4. Display balance
5. Cheque book facility
6. Exit
Enter your choice
5
Cheque book facility is not available
1. Deposit money
2. Calculate compound interest
3. Withdraw money
4. Display balance
5. Cheque book facility
6. Exit
Enter your choice
6
```

---

```
(program exited with code: 0)
```

LAB 6

```
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.print("Enter the name");  
        name=sc.nextLine();  
        System.out.print("Enter the semester");  
        sem=sc.nextInt();  
        System.out.print("Enter the USN");  
        usn=sc.nextLine();  
    }  
  
    public void display()  
{  
        System.out.println("Student details :");  
        System.out.println("Name: "+name+" USN: "+  
                           usn+" sem: "+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 ("CEE marks for course " + (i+1));  
    cie[i] = sc.nextDouble();  
}  
}
```

↓  
+ — x — x — x — x — o — → —

```
package SEE;
```

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

```
import CEE.*;
```

```
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 ("CEE marks for course " + (i+1));
```

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

```
}
```

```
}
```

```
import CEE.*;
```

```
import SEE.*;
```

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

```
class Main
```

```
{
```

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

```
{
```

Scanner sc = new Scanner (System.in);

System.out.println("Enter the number of students");  
int n = sc.nextInt();

CE.internals in[] = new CE.internals[n];

SEE.externals en[] = new SEE.externals[n];

int i;

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

System.out.print("Student " + (i+1));

in[i] = new CE.internals();

en[i] = new SEE.externals();

in[i].read();

System.out.print("CE : ");

in[i].accept();

System.out.print("SEE : ");

en[i].get();

in[i].display();

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

System.out.print("Total marks for course " + (j+1) + "  
: " + (in[i].cie[j] + (en[i].see[j]/2)));

### Package FOLDER:

- CE
- SEE
- internals.java
- internals.java
- main.java
- Main.java
- personal.java

### CE folder:

- internal.class
- personal.class

### SEE folder:

- externals.class

```
Enter the number of students
2
Student 1
Enter the name
Anisha_Nair
Enter the semester
3
Enter the USN
1BM19CS018
CIE MARKS:
CIE mark for course 1 :
50
CIE mark for course 2 :
50
CIE mark for course 3 :
45
CIE mark for course 4 :
46
CIE mark for course 5 :
47
SEE MARKS:
SEE mark for course 1 :
100
SEE mark for course 2 :
100
SEE mark for course 3 :
99
SEE mark for course 4 :
89
SEE mark for course 5 :
92

Student details:
Name: Anisha_Nair
USN: 1BM19CS018
Sem: 3
Total Marks for course 1: 100.0
Total Marks for course 2: 100.0
Total Marks for course 3: 94.5
Total Marks for course 4: 90.5
Total Marks for course 5: 93.0
```

LAB 7

class Gen &lt;T&gt;

{

T ob ;

Gen (T o)

{

ob = o;

}

T getOb()

{

return ob;

}

void ShowType()

{

System.out.println("Type of T :" + ob.getClass().getName());

}

class GenDemo

{

public static void main( String args[] )

{

~~public~~

Gen &lt;integer&gt; iob = new Gen&lt;integer&gt;( 88 );

iob.showType();

int v = iob.getOb();

System.out.println("value : " + v);

Gen &lt;String&gt; slob slob = new Gen &lt;String&gt; ("Hello");

slob.showType();

String str = slob.getOb();

System.out.println("value : " + str);

}

```
Type of T is java.lang.Integer  
value: 88
```

```
Type of T is java.lang.String  
value: Generics Test
```

---

```
(program exited with code: 0)  
Press return to continue
```

LAB 8

import java.util.\*;  
class Wrongage extends Exception

{

private int a;

Wrongage (int b)

{

a = b;

}

public String toString()

{

return "Wrongage (" + a + ")";

}

}

}

int fatherage;

father () throws Wrongage

{

Scanner sc = new Scanner (System.in);

System.out.print ("Enter father age ");

fatherage = sc.nextInt();

if (fatherage &lt; 0)

throw new Wrongage (fatherage);

else System.out.print ("Everything is fine ");

}

}

class Sonage extends Father

{

int sonage;

son () throws new Wrongage

{

Scanner sc = new Scanner (System.in);

System.out.print ("Enter son age ");

```
sonage = sc.nextInt();
if (sonage &gt;= fatnage)
    throw new Wrongage(sonage);
else System.out.println("Everything is fine");
}
```

class lab7

```
{ public static void main(String args[])
{
    try {
        son s = new son()
    }
    catch(Wrongage e) {
        System.out.println("Caught " + e)
    }
}}
```

```
enter father's age  
45  
correct father's age  
enter son's age  
23  
N0oo error
```

---

```
(program exited with code: 0)  
Press return to continue
```

```
enter father's age  
-9  
Caught WrongAge(-9)
```

---

```
(program exited with code: 0)  
Press return to continue
```

```
enter father's age  
34  
correct father's age  
enter son's age  
35  
Caught WrongAge(35)
```

LAB 9

11/01/2020

```
import java.util.*;  
class Newthread implements Runnable  
{  
    String name;  
    int x;  
    Thread t;  
    Newthread (String threadname, int a)  
    {  
        name = threadname;  
        x = a;  
        t = new Thread (this, name);  
        System.out.println ("Newthread :" + t);  
        t.start();  
    }  
    public void run ()  
    {  
        try  
        {  
            for (int i = 20; i > 0; i--)  
            {  
                System.out.println ("name :" + i);  
                if (i == 1)  
                    Thread.sleep (2000);  
                else {  
                    if (i == 16) break;  
                    else Thread.sleep (10000);  
                }  
            }  
        }  
        catch (InterruptedException e){  
            System.out.println ("name + "Interrupted");  
        }  
        System.out.println ("Exiting thread :" + name);  
    }  
}
```

class Thread1

{

public static void main(String args[])

{

new NewThread("8CSF", 1);

new NewThread("BMS college of Engineering", 2);

}

{ main method

{ the

{ thread

(the members

variables, events) members

{ constructor - main }

{ ID = 1

{ (non - static) local vars = 1

{ (static) local vars } using class object

{ local

{ local variables = 1

{ local variables = 1

```
New thread: Thread[CSE,5,main]
New thread: Thread[BMS College of Engineering,5,main]
BMS College of Engineering:20
CSE:20
CSE:19
CSE:18
CSE:17
CSE:16
BMS College of Engineering:19
CSE:15
CSE:14
CSE:13
CSE:12
CSE:11
BMS College of Engineering:18
CSE:10
CSE:9
CSE:8
CSE:7
CSE:6
BMS College of Engineering:17
CSE:5
CSE:4
CSE:3
CSE:2
CSE:1
BMS College of Engineering:16
Exiting thread:BMS College of Engineering
Exiting thread:CSE

-----
(program exited with code: 0)
```

LAB 10

```
import java.awt.*;  
import java.awt.event.*;  
  
class SampleDialog extends Dialog implements ActionListener  
{  
    Lab10 bld;  
    SampleDialog(Frame parent, String title)  
    {  
        super (parent, title, false);  
        bld = (Lab10)parent;  
        setLayout = new FlowLayout();  
        setSize (350, 250);  
        add (new Label(bld.msg1));  
        Button b;  
        add (b = new Button("OK"));  
        b.addActionListener (this);  
    }  
    public void actionPerformed(ActionEvent ae) {  
        dispose();  
    }  
}
```

```
public class Lab10 extends Frame implements ActionListener
```

```
{  
    Textfield num1, num2, result;  
    String msg = "", msg1 = "";  
    Button divide;  
    public Lab10()  
    {  
        setLayout (new FlowLayout());  
        Label nnum1 = new Label ("Num1:", Label.LEFT);  
        Label nnum2 = new Label ("Num2:", Label.RIGHT);  
        Label result = new Label ("Result");  
        Button s = new Button ("divide");  
    }  
}
```

```

num1 = new JTextField(8);
num2 = new JTextField(8);
result = new JTextField(8);
    
```

```

add(num1);
add(num1);
add(num2);
add(num2);
divide = (Button) add(b);
add(result);
add(result);
    
```

```

num1.addActionListener(this);
num2.addActionListener(this);
divide.addActionListener(this);
    
```

```

addWindowListener(new WindowAdapter()
public void windowClosing(WindowEvent we)
{
    System.exit(0);
}
    
```

```

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

```

if (ae.getSource() == divide)
{
    
```

```

try {
    
```

```

msg = "" + Integer.parseInt(num1.getText());
    
```

```

Integer.parseInt(num2.getText());
    
```

```

String c = "" + msg;
    
```

```

result.setText(c);
    
```

```

msg1 = "";
    
```

```

} catch (NumberFormatException e)
{
    
```

msg1 = " Entered no. not an integer" + e;

SampleDialog d = new SampleDialog (this, " Dialog");

d.setVisible (true);

}

catch (ArithmeticException e)

{

msg1 = " number 2 is zero" + e;

SampleDialog d = new SampleDialog (this, " Dialog");

d.setVisible (true);

}  
y  
y

public static void main( String args[] )

{

Lab10 aa = new Lab10();

aa.setSize (new Dimension (400, 200));

aa.setTitle (" divide-awt ");

aa.setVisible (true);

}

}

