

00J

Program 1 : Write a program to print an Integer

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

```
public class HelloWorld {
```

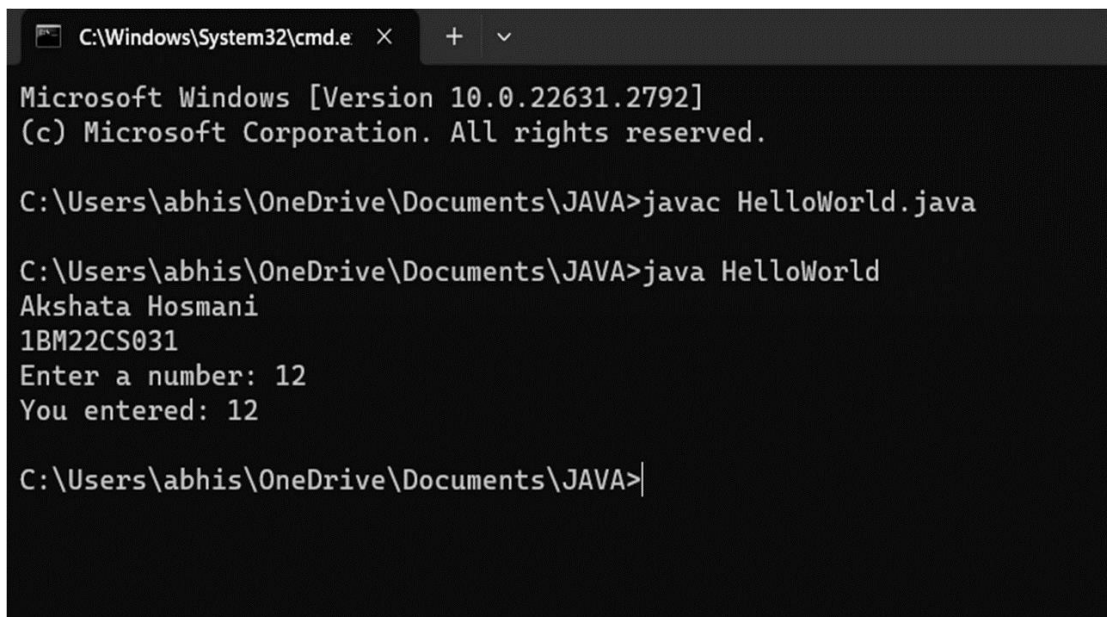
```
    public static void main (String[] args) {
```

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

```
        System.out.print ("Enter a number:");
```

```
        int number = reader.nextInt();
```

```
        System.out.println("You entered: " + number);
```



```
C:\Windows\System32\cmd.e  X  +  v
Microsoft Windows [Version 10.0.22631.2792]
(c) Microsoft Corporation. All rights reserved.

C:\Users\abhis\OneDrive\Documents\JAVA>javac HelloWorld.java

C:\Users\abhis\OneDrive\Documents\JAVA>java HelloWorld
Akshata Hosmani
1BM22CS031
Enter a number: 12
You entered: 12

C:\Users\abhis\OneDrive\Documents\JAVA>
```

Program 2 : Java Program to check whether a Number is Even or odd.

```
import java.util.Scanner;
public class JavaExample {
    public static void main (String[] args) {
        int num;
        System.out.print ("Enter an Integer number");
        Scanner input = new Scanner (System.in);
        num = input.nextInt();
        if (num % 2 == 0)
            System.out.println (num + " is even no.");
        else
            System.out.println (num + " is odd no.");
    }
}
```

```
C:\Windows\System32\cmd.e  X  +  v
Microsoft Windows [Version 10.0.22631.2792]
(c) Microsoft Corporation. All rights reserved.

C:\Users\abhis\OneDrive\Documents\JAVA>
C:\Users\abhis\OneDrive\Documents\JAVA>javac JavaExample.java
C:\Users\abhis\OneDrive\Documents\JAVA>java JavaExample
Akshata Hosmani
1BM22CS031
Enter an Integer number:
23
23 is an odd number.

C:\Users\abhis\OneDrive\Documents\JAVA>
```

3 is odd no.

Program 3: Java Program to Print Right Triangle star pattern.

```
public class JavaExample {  
    public static void main (String[] args) {  
        int row, column, noOf Rows = 8;  
        for (row = 0; row < noOf Rows; row++) {  
            { for (column = 0; column <= Row; column++)  
                { System.out.print ("* "); } } } }  
    }
```

```
C:\Windows\System32\cmd.e  x  +  v  
Microsoft Windows [Version 10.0.22631.2792]  
(c) Microsoft Corporation. All rights reserved.  
  
C:\Users\abhis\OneDrive\Documents\JAVA>javac StarPattern.java  
  
C:\Users\abhis\OneDrive\Documents\JAVA>java StarPattern  
Akshata Hosmani  
1BM22CS031  
*  
* *  
* * *  
* * * *  
* * * * *  
* * * * * *  
* * * * * * *  
* * * * * * * *  
  
C:\Users\abhis\OneDrive\Documents\JAVA>|
```

Program 4: Java program to find quotient and remainder

```
public class JavaExample {  
    public static void main(String[] args) {  
        int num1=15, num2=2;  
        int quotient = num1/num2;  
        int remainder = num1%num2;  
        System.out.println("Quotient is: " + quotient);  
        System.out.println("Remainder is: " + remainder);  
    }  
}
```

C:\Windows\System32\cmd.e X + v

Microsoft Windows [Version 10.0.22631.2792]  
(c) Microsoft Corporation. All rights reserved.

C:\Users\abhis\OneDrive\Documents\JAVA>javac QR.java

C:\Users\abhis\OneDrive\Documents\JAVA>java QR

Akshata Hosmani

1BM22CS031

Quotient is: 7

Remainder is: 1

C:\Users\abhis\OneDrive\Documents\JAVA>



Program 5: Java program to multiply two numbers

```
public class demo {  
    public static void main (String[] args) {  
        Scanner scan = new Scanner (System.in);  
        System.out.println ("Enter first number");  
        int num1 = scan.nextInt();  
        System.out.println ("Enter second number");  
        int num2 = scan.nextInt();  
        scan.close();  
        int product = num1 * num2;  
        System.out.println ("Output : "+product);  
    }  
}
```

Algorithm:

```
C:\Windows\System32\cmd.e  X  +  v  
Microsoft Windows [Version 10.0.22631.2792]  
(c) Microsoft Corporation. All rights reserved.  
  
C:\Users\abhis\OneDrive\Documents\JAVA>javac Akshata.java  
  
C:\Users\abhis\OneDrive\Documents\JAVA>java Akshata  
Akshata Hosmani  
1BM22CS031  
Enter first number  
12  
Enter second number  
3  
Output: 36  
  
C:\Users\abhis\OneDrive\Documents\JAVA>
```

Program 6: Swap 2 numbers using temporary variable

```
public class swapnumbers {  
    public static void main (String [] args) {  
        float first = 1.20f, second = 2.45f;  
        System.out.println(" -- Before swap -- ");  
        System.out.println("First number" + first);  
        System.out.println("Second number" + second);  
        float temporary = first;  
        seto first = second;  
        second = temporary;  
        System.out.println(" -- After swap -- ");  
        System.out.println("First number" + first);  
        System.out.println("Second number" + second);  
    }  
}
```

Algorithm :

```
C:\Windows\System32\cmd.e  X  +  v  
Microsoft Windows [Version 10.0.22631.2792]  
(c) Microsoft Corporation. All rights reserved.  
  
C:\Users\abhis\OneDrive\Documents\JAVA>javac SwapNumbers.java  
  
C:\Users\abhis\OneDrive\Documents\JAVA>java SwapNumbers  
Akshata Hosmani  
1BM22CS031  
--Before swap--  
First number = 1.2  
Second number = 2.45  
--After swap--  
First number = 2.45  
Second number = 2.45  
  
C:\Users\abhis\OneDrive\Documents\JAVA>|
```

Q. 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.

⇒ public class QuadraticEquation {

public static void main (String[] args) {

float a, b, c, d;

double r1, r2;

Scanner scan = new Scanner(System.in);

System.out.println("Enter the coefficients");

a = scan.nextFloat();

b = scan.nextFloat();

c = scan.nextFloat();

if (a == 0)

System.out.println("Invalid input");

else { d = b \* b - 4 \* a \* c;

if (d > 0)

{ System.out.println("Roots are real and distinct");

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

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

System.out.println("root 1 = " + r1, "root 2 = " + r2);

else if (d == 0)

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

r1 = r2 = -b / (2 \* a);

```

System.out.println("root 1 = " + r1 + "root 2 = " + r2);
}
else {
    System.out.println("Roots are imaginary");
    r1 = -b / (2 * a);
    r2 = Math.sqrt(-d) / (2 * a);
    System.out.println("root 1 = " + r1 + "+"
        + r2);
    System.out.println("root 2 = " + r2 + "+" + r2);
} } } }

```

Algorithm:

step 1: start

step 2: Initialize float a, b, c, d and double r, r2;

step 3: print enter the coefficients



```
C:\Users\aksha\Downloads>java Qe
Akshata Hosmani
1BM22CS031
Enter the coefficients of the quadratic equation (a, b, c):
10
6
4
The roots of the equation are complex and distinct:
Root 1:  $-0.3 + 0.5567764362830021i$ 
Root 2:  $-0.3 - 0.5567764362830021i$ 
```

```
C:\Users\aksha\Downloads>javac Qe.java
```

```
C:\Users\aksha\Downloads>java Qe
Akshata Hosmani
1BM22CS031
Enter the coefficients of the quadratic equation (a, b, c):
2
4
5
The roots of the equation are complex and distinct:
Root 1:  $-1.0 + 1.224744871391589i$ 
Root 2:  $-1.0 - 1.224744871391589i$ 
```

Date = 29-12-23

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

```
import java.util.Scanner;

public class Student {
    String usn;
    String name;
    private static int credit[] = {4, 4, 4, 3, 3, 2, 1, 1};
    int marks[] = new int[8];

    Scanner s = new Scanner(System.in);

    public void getDetails() {
        System.out.println("Enter your usn");
        usn = s.next();
    }

    public void setMarks()
    {
        System.out.println("Enter your name");
        name = s.next();
    }

    public void setMarks() {
        int i;
        System.out.println("Enter your marks");

        in order considering 91-100 as 10, 81-90 as 9,
        for (i = 0; i < 8; i++)
            marks[i] = s.nextInt();
    }

    for (i = 0; i < 8; i++)
    {
        public
    }
}
```

```
public double sgpa() {  
    double sgpa = 0, temp = 0;  
    for (int i = 0; i < 8; i++)  
    {  
        temp += credit[i] * marks[i];  
    }  
    sgpa = temp / 22;  
    return sgpa;  
}
```

```
public void display() {  
    System.out.println("Name: " + name);  
    System.out.println("usr: " + usr);  
    System.out.println("SGPA" + sgpa);  
}
```

```
public static void main(String[] args)  
{  
    Student s1 = new Student();  
    s1.get-details();  
    s1.get-marks();  
    s1.get s1.display();  
}}
```

```
C:\Users\aksha\Downloads>javac marks.java
```

```
C:\Users\aksha\Downloads>java marks
```

Akshata Hosmani

1BM22CS031

Enter your USN

cs031

Enter your Name

Akshata

Enter your Marks

76

67

89

98

56

65

90

89

Name: Akshata

USN: cs031

SGPA: 2.696825396825397



## Lab-4

Q. create a class Book which contains 4 members, name, author, price, num-pages. Include a constructor to set the values of the members. Include methods to get set and get the details of the objects. Include a testing method that could display the complete details of the book. Develop a java program to create n book objects.

```

-> import java.util.Scanner;

class book {
    String name;
    String author;
    float price;
    int num-pages;

    void set-details ()
    {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter book name, Author name, price, num-pages");
        name = s.next();
        author = s.author();
        price = s.nextFloat();
        num-pages = s.nextInt();
    }

    void get-details ()
    {
        String details = toString();
        System.out.println(details);
    }

    public String toString()
    {
        return "The book " + name + " was written by " + author + " it consists of " + num-pages + " pages and costs around " + price;
    }
}

```

```

public static void main (String[] args)
{
    Scanner sc = new Scanner(System.in);
    System.out.println("enter no. of books  
you want to generate");
    int n = sc.nextInt();
    book b[] = new book[n];
    for (int i = 0; i < n; i++)
    {
        b[i] = new book();
        b[i] =
        b[i].set-details();
    }
    System.out.println("book details");
    System.out.println();
    for (int i = 0; i < n; i++)
    {
        b[i].get-details();
    }
}

```

algorithm:

```
C:\Users\aksha\Downloads>javac Main.java
```

```
C:\Users\aksha\Downloads>java Main
```

Akshata Hosmani

IBM22CS031

Enter the number of books you want to generate 2

Enter details for Book 1:

Name: XYZ

Author: Shakesphere

Price: 100

Number of Pages: 50

Enter details for Book 2:

Name: ABC

Author: Henry

Price: 200

Number of Pages: 60

Details of all books:

Book Details:

Name: XYZ

Author: Shakesphere

Price: \$100.0

Number of Pages: 50

Book Details:

Name: ABC

Author: Henry

Price: \$200.0

Number of Pages: 60



Q/ Develop a Java program to create an abstract class named shape that contains two integers and an empty method named printArea(). Provide 3 classes named Rectangle, Triangle and circle such that each one of the classes extends the class shape. Each one of the classes contains only the method printArea() that prints the area of the given shape.

```
⇒ import java.util.Scanner;

abstract class shape {
    int n, y;
    abstract void area() printArea();

    public static void main(String[] args)
    {
        shape obj1 = new circle();
        obj1.printArea();
        shape obj2 = new triangle();
        obj2.printArea();
        shape obj3 = new Rectangle();
        obj3.printArea();
    }
}
```

```
class Rectangle extends shape
{
    System.out.println("Enter length and  
breadth of the rectangle");
    Scanner s = new Scanner(System.in);
    x = s.nextInt();
    y = s.nextInt();
}
```

```
public printArea()
```

```
{
    System.out.println("The area of the  
rectangle is " + x * y);
}
```



class Circle extends Shape

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

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

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

```
y = x;
```

~~System~~

```
public void printArea() {
```

```
System.out.println("The area of the circle is " + 3.14 * x * y); }
```

class Triangle extends Shape

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

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

```
x = scan.nextInt();
```

```
y = scan.nextInt();
```

```
public void printArea() {
```

```
System.out.println("The area of the triangle is " + 0.5 * x * y); }
```

```
C:\Users\aksha\Downloads>javac Shape.java
```

```
C:\Users\aksha\Downloads>java Shape
```

Akshata Hosmani

1BM22CS031

Enter radius of the circle

4

The area of the circle is 50.24

Enter base and height of the triangle

3

4

The area of the triangle is 6.0

Enter length and breadth of the rectangle

4

5

The area of the rectangle is 20

Q 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 cur-acc and sav-acc to make them more specific to their requirements.

```

=> import java.util.Scanner;

class Account {
    String customerName;
    long accno;
    String accountType;
    double balance;
    public Account(String customerName,
        long accno, String accountType) {
        this.customerName = customerName;
        this.accno = accno;
        this.accountType = accountType;
        this.balance = 0.0;
    }

    public void displayBalance() {
        System.out.println("Account Number: "
            + accno);
        System.out.println("customer Name: "
            + customerName);
        System.out.println("Account Type: "
            + accountType);
    }
}

```



```

System.out.println("Balance : $" + balance)
}
}

class Current extends Account {
    double minBalance;
    double serviceCharge;
    public Current(String customerName,
        long accno) {
        super(customerName, accno, "Current");
        this.minBalance = 500.0;
        this.serviceCharge = 500.0;
    }
    public void withdraw (double amount)
    { if (balance - amount >= minBalance) {
        balance -= amount;
        System.out.println("Withdrawal
        Successful. Current Balance : $"
        + balance);
    }
    else {
        System.out.println("Insufficient
        funds. Withdrawal not allowed.");
    }
    }
    public void imposeServiceCharge() {
        if (balance < minBalance) {
            balance = serviceCharge;
        }
        System.out.println("Service charge imposed
        Current Balance : Rs. " + balance);
    }
}

class Savings extends Account {
    double interestRate;
    public Savings(String customerName,
        long accno) {
        super(customerName, accno, "Savings");
        this.interestRate = 0.05;
    }
    // public void depositInterest() {
    //     double interest = balance * interestRate;

```



```

// balance + interest;
// System.out.println("Interest deposited,
// current balance: ₹" + balance); }

public void compoundInterest (double
initialAmount, int term) {
    double compoundInterest = initialAmount
    * Math.pow (1 + interestRate, term) -
    initialAmount;

    balance + = compoundInterest;
    System.out.println ("Compound Interest
deposited, current balance: ₹" + balance);
} }

public class Bank {
    public static void main (String[] args)
    { Scanner scanner = new Scanner
    (System.in);

    System.out.println ("choose account type:");
    System.out.println ("1. current");
    System.out.println ("2. savings");
    System.out.println ("Enter choice");
    int choice = scanner.nextInt();
    System.out.println ("Enter customer Name
");
    String customerName = scanner.next();
    System.out.println ("Enter account
number");
    long accno = scanner.nextLong();

    if (choice == 1) {
        curAcct curAccount = new
        curAcct (customerName, accno);
        System.out.println ("Enter initial balance");
        double initialBalance = scanner.
        nextDouble();
    }
}

```

```

curAccount.balance = initialBalance;
system.out.println("Enter withdrawal
Amount");
double withdrawalAmount = scanner.next
Double();
curAccount.withdrawal(withdrawalAmount);
curAccount.imposeServiceCharge();
curAccount.displayBalance();
else if (choice == 2) {
    savAcct.savAccount = new
    SavAcct(customerName, accno);
    system.out.println("Enter initial balance");
    double initialBalance = scanner.nextDouble();
    system.out.println("Enter withdrawal Amount");
    savAccount.balance = withdrawalAmount;
    system.out.println("Withdrawal successful");
    currentBalance = savAccount.balance;
    system.out.println("Enter interest rate");
    double interestRate = scanner.nextDouble();
    savAccount.interestRate = interestRate;
    savAccount.displayBalance();
    system.out.println("Enter term
    (in years) for compound interest
    calculation");
    int term = scanner.nextInt();
    savAccount.compoundInterest(initialBalance,
    term);
    savAccount.displayBalance();
}
else { system.out.println("Invalid
choice"); } }

```

```
C:\Users\aksha>cd downloads
```

```
C:\Users\aksha\Downloads>javac Bank.java
```

```
C:\Users\aksha\Downloads>java Bank
```

```
Akshata Hosmani
```

```
1BM22CS031
```

```
Choose account type:
```

```
1. Current
```

```
2. Savings
```

```
Enter choice (1 or 2): 1
```

```
Enter customer name: Akshata
```

```
Enter account number: 12345
```

```
Enter initial balance: $50000
```

```
Enter withdrawal amount: $2000
```

```
Withdrawal successful. Current Balance: $48000.0
```

```
Account Number: 12345
```

```
Customer Name: Akshata
```

```
Account Type: Current
```

```
Balance: $48000.0
```

```
C:\Users\aksha\Downloads>javac Bank.java
```

```
C:\Users\aksha\Downloads>java Bank
```

```
Akshata Hosmani
```

```
1BM22CS031
```

```
Choose account type:
```

```
1. Current
```

```
2. Savings
```

```
Enter choice (1 or 2): 2
```

```
Enter customer name: Akshata
```

```
Enter account number: 12333
```

```
Enter initial balance: $278000
```

```
Enter withdrawal amount: $40000
```

```
Withdrawal successful. Current Balance: $238000.0
```

```
Enter interest rate: 7
```

```
Account Number: 12333
```

Date: 2-2-24

Q. Create a package CTE which has two classes Student and Internals. The class Person has members like usn, name, sex. 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 Extended which is a derived class of student.

→ package CTE

import java.util.\*;

public class Student {

public int sex;

public String usn;

public String name;

public void accept()

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

System.out.println("Enter usn, name, sex");

sex = sc.nextInt();

usn = sc.nextLine();

name = sc.nextLine(); }

package CTE;

public class Internals

{ public int im[] = new int[5]; }

package SEE;

import CTE.Student;

public class Extended extends Student

{ public int im[] = new int[5]; }



```

import java.util.*;
import SEE *;
import CIE *;
public class FinalMarks {
    public static void main (String args[])
    {
        int fm[] = new int [5];
    }
}

```

```

Scanner sc = new Scanner (System.in);

```

```

System.out.println("Enter n");

```

```

int n = sc.nextInt();

```

```

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

```

```

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

```

```

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

```

```

{
    st[i] = new SEE.External();

```

```

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

```

```

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

```

```

    st[i].accept();

```

```

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

```

```

    {
        System.out.println("Enter im and

```

```

        sm of sub" + (j+1));

```

```

        st[i].im[j] = sc.nextInt();

```

```

        st[i].sm[j] = sc.nextInt();

```

```

        fm[j] = st[i].im[j] + st[i].

```

```

        sm[j];
    }

```

```

    System.out.println("Final marks of"

```

```

    + st[i].name);

```

```

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

```

```

    {
        System.out.println("Source" +

```

```

        (k+1) + " = " + fm[k]);
    }
}

```

```
C:\Example>javac FinalMarks.java
```

```
C:\Example>java FinalMarks
```

```
Akshata Hosmani
```

```
1BM22CS031
```

```
Enter n:
```

```
1
```

```
Enter details 1
```

```
Enter U, N, S:
```

```
cs031
```

```
ABS
```

```
3
```

```
Enter im and sm of sub 1
```

```
98
```

```
99
```

```
Enter im and sm of sub 2
```

```
89
```

```
100
```

```
Enter im and sm of sub 3
```

```
80
```

```
70
```

```
Enter im and sm of sub 4
```

```
90
```

```
78
```

```
Enter im and sm of sub 5
```

```
89
```

```
90
```

```
Final marks of ABS
```

```
Course 1 = 197
```

```
Course 2 = 189
```

```
Course 3 = 150
```

```
Course 4 = 168
```

```
Course 5 = 179
```

Q. Write a program that demonstrates handling of exceptions in inheritance. We create a base class "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 < 0. In son class, implement a constructor that calls both father and son's age and throws an exception if son's age is >= father's age.

⇒ import java.util.Scanner;

```
class WrongAge extends Exception {
    public WrongAge (String message)
    { super (message); }
}
```

```
class Father {
    int fatherage;
    public Father (int fatherage) throws
    WrongAge
```

```
{
    if (age < 0)
    if (fatherage < 0)
```

```
{
    throw new WrongAge ("Age cannot
    be negative"); }
```

this.fatherage =

```
fatherage; }
class son extends Father {
```

```
int sonage;
    public son (int fatherage, int sonage)
    {
        if (throw WrongAge
        {
```

if (s.sonage > f.fatherage)

{ throw new Wrongage ("As son age

cannot be greater than father age");

}

this.sonage = sonage; }

public class fatherSon {

public static void main (String args[])

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

System.out.println ("Enter father's

age and son's age");

int fage = ~~next~~ sc.nextInt();

int Sage = sc.nextInt();

try { Father f = new Father (Fage);

son s = new son (Fage, Sage);

System.out.println ("Father's age: " +

~~s~~ f.fatherage);

System.out.println ("son's age" +

s.sonage); }

catch (~~Exception~~ <sup>WrongAge</sup>)

{ System.out.println ("Error: " +

e.getMessage()); } }



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C:\Users\aksha>cd downloads

C:\Users\aksha\Downloads>javac fatherson.java

C:\Users\aksha\Downloads>java fatherson

Akshata Hosmani

1BM22CS031

Enter father's age and son's age:

56

23

Father's age: 56

Son's age: 23

Q. Write a program which creates two threads one thread displaying "BMS collage of Engineering" one every ten seconds and another displaying "ISE" one every two seconds.

⇒

```
class A extends Thread
{
    public void run()
    {
        while (true)
        {
            System.out.println("BMS collage of Engineering");
            try {
                Thread.sleep(10000);
            } catch (Exception e) {}
        }
    }
}

class B extends Thread
{
    public void run()
    {
        while (true)
        {
            System.out.println("ISE");
            try {
                sleep(2000);
            } catch (Exception e) {}
        }
    }
}

class th {
    public static void main (String args[])
    {
        A a = new A();
        B b = new B();
    }
}
```

Q. Write a program which creates two threads one thread displaying "BMS collage of Engineering" one every ten seconds and another displaying "ISE" one every two seconds.

⇒

```
class A extends Thread
{
    public void run()
    {
        while (true)
        {
            System.out.println("BMS collage of Engineering");
            try {
                Thread.sleep(10000);
            } catch (Exception e) {}
        }
    }
}

class B extends Thread
{
    public void run()
    {
        while (true)
        {
            System.out.println("ISE");
            try {
                sleep(2000);
            } catch (Exception e) {}
        }
    }
}

class th {
    public static void main (String args[])
    {
        A a = new A();
        B b = new B();
    }
}
```

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Akshata Hosmani

1BM22CS031

BMS COLLEGE OF ENGINEERING

CSE

CSE

CSE

CSE

CSE

BMS COLLEGE OF ENGINEERING

CSE

|



Date: 23-2-24

Q 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 and/or Num2 were not an integer, the program would throw a `NumberFormatException`. If Num2 were zero, the program would throw an `ArithmeticException`. Display the exception in a message dialog box.

```
=> import javax.swing.*;
import java.awt.*;
import java.awt.event.*;

class SwingDemo {
    SwingDemo() {
        JFrame jfrm = new JFrame("Divide App");
        jfrm.setSize(275, 150);
        jfrm.setLayout(new FlowLayout());
        jfrm.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);

        JLabel jlab = new JLabel("Enter the divider and dividend");

        JTextField ajtf = new JTextField(8);
        JTextField bjtf = new JTextField(8);

        JButton button = new JButton("Calculate");

        JLabel err = new JLabel();
        JLabel res = new JLabel();
    }
}
```

```

JLabel alab = new JLabel();
JLabel anslab = new JLabel();

jfrm.add(terr);
jfrm.add(jlab);
jfrm.add(ajtf);
jfrm.add(bjtf);
jfrm.add(button);
jfrm.add(alab);
jfrm.add(blab);
jfrm.add(anslab);

```

```

ActionListener l = new ActionListener() {
    public void actionPerformed (ActionEvent evt)
    {
        System.out.println(" Action event
            from a text field");
    }
};

ajtf.addActionListener(l);
bjtf.addActionListener(l);
button.addActionListener(new ActionListener()
{
    public void actionPerformed (ActionEvent
        evt) {
        try {
            int a = Integer.parseInt(ajtf.getText());
            int b = Integer.parseInt(bjtf.getText());
            int ans = a/b;
            alab.setText("\n A = " + a);
            blab.setText("\n B = " + b);
            anslab.setText("\n Ans = " + ans);
        }
    }
});

```



```
catch (NumberFormatException e) {
```

```
    alab.setText("");
```

```
    blab.setText("");
```

```
    anslab.setText("");
```

```
    err.setText("Enter Only Integers");
```

```
catch (ArithmeticException e) {
```

```
    alab.setText("");
```

```
    blab.setText("");
```

```
    anslab.setText("");
```

```
    err.setText("B should be non zero");
```

```
} } };
```

```
jfrm.setVisible(true);
```

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

```
    SwingUtilities.invokeLater(new
```

```
        Runnable() { public void run()
```

```
        { new SwingDemo(); } }); }
```

output:

Divider App	
Enter the divider & dividend	
<input type="text" value="45"/>	<input type="text" value="4"/>
<input type="button" value="Calculate"/>	A=45    B=4 Ans = 11

Divider App

Enter the divider and dividend:

34

2

Calculate

A = 34 B = 2 Ans = 17

```
button.addActionListener(new ActionListener() {
```

Command Prompt - java Swi

+

▼

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C:\Users\aksha>cd downloads

C:\Users\aksha\Downloads>cd java

C:\Users\aksha\Downloads\java>javac SwingDemo.java

C:\Users\aksha\Downloads\java>java SwingDemo