

# Experiment - 5

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**Roll No:** 58

Write a Java program that shows the usage of try, catch, throws and finally.

## **(a)---Try-Finally example**

### **Program:**

```
/* File name: TryFinallyExample.java
 *
 * Done By: Rohit Karunakaran
 * */
public class TryFinallyExample
{
    public static void main(String args[]){
        int a =3;
        int len = args.length;
        try{
            int b = a/len;
        }

        finally{
            System.out.println("In the finally Statement");
            System.out.println("Have a nice Day");
            System.out.println("-----\n");
        }
    }
}
```

### **Sample Input 1:**

\*No input\*

### **Sample Output 1:**

In the finally Statement  
Have a nice Day  
-----

Exception in thread "main" java.lang.ArithmetcException: / by zero  
at TryFinallyExample.main(TryFinallyExample.java:12)

### **Sample Input 2:**

hello

### **Sample Output 2:**

In the finally Statement  
Have a nice Day  
-----

## **(b)---Multiple catch example (3 catches for a single try)**

### **Program:**

```
/* File Name : MultipleCatchExample.java
 *
 * Done By: Rohit Karunakaran
 *
 */
public class MultipleCatchExample{

    public static void main(String args[]){
        //3 catches for a single try
        System.out.println("Example for multiple Catch Statements");
        try
        {
            int len = args.length;
            int i = Integer.parseInt(args[0]);
            int b = Integer.parseInt(args[1]);
            int c = i/b;
        }

        catch(NumberFormatException e)
        {
            System.out.println("In the First Catch");
            System.out.println("An Exception has occurred while parsing the command
line input :"+e);
            System.out.println("Expected an integer");
        }
        catch(ArrayIndexOutOfBoundsException e)
        {
            System.out.println("In the Second Catch");
            System.out.println("Expected more than 1 command line argument");
            System.out.println("Exception occurred is : "+e);
        }
        catch(ArithmaticException e)
        {
            System.out.println("In the Third Catch");
            System.out.println("An Exception has occurred : "+e);
        }
        finally
        {
            //System.out.println("");
            System.out.println("-----");
        }
    }
}
```

### **Sample input 1:**

\*no input\*

### **Sample Output 1**

```
Example for multiple Catch Statements
In the Second Catch
Expected more than 1 command line argument
Exception occurred is : java.lang.ArrayIndexOutOfBoundsException: Index 0 out of
bounds for length 0
-----
```

### Sample Input 2

2 hi

### Sample Output 2

```
Example for multiple Catch Statements
In the First Catch
An Exception has occurred while parsing the command line
input :java.lang.NumberFormatException: For input string: "hi"
Expected an integer
```

### Sample Input 3

2 0

### Sample Output 3

```
Example for multiple Catch Statements
In the Third Catch
An Exception has occurred : java.lang.ArithmetricException: / by zero
```

## **(c)---Nested Try (3 levels of nesting)**

### **Program:**

```
/* File name: NestedTryExample.java
 *
 * Done By: Rohit Karunakaran
 */

public class NestedTryExample
{
    public static void main(String args[]){
        //3 levels of nesting
        int a[] = {1,2,5,32,12};
        System.out.println("\nExample With Nested Try Statements");
        try
        {
            System.out.println("Inside the Outer Most Try Block");
            System.out.println("=====\\n");
            int b = a[3];
            try
            {
                System.out.println("Inside the Inner Try Block");
                System.out.println("=====\\n");
                int c = 2*a[1]+a[0]-a[2];
                try
                {
                    System.out.println("Inside the Innermost Try Block");
                    System.out.println("=====\\n");
                    int e = b/c;
                }
                catch(ArithmetricException e)
                {
                    System.out.println("An Exception has occurred in the innerMost
try Block");
                    System.out.println("An Arithmetric expression error occurred :
"+e);
                }
            }
        }
    }
}
```

```

        finally
        {
            System.out.println("In the final block of the Innermost try
expression");
            System.out.println("=====\n");
        }
        //System.out.println("After the innermost try bolck Statement");
    }

    finally
    {
        System.out.println("In the final block of the Inner try
expression");
        System.out.println("=====\n");
    }

    int d = a[41]; //Array out of bounds exception

    System.out.println("I assure you that as long as the size of a is less
than 42,");
    System.out.println("This statement will not be excecuted");
}

catch(ArrayIndexOutOfBoundsException e)
{
    System.out.println("Exception :"+e+" \nhas Occured in the outermost try
block");
}

finally
{
    System.out.println("The Final Block of the Outermost try is complete");
    //System.out.println("=====\n");
    System.out.println("-----\n");
}
}
}

```

**Sample input 1:**

\*no input\*

**Sample output 1:**

Example With Nested Try Statements  
Inside the Outer Most Try Block  
=====

Inside the Inner Try Block  
=====

Inside the Innermost Try Block  
=====

An Exception has occurred in the innerMost try Block  
An Arithmetic expression error occurred : java.lang.ArithmeticException: / by zero  
In the final block of the Innermost try expression  
=====

In the final block of the Inner try expression  
=====

Exception :java.lang.ArrayIndexOutOfBoundsException: Index 41 out of bounds for
length 5  
has Occured in the outermost try block  
The Final Block of the Outermost try is complete  
-----

**(d)---Throw an exception when there are no sufficient arguments passed into command line as input for adding two numbers.**

**Program:**

```
/* File Name: NoSufficientArgument.java
 *
 * Done By: Rohit Karunakaran
 */
public class NoSufficientArgumentForAdding
{
    public static void main(String[] args) //throw Exception
    {
        try
        {
            if(args.length<2){
                throw new ArrayIndexOutOfBoundsException("Less than 2 command line arguments found");
            }
            else{
                int a = Integer.parseInt(args[0]);
                int b = Integer.parseInt(args[1]);
                int c = a+b;

                System.out.println("No Exception has occurred. The sum = "+c);
            }
        }
        catch(ArrayIndexOutOfBoundsException e)
        {
            System.out.println(e);
        }
        catch(NumberFormatException e)
        {
            System.out.println("Pass an Integer as a command line argument");
            System.out.println(e);
        }
    }
}
```

**Sample Input 1:**

\*no input\*

**Sample Output 1:**

java.lang.ArrayIndexOutOfBoundsException: Less than 2 command line arguments found

**Sample Input 2:**

3

**Sample Output 2:**

java.lang.ArrayIndexOutOfBoundsException: Less than 2 command line arguments found

**Sample Input 3:**

3 4

**Sample Output 3:**

No Exception has occurred. The sum = 7

### **(e)---Throws example (for handling two exceptions in a method)**

#### **Program:**

```
/*File Name: ThrowsExample.java
 *
 *Done By: Rohit Karunakaran
 */

import java.io.*;

public class ThrowsExample
{

    public static void main(String args[]) throws IOException, ArithmeticException
    {
        try{
            File f = new File("File1.txt");
            FileReader f1 = new FileReader(f);
        }
        catch (IOException ie)
        {
            System.out.println(ie);
        }

        int c = 5/0;

    }
}
```

#### **Sample Input:**

\*no input\*

#### **Sample Output:**

```
java.io.FileNotFoundException: File1.txt (No such file or directory)
Exception in thread "main" java.lang.ArithmetricException: / by zero
    at Throws.main(Throws.java:22)
```