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

(a)---Try-Finally example

/\* 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.ArithmeticException: / 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)

/\* 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 occured is : "+e);

}

catch(ArithmeticException e)

{

System.out.println("In the Third Catch");

System.out.println("An Exception has occured : "+e);

}

finally

{

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

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

}

}

}

Sample input 1

Sample Output 1

Sample Input 2

Sample Output 2

Sample Input 3

Sample Output 3

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

/\* File name: NestedTryExample.java

\*

\* Done By: Rohit Karunakaran

\*/

public class NestedTryExample

{

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(ArithmeticException e)

{

System.out.println("An Exception has occured in the innerMost try Block");

System.out.println("An Arithmetic expression error occured : "+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");

}

}

}

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

/\* File Name: NoSufficientArgument.java

\*

\* Done By: Rohit Karunakaran

\*/

public class NoSufficientArgumentForAdding

{

public static void main(String[] args) //throw Excenption

{

System.out.println("In the funcion noSufficientForAddingExample\n");

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);

}

}

}

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

/\*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;

}

}