



KALINGA INSTITUTE OF INDUSTRIAL TECHNOLOGY (KIIT)

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WT LAB -13 (EXCEPTION-HANDLING)

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// 1. Write a Java program to generate an ArrayIndexOutOfBoundsException Exception and handle it using catch statement.

```
import java.util.Scanner;

public class q1 {
    public static void main(String[] args) {
        int[] arr = {1,2,3,4,5};
        System.out.println("The Array is:");
        for(int i=0;i<arr.length;i++){
            System.out.print(arr[i]+" ");
        }
        Scanner sc = new Scanner(System.in);
        System.out.print("\nEnter the index to access the array: ");
        try {
            int index = sc.nextInt();
            sc.close();
            System.out.println(arr[index] + " is at index " + index + " of the array");
        } catch (ArrayIndexOutOfBoundsException e) {
            System.out.println("Error: " + e.getMessage());
        }
    }
}
```

```

    }
    catch (ArrayIndexOutOfBoundsException e) {
        System.out.println(e);
    }
    System.out.println("Rest of the Code");
}
}

```

OUTPUT -1

```

Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.
lab\lab13_exception\" ; if ($?) { javac q1.java } ; if ($?) { java q
1 }
The Array is:
1 2 3 4 5
Enter the index to access the array: 6
java.lang.ArrayIndexOutOfBoundsException: Index 6 out of bounds for l
ength 5
Rest of the Code
PS D:\my codes\web tech lab\lab13_exception> 

```

// 2. A subclass exception must appear before super-class exception. Justify this with suitable Java programs.

```

public class q2 {
    public static void main(String[] args) {
        try {
            int result = 5 / 0;
            System.out.println("Result is: " + result);
        }
        // catch(ArithmeticException e2){
        // System.out.println("Subclass ArithmeticException Occured");
        // }
        catch (Exception e1) {
            System.out.println("Superclass Exception Occured");
        }
        catch (ArithmeticException e2) {
            System.out.println("Subclass ArithmeticException Occured");
        }
        System.out.println("Program Ended");
    }
}

```

OUTPUT-2

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```
PS D:\my codes\web tech lab\lab13_exception> cd "d:\my codes\web tech lab\lab13_exception\" ; if ($?) { javac tempCodeRunnerFile.java } ; if ($?) { java tempCodeRunnerFile }
tempCodeRunnerFile.java:2: error: class, interface, enum, or record expected
    }
    ^
1 error
PS D:\my codes\web tech lab\lab13_exception>
```

// 3. Write a Java program to illustrate try..catch..finally block.

```
import java.util.Scanner;
public class q3 {
    public static void main(String[] args) {
        try{
            System.out.println("This program will print the result of a/b");
            Scanner sc = new Scanner(System.in);
            System.out.print("Enter value of a: ");
            int data1 = sc.nextInt();
            System.out.print("Enter value of b: ");
            int data2 = sc.nextInt();
            sc.close();
            System.out.println(data1/data2);
        }
        catch(ArithmeticException e){ //here if any the exception is not handled
            System.out.println(e);    //then the code after finally block wont run
        }
        // catch(NullPointerException e){
        //     System.out.println(e);
        // }
        finally{
            System.out.println("Inside finally block");
        }
        System.out.println("Program Ended");
    }
}
```

OUTPUT-3

```
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```

```
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```

```
PS D:\my codes\web tech lab\lab13_exception> cd "d:\my codes\web tech lab\lab13_exception\" ; if ($?) { javac q3.java } ; if ($?) { java q3 }
```

```
This program will print the result of a/b
```

```
Enter value of a: 3
```

```
Enter value of b: 0
```

```
java.lang.ArithmeticException: / by zero
```

```
Inside finally block
```

```
Program Ended
```

```
PS D:\my codes\web tech lab\lab13_exception> 
```

```
// 4. Write a Java class which has a method called ProcessInput(). This method checks the number entered by the user. If the entered number is negative then throw an user defined exception called NegativeNumberException, otherwise it displays the double value of the entered number.
```

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

```
class NegativeNumberException extends Exception {
```

```
    NegativeNumberException(String s) {
```

```
        super(s);
```

```
    }
```

```
}
```

```
public class q4 {
```

```
    static void processInput(int num) throws NegativeNumberException
```

```
    {
```

```
        if (num < 0)
```

```
            throw new NegativeNumberException("Number Entered is a Negative Number");
```

```
        else
```

```
            System.out.println("The Number " + (double) num + " is Positive");
```

```
    }
```

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

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

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

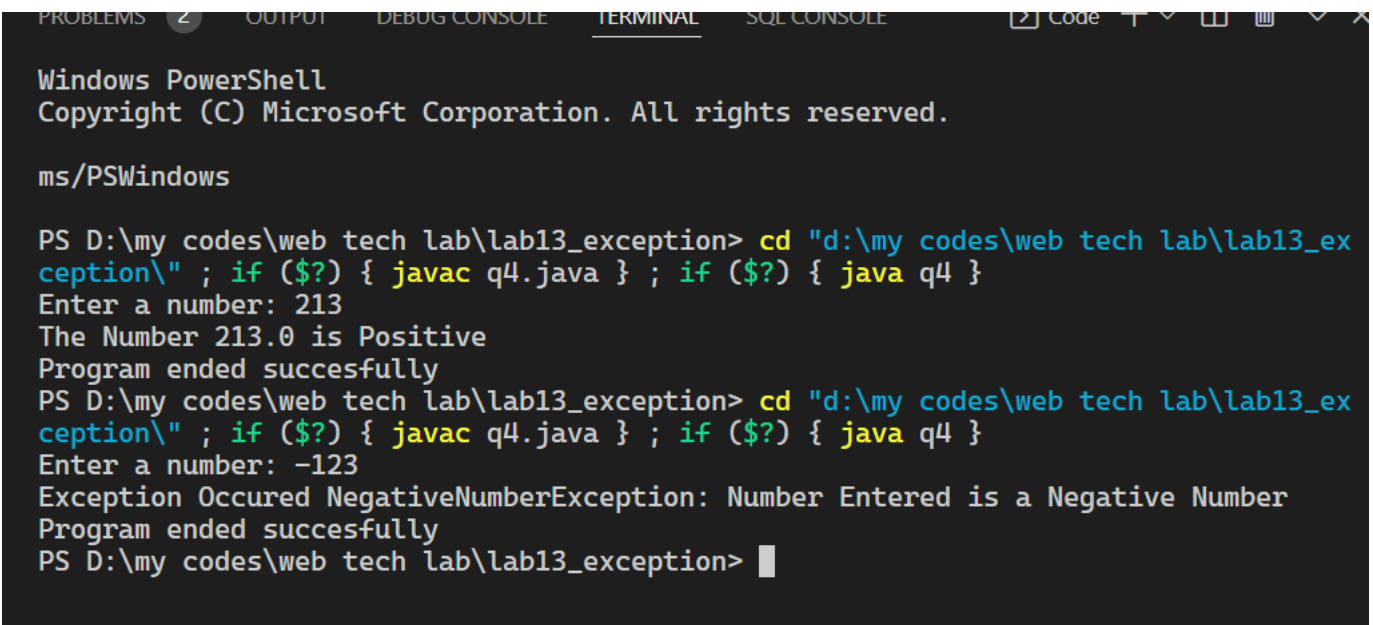
```
        try {
```

```

        int input = sc.nextInt();
        sc.close();
        processInput(input);
    } catch (NegativeNumberException e) {
        System.out.println("Exception Occured " + e);
    }
    System.out.println("Rest of the Code");
}

```

OUTPUT-4



```

Windows PowerShell
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ms/PSWindows

PS D:\my codes\web tech lab\lab13_exception> cd "d:\my codes\web tech lab\lab13_exception\" ; if ($?) { javac q4.java } ; if ($?) { java q4 }
Enter a number: 213
The Number 213.0 is Positive
Program ended succesfully
PS D:\my codes\web tech lab\lab13_exception> cd "d:\my codes\web tech lab\lab13_exception\" ; if ($?) { javac q4.java } ; if ($?) { java q4 }
Enter a number: -123
Exception Occured NegativeNumberException: Number Entered is a Negative Number
Program ended succesfully
PS D:\my codes\web tech lab\lab13_exception>

```

```

// 5. Write a program to create user defined exceptions called HrsException.
MinException and SecException. Create a class Time which contains data members hours.
minutes. seconds and throw the user defined exceptions if hours (>24 & <0).minutes(>60
& <0).seconds(>60 & <0).

```

```

import java.util.Scanner;

class HrsException extends Exception {

    HrsException(String s) {
        super(s);
    }
}

```

```

class MinException extends Exception {

    MinException(String s) {
        super(s);
    }
}

class SecException extends Exception {

    SecException(String s) {
        super(s);
    }
}

class Time {
    int hrs, min, sec;

    Time(int hrs, int min, int sec) {
        this.hrs = hrs;
        this.min = min;
        this.sec = sec;
    }

    void display() throws HrsException, MinException, SecException {
        if (hrs < 0 || hrs > 24)
            throw new HrsException("Either Hrs value is less than 0 or greater than
24");
        else
            System.out.print(hrs + " hr ");
        if (min < 0 || min > 60)
            throw new MinException("Either Min value is less than 0 or greater than
60");
        else
            System.out.print(min + " min ");
        if (sec < 0 || sec > 60)
            throw new SecException("Either Sec value is less than 0 or greater than
60");
        else
            System.out.print(sec + " sec");
    }
}

public class q5 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter the hrs value: ");
        int hours = sc.nextInt();
        System.out.print("Enter the min value: ");
        int minutes = sc.nextInt();
        System.out.print("Enter the sec value: ");
        int seconds = sc.nextInt();
        sc.close();
    }
}

```

```

    Time mytime = new Time(hours,minutes,seconds);
    try{
        System.out.print("\nThe Time is: ");
        mytime.display();
    }
    catch(HrsException e){
        System.out.println(e);
    }
    catch(MinException e){
        System.out.println(e);
    }
    catch(SecException e){
        System.out.println(e);
    }
}
}

```

OUTPUT-5

```

PROBLEMS 2 OUTPUT DEBUG CONSOLE TERMINAL SQL CONSOLE Code + - [] [X]
Windows PowerShell
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PS D:\my codes\web tech lab\lab13_exception> cd "d:\my codes\web tech lab\lab13_exception\" ; if ($?) { javac q5.java } ; if ($?) { java q5 }
Enter the hrs value: 312
Enter the min value: 21
Enter the sec value: 213

The Time is: HrsException: Either Hrs value is less than 0 or greater than 24
PS D:\my codes\web tech lab\lab13_exception>

```

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