

Laporan Hasil Praktikum ke-11

Teknik Pemrograman – Defensive Programming



Oleh :

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1A – D4 Teknik Komputer dan Informatika

**Program Studi D4 Teknik Informatika
Jurusan Teknik Komputer dan Informatika
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Case 1 : Exceptions Aren't Always Errors

Source Code :

CountLetters.java

```
package case1;

/**
 * CountLetters.java
 *
 * Reads a words from the standard input and prints the number of
 * occurrences of each letter in that word.
 */

import java.util.Scanner;
public class CountLetters {

    private static Scanner scan;

    public static void main(String[] args) {
        int[] counts = new int[26];
        scan = new Scanner(System.in);

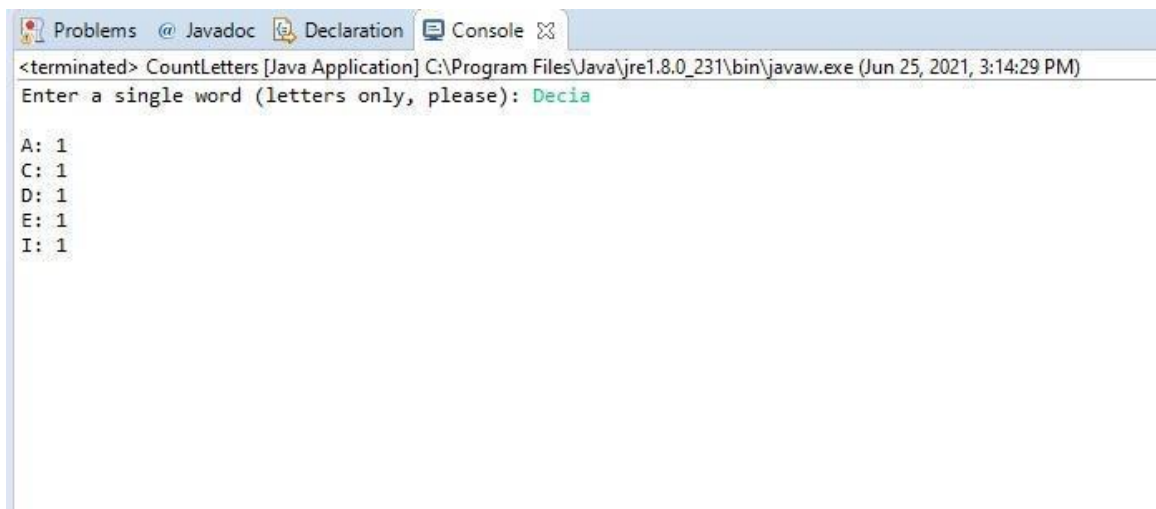
        //get word from user
        System.out.print("Enter a single word (letters only, please): ");
        String word = scan.nextLine();

        //convert to all upper case
        word = word.toUpperCase();

        //count frequency of each letter in string
        for (int i=0; i < word.length(); i++)
            counts[word.charAt(i)-'A']++;

        //print frequencies
        System.out.println();
        for (int i=0; i < counts.length; i++)
            if (counts [i] != 0)
                System.out.println((char)(i +'A') + ": " + counts[i]);
    }
}
```

Screenshot Output :



The screenshot shows an IDE console window with the following content:

```
<terminated> CountLetters [Java Application] C:\Program Files\Java\jre1.8.0_231\bin\javaw.exe (Jun 25, 2021, 3:14:29 PM)
Enter a single word (letters only, please): Decia
A: 1
C: 1
D: 1
E: 1
I: 1
```

The console window has tabs for Problems, Javadoc, Declaration, and Console. The Console tab is active, showing the execution of the CountLetters application. The user input "Decia" is highlighted in green. The output shows the frequency of each letter in the word: A: 1, C: 1, D: 1, E: 1, I: 1.

Case 2 : Placing Exception Handlers

Source Code :

ParseInts.java

```
package case2;

//*****
//ParseInts.java
//
//Reads a line of text and prints the integers in the line.
//
//*****

import java.util.Scanner;
public class ParseInts {

    private static Scanner scan;
    private static Scanner scanLine;

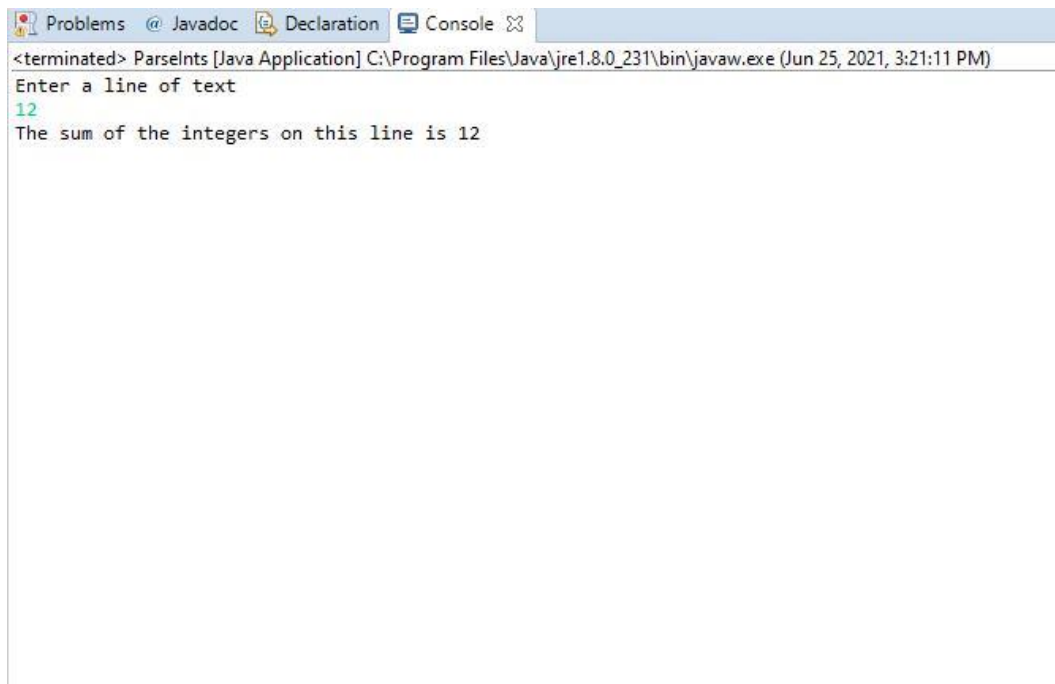
    public static void main(String[] args) {
        int val, sum=0;
        scan = new Scanner(System.in);

        System.out.println("Enter a line of text");
        scanLine = new Scanner(scan.nextLine());
        while (scanLine.hasNext()){
            val = Integer.parseInt(scanLine.next());
            sum += val;
        }
        System.out.println("The sum of the integers on this line is " + sum);

    }

}
```

Screenshot Output :



The screenshot shows an IDE's console window with the following content:

```
<terminated> ParseInts [Java Application] C:\Program Files\Java\jre1.8.0_231\bin\javaw.exe (Jun 25, 2021, 3:21:11 PM)
Enter a line of text
12
The sum of the integers on this line is 12
```

The console window has a tab bar at the top with 'Problems', 'Javadoc', 'Declaration', and 'Console'. The 'Console' tab is active. The output text is displayed in a monospaced font, with the input '12' highlighted in green.

Case 3 : Throwing Exceptions

Source Code :

MathUtils.java

```
package case3;

/**
 * *****
 * //MathUtils.java
 * //
 * //Provides static mathematical utility functions.
 * //
 * *****
 */

public class MathUtils {
    //-----
    // Returns the factorial of the argument given
    //-----

    public static int factorial(int
n){ int fac = 1;
for (int i=n; i>0; i--
) fac *= i;
return fac;
}
}
```

Factorials.java

```
package case3;

/**
 * *****
 * //Factorials.java
 * //Reads integers from the user and prints the factorial of each.
 * //
 * *****
 */

import java.util.Scanner;
public class Factorials{

    private static Scanner scan;

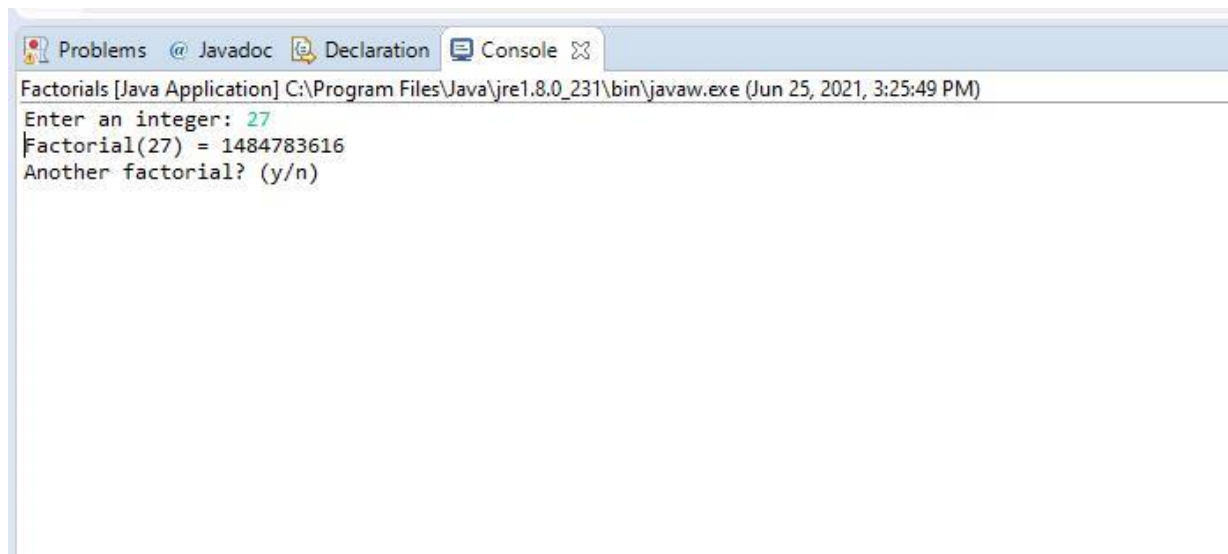
    public static void main(String[] args) {
        String keepGoing = "y";
        scan = new Scanner(System.in);
        while (keepGoing.equalsIgnoreCase("Y"))
        {
            System.out.print("Enter an integer: ");
```

```
int val = scan.nextInt();
//awesome additions by eddie
try {
    System.out.println("Factorial(" + val + ") = "
        + MathUtils.factorial(val));

    //more awesome additions by eddie
} catch (IllegalArgumentException ex)
{ System.err.println(ex + "\n");
}
System.out.println("Another factorial? (y/n) ");
keepGoing = scan.next();
}

}
```

Screenshot Output :



The screenshot shows an IDE's console window with the following content:

```
Factorials [Java Application] C:\Program Files\Java\jre1.8.0_231\bin\javaw.exe (Jun 25, 2021, 3:25:49 PM)
Enter an integer: 27
Factorial(27) = 1484783616
Another factorial? (y/n)
```