

# LAB211Assignment

Type:  
Code:  
LOC:  
Slot(s):

Short Assignment  
J1.S.P0020  
39  
1

## Title

Analyze the user input string.

## Background

N/A

## Program Specifications

Write a program to analyze the input string and display the following information:

- Display the **number of characters** in the string.
- Display the **all characters, uppercase characters, lowercase characters**.
- Display the **list of number, list of even numbers, list of odd numbers, and list of square numbers**.
- Display the **special characters**

### Function details:

**Function 1:** Display Gui And Input Data.

- User runs program. The program prompts user to input data.
- Auto next **Function2**.

**Function 2:** Perform function

- Analyze and display result
  - Display the number of characters in the string.
  - Display the all characters, uppercase characters, lowercase characters.
  - Display list of numbers, list of even numbers, list of odd number, and list of square numbers
  - Display the special characters
- Exit the program.

### Expectation of User interface:

```
1
==== Analysis String program ====
Input String: 321sdhkjDFGH!@#$$^16fdsf3

2
-----Result Analysis-----
Square Numbers: [16]
Odd Numbers: [321, 3]
Even Numbers: [16]
All Numbers: [321, 16, 3]
Uppercase Characters: DFGH
Lowercase Characters: sdhkjfdsf
Special Characters: !@#$$^
All Characters:
sdhkjDFGH!@#$$^fdsf
```

## Guidelines

### Student must implement methods

- getNumber
- getCharacter

in startup code.

### Hint:

- Create **AnalysisString** class which includes the two methods as described in Functional Requirements section.
  - o **Method getNumber to retrieve the following results**
    - List all numbers (using Regular Expressions)
    - List even numbers ( $\text{number} \% 2 == 0$ )
    - List odd numbers ( $\text{number} \% 2 != 0$ )
    - List square numbers (using `Math.sqrt`)
  - o **Method getCharacter to retrieve the following results**
    - String of all characters
    - String of special characters (using Regular Expressions)
    - String of uppercase characters (using `Character.isUpperCase()`)
    - String of lowercase characters (opposite)

### Function 1: **Analyze the number types**

- o Method name: `public HashMap<String, List<Integer>>getNumber(String input)`
  - Input:
    - input: the input string.
  - Return: analysis result.

### Function 2: **Analyze the character types and special characters**

- o Method name: `public HashMap<String, StringBuilder>getCharacter(String input)`
  - Input:
    - input: the input string.
  - Return: analysis result.