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| **LAB211Assignment** | **Type:** | **Short Assignment** |
| **Code:** |  |
| **LOC:** | **39** |
| **Slot(s):** | **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:***

===== Analysis String program ====  
Input String: 321sdhkjDFGH!@#$%^22fdsf3

-----Result Analysis------

Perfect Square Numbers: [22]

Odd Numbers: [321, 3]

Even Numbers: [22]

All Numbers: [321, 22, 3]

Uppercase Characters: DFGH

Lowercase Characters: sdhkjfdsf

Special Characters: !@#$%^

All Characters: sdhkjDFGH!@#$%^fdsf

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**Guidelines**

**Student must implement methods**

* getNumber
* getCharacter

**in startup code.**

**Hint:**

* Create AnalysisStringclass which includes the two methods as described in Functional Requirements section.
  + Method getNumber to retrieve the following results
    - List all numbers (using Regular Expressions)
    - List even numbers (number% 2 == 0)
    - List odd numbers (number% 2!= 0)
    - List square numbers (using Math.sqrt)
  + Method getCharacter to retrieve the following results
    - String of all characters
    - String of special characters (using Regular Expressions)
    - String of uppercase characters (usingCharacter.isUpperCase())
    - String of lowercase characters (opposite)

**Function 1:** Analyze the number types

* Method name: public HashMap<String, List<Interger>>getNumber(String input)
  + Input:
* input: the input string.
  + Return: analysis result.

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

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