**Instructions**

* You need to solve a **programming problem** in this challenge.
* The duration of this challenge is **120 Minutes**.
* Programming questions have a **Compile and Run** option where you can run your solution against sample test cases before submitting it.
* Click **Evaluate** button only if your code compiles successfully.
* This challenge covers the following topic(s).
* Conditional constructs
* Looping
* Arrays

**Requirement:**

**Problem: Magic Strings**

A string is considered as a magic string if it satisfies the following criteria.

* Characters in the string should contain only alphabets.
* String should contain only lowercase characters.
* Characters in the string should contain at least two vowels in it.
* If n is the count of characters in the string, then it should be in 5<n<30 range.
* If the string contains characters which are repeating, then those characters should be removed and only one of those characters should be retained.
* After removing the characters, if the count of characters in the string is less than 5, then it should be appended with a character ‘y’ till it reaches the character count of 5.

Write a C# program that accepts an array of strings and checks whether the strings are magic strings or not.

While accepting each string as input and store in the array, check for the below mentioned validations and display messages for each validation error in the console. After displaying the message, exit the application.

* If the size of the array is negative, then display the message ‘Size of the array cannot be negative’ in the console.
* While reading each string to the array if any of the character in a string is not an alphabet, then display the message ‘Only alphabets should be entered’ in the console.
* If any of the character in the string is empty, display the message ‘Input string cannot be empty’ in the console.
* If the count of the characters in the input string is less than 5 then display the message ‘Count of characters is less than the minimum requirement of 5’.
* If any of the characters in the input string is not in lowercase then display the message ‘Only lowercase characters to be entered’ in the console.
* If the count of the characters in the input string is greater than 30 then display the message ‘Count of characters exceeded the limit of 30’.
* If the count of vowels in the input string is less than 2 then print the message ‘At least 2 vowels are required in the string’.

Create the following functions for the above-mentioned validations by calling them from the main method and display messages from the main method of the program class.

|  |  |  |  |
| --- | --- | --- | --- |
| **Method Name** | **Input Argument** | **Return Type** | **Description** |
| ValidateAlphabetsOnly | String | Bool | This static function accepts a string as input and returns true if any of the character is not an alphabet and returns false if all of them are alphabet. |
| ValidateLowerCase | String | Bool | This static function accepts string as input and returns true if any of the character in the string is not a lower-case character and false is all are lowercase characters |
| ValidateNegativeArraySize | String | Bool | This static function accepts a string as input and returns true if array size is negative and false if array size is greater than zero |
| ValidateEmptyString | String | Bool | This static function accepts a string as input and returns true if an array element is empty and returns false if array elements is not empty. |
| ValidateMinimumCount | String | Bool | This static function returns true if count of characters is less than 5 and false if count of characters is greater than 5. |
| ValidateMaximumCount | String | Bool | This static function accepts a string as input and returns true if count of characters is more than 30 and false if count of characters is less than 30. |
| ValidateVowelCount | String | Bool | This static function accepts a string as input and returns true if count of vowels is less than 2 and false if count of vowels is greater than 2. |
| RemoveDuplicates | String [] | String [] | This static function accepts a string array as input and removes the repeated characters in each string of the array and retains only the unique characters of each string and return the array of strings |
| ValidateAndAppendNewCharacter | String [], String [] | String [] | This static function accepts the original array and checks if any of the string in the array is lesser in character count than original string value, then append the character y to the string to reach the actual count of the string in the array. |

**Input**

**Two inputs** are read from the console:

* The first input contains a number **n** – size of the array – an integer in the range of [**1 … 100**].
* The second input is the array of strings which can be accepted line by line.

**Output**

Print on the console Final string array elements.

**Sample Input and Output**

**Sample Input1:**

Enter the size of the string array

2

amaze

recurring

**Sample Output1:**

Final String array elements

**--------------------------------**

amzey

recuing

**Sample Input2:**

Enter the size of the string array

-1

**Sample Output2:**

Size of the array cannot be negative

**Sample Input3:**

Enter the size of the string array

crypts

**Sample Output3:**

At least 2 vowels are required in the string