Practice 5 – OOP

Dynamic Memory Allocation

Note: Use pointers and dynamic memory allocation to solve these tasks. For strings use character array:

Task 01: A string contains a paragraph. For some purpose user wants string without punctuations. Therefore, read the string and count all the required characters of the string including null character. Declare a dynamic character array and copy required characters. You have to copy this code, further add required code.

```
char string1[]="Certainly! Here's a sentence filled with various punctuation marks: As the clock ticked relentlessly, \
the tension in the room grew, reaching its peak with an abrupt exclamation 'Time's up!' -and all eyes turned expectantly \
toward the closed door, which swung open dramatically, revealing a surprise guest: the renowned, enigmatic detective, Sherlock Holmes!";

char *string2;

// write your code here ...

cout << string1 << '\n';

cout << string2 << '\n';
```

Sample Run:

```
Certainly! Here's a sentence filled with various punctuation marks: As the clock ticked relentlessly, the tension in the room grew, reaching its peak with an abrupt exclamation 'Time's up!' -and all eyes turned expectantly toward the closed door, which swung open dramatically, revealing a surprise guest: the renowned, enigmatic detective, Sherlock Holmes!

Certainly Heres a sentence filled with various punctuation marks As the clock ticked relentlessly the tension in the room grew reaching its peak with an abrupt exclamation Times up and all eyes turned expectantly toward the closed door which swung open dramatically revealing a surprise guest the renowned enigmatic detective Sherlock Holmes
```

Task 02: The user has a string having some labels followed by quantities. Unfortunately, spaces are required to make the string readable. You are required to count current length plus number of spaces required and null character. Declare dynamic character array accordingly and generate new string as per requirement.

Sample Run:

```
Wheat25Sugar5Tea2Salt1Oil3Rice5

Wheat 25 Sugar 5 Tea 2 Salt 1 Oil 3 Rice 5
```

Task 03: Find & Replace

A string has a paragraph. The user will input two words (each of length less than fifteen). Your task is to generate a new string by replacing first word with second word. Again, first find the count of letter in second string after replacing the word. Declare a new dynamic character array. Finally, copy the given string into new string with replacement. You may use following string.

```
char string1[]="Certainly! Here's a sentence filled with various punctuation marks: As the clock ticked relentlessly, \
the tension in the room grew, reaching its peak with an abrupt exclamation 'Time's up!' -and all eyes turned expectantly \
toward the closed door, which swung open dramatically, revealing a surprise guest: the renowned, enigmatic detective, Sherlock Holmes!";
```

Sample Run:

```
Word 1: with
```

Word 2: W

Certainly! Here's a sentence filled **W** various punctuation marks: As the clock ticked relentlessly, the tension in the room grew, reaching its peak **W** an abrupt exclamation 'Time's up!' -and all eyes turned expectantly toward the closed door, which swung open dramatically, revealing a surprise guest: the renowned, enigmatic detective, Sherlock Holmes!