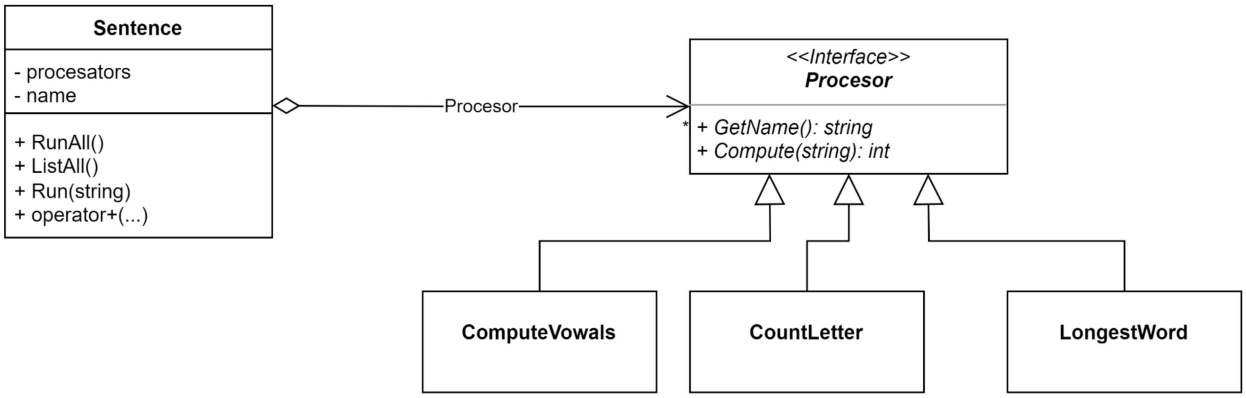
# Lab exam (part 2) - P1

Consider the following UML diagram / Fie urmatoarea diagrama UML:




Build all the files with the classes described in the above diagram so that the following code / Construiți fișierele header si cpp corespunzătoare diagramei de mai sus astfel incat:

```
#include <iostream>
#include "Sentence.h"
#include "ComputeVowals.h"
#include "CountLetter.h"
#include "LongestWord.h"

int main()
{
    Sentence s("Second POO test");
    (s += new ComputeVowals("Voc")) += new CountLetter("CountE", [](char ch) { return ch == 'e'; });
    s += new LongestWord("long");
    s.ListAll();
    std::cout << "====================" << std::endl;
    s.RunAll();
    std::cout << "====================" << std::endl;
    s.Run("CountE");
    return 0;
}
```

will out upon execution:

```
Name:Voc
Name:CountE
Name:long
====================
Name:Voc => 5
Name:CountE => 2
Name:long => 6
====================
2
```

**Observations/Observatii:**

- You have to deduce the constructors for the classes Sentence, ComputeVowals, CountLetter and LongestWord from the code / Constructorii claselor Sentence, ComputeVowals, CountLetter si LongestWord trebuie dedusi analizand codul din functia main.
- The “Sentence” class has one operator that you will need to identify from the code of the function main./ Clasa “Sentence” are un operator pe care trebuie sa il identificati analizand codul din functia main.

**Grading:**

| | | |
|---|---|---|
| **G1** | Organize your project in 10 files: **main.cpp**, **Procesor.h**, **Sentence.h**, **Sentence.cpp**, **ComputeVowals.h**, **ComputeVowals.cpp**, **CountLetter.h**, **CountLetter.cpp**, **LongestWord.h**, and **LongestWord.cpp** | 1p |
| **G2** | Organize the file **Sentence.h** to correctly implement the UML diagram (two data members, one operator, one constructor, 3r methods). | 3p |
| **G3** | Implementation of the method **Sentence**::RunAll | 2p |
| **G4** | Implementation of the method **Sentence**::ListAll | 2p |
| **G6** | Correctly implement all the virtual methods in classes ComputeVowals, CountLetter , and LongestWord . (3p for each class - 1p (GetName), 2p (Compute) ) | 9p |
| **G6** | Implementation of the operator from class **Sentence** | 2p |
| **G7** | Implementation of the method **Sentence**::Run | 4p |
| **G8** | Implementation of the constructors for Sentence, ComputeVowals, CountLetter , and LongestWord (1p for each class) | 4p |
| **G9** | The program compiles and upon execution produces the expected results | 3p |