

COEN 79L - Object-Oriented Programming and Advanced Data Structures

Lab 1: Getting familiar with C++

- 1) Count the number of alphanumeric characters and non-alphanumeric characters from the standard input (`cin`). Spaces (' ') should not be counted toward either type of character.

- Example:

- o "Hello, World!" has 10 alphanumeric characters and 2 non-alphanumeric characters.
- o "Santa Clara University" has 20 alphanumeric characters and 0 non-alphanumeric characters.

- 2) Display the following pattern using C++ `string` and `setw()`

```
0123456789
9876543210      0123456789
9876543210      0123456789
9876543210      0123456789
9876543210      0123456789
9876543210
```

- 3) Convert to uppercase and display all the words from an input file with length of at least 10 characters. All punctuation marks are removed and do not contribute to the words' length. The name of the file to be read should be read in as a command line argument.

- Example:

Here is the output with the Gettysburg Address as the input:

```
PROPOSITION
BATTLEFIELD
ALTOGETHER
CONSECRATE
CONSECATED
UNFINISHED
GOVERNMENT
```