# C++ Advanced – Exam 2 (2 Dec 2018)

Write C++ code for solving the tasks on the following pages.

Code should compile under the C++03 or the C++11 standard.

Submit your solutions here: https://judge.softuni.bg/Contests/1334/CPlusPlus-Advanced-Exam-2-2-Dec-2018

Any code files that are part of the task are provided under the folder **Skeleton**.

Please follow the exact instructions on uploading the solutions for each task.

# Task 1 – Bytes

You are given the main() function for a program that reads strings from the input (each string is on a separate line) until a line containing "---" is entered, then calls a function to serialize those strings to memory (as described below) and print the integer values of the bytes in the memory.

The format of the serialized memory is the following:

* Each string is serialized to sequential bytes, followed immediately by the next string from the input
* The serialization for a single string is in the following format: 1 byte containing the length of the string (a number in the range [0, 80] inclusive), followed by exactly length bytes containing the characters of the string

So, if the input contains the 3 strings "hi", "and", "bye", their representation in memory, assuming the memory starts at byte address M**,** will be:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Offset from start** | **+0** | **+1** | **+2** | **+3** | **+4** | **+5** | **+6** | **+7** | **+8** | **+9** | **+10** |
| **Value** | **2** | **'h'** | **'i'** | **3** | **'a'** | **'n'** | **'d'** | **3** | **'b'** | **'y'** | **'e'** |
| **Bytes** | **2** | **104** | **105** | **3** | **97** | **110** | **100** | **3** | **98** | **121** | **101** |

And their representation in the **output** for the task will be:

2 104 105 3 97 110 100 3 98 121 101

The provided code then calls a function named serializeStrings, passing in the strings, as well as an integer variable, which it expects that serializeStrings will set to the length of bytes generated by serializeStrings. The result of the serializeStrings is expected to be a **pointer** to the memory containing the serialized strings, with a length that matches the value serializeStrings wrote to the second parameter.

Your task is to study the code and implement the function so that the code accomplishes the task described.

You should submit a single .zip file for this task, containing ONLY the files you created.

The Judge system has a copy of the other files and will compile them, along with your file, in the same directory.

### Restrictions

There will be no more than 100 strings in the input.

There can be 0 strings, as well as strings with a length of 0.

No string will be longer than 80 bytes. The strings will NOT contain whitespace characters, and NO characters with ASCII values larger than 127.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output *(NOTE: this is a single line)*** |
| boom  bau  whatyougonna  do  now  --- | 4 98 111 111 109 3 98 97 117 12 119 104 97 116 121 111 117 103 111 110 110 97 2 100 111 3 110 111 119 |