# OBJECT ORIENTED PROGRAMMING

SEMINAR 1

## PROPOSED PROBLEMS

1. Write a simple C/C++ greeting application: the application prompts for your full-name, computes the number of letters and vowels of your name and displays this information on the screen.

   For example: if you enter the name Ryan Gosling, your application should display:
   Hello, Ryan Gosling! Welcome to the first OOP seminary. Your name contains: 11 letters and of which 3 are vowels.

2. Write a C function which takes as input a floating point array arr of size sz, and returns the value of the maximum and minimum value within that array, as well as their positions. The signature of the function should be:

   *void min_max_loc(float arr[], int sz, float* min, float* max, int *minLoc, int*maxLoc);*

3. Write a C application with a menu based console interface which allows the following commands:
   - R - reads a sequence of positive integer numbers, until -1 in encountered and stores it into an array
   - D - displays the read array
   - N - displays the sum of the even number and the product of the odd numbers.
   - E - exit

4. A *subsequence* is obtained from an array by deleting some or no elements of the array, without changing the order of the remaining ones. A *subarray* is a contiguous part (contiguous subsequence) of an array.
   Write a program to determine the longest increasing *subarray* of an array. If there are multiple *subarrays* satisfying this condition the first one is displayed.

| Input | Expected output |
| --- | --- |
| [3, 10, 2, 1, 20] | [3, 10] |
| [2, 1, 3, 4, 5, 0, 8] | [1, 3, 4, 5] |
| [7, 6, 8, 3, 4, 5, 6, 7] | [3, 4, 5, 6, 7] |
| [1, 1, 1, 1, 1, 1, 1] | [1, 1, 1, 1, 1, 1, 1] |