**Homework lecture 1**

**Programming review**

\*Note:

* Numbers in the same line must be separated by only **one** space.
* Float numbers must be rounded to 2 decimal places.

1. Your task is to write a C++ program to read a sentence from the keyboard, and print to the screen the sentence in the reversed order.

**Example**

|  |  |
| --- | --- |
| Keyboard | Screen |
| hello  how are you | olleh  uoy era woh |

*Tips: using the function strrev*

1. Your task is to write a C++ program to build 2 classes Point and Line in the two-dimension space. Read four points (A, B, C, D) from the keyboard and determines the intersection point between line AB and line CD.

Input: The first line contains two real numbers separated by a space describing the point A. Similarly, the second, third, and fourth lines contain data for points B, C, and D, respectively.

Output: Write to the screen the intersection point between AB and CD. Write “NO” if there is no intersection, or “MANY” if AB and CD have many intersection points.

**Example**

|  |  |
| --- | --- |
| Keyboard | Screen |
| 0 0  1 0  0 1  1 1 | 0.50 0.50 |

1. Your task is to write a C++ program to find the greatest common divisor of two integer numbers.

Input: Read two positive integer numbers *m* and *n* from the keyboard

Output: Write to the screen the greatest common divisor of *m* and *n*.

**Example**

|  |  |
| --- | --- |
| Keyboard | Screen |
| 9 6 | 3 |

*Tips: using the formulation:*

*- if (m>n): greatest common divisor of m and n equals to greatest common divisor of m-n and n*

*- if (n<m): greatest common divisor of m and n equals to greatest common divisor of n-m and m*

1. Your task is to write a C++ program to read a list of integer numbers from the keyboard and write to the screen the list of numbers after being increasingly sorted.

Input:

* The first line contains an integer number *n* that is the number of numbers on the list.
* The second line contains *n* integer numbers separated by a space.

Output: Write to the screen *n* sorted numbers in one line.

**Example**

|  |  |
| --- | --- |
| Keyboard | Screen |
| 5  5 3 4 2 9 | 2 3 4 5 9 |

*Tips: apply learned sorting algorithms such as Buble sort, selection sort to solve this problem.*

1. Given 5 different numbers, your task is to write a C++ program to calculate the sum of the greatest number and the smallest number.

Input: One line contains 5 real numbers separated by a space.

Output: Write to the screen the sum of the greatest number and the smallest number.

**Example**

|  |  |
| --- | --- |
| Keyboard | Screen |
| 5 2 4 2 9 | 11 |