05. Associative Containers and STL Algorithms– Homework Exercises

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

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

Please submit a single.cpp file for each task.

.cpp files for the tasks should be named with the task number followed by what you feel describes the exercise in a few words.

E.g. a good name for task 2 of this homework would be:

2.odd-occurrences.cpp

Don't worry about the name too much, just make sure the number and the file extension are correct.

Task 1 - Count Real Numbers

Read a list of real numbers and print them in ascending order along with their number of occurrences.

Examples

Input	Output	
8 2.5 2.5 8 2.5	2.5 -> 3 8 -> 2	

Input	Output
1.5 5 1.5 3	1.5 -> 2 3 -> 1 5 -> 1

Input	Output	
-2 0.33 0.33 2	-2 -> 1 0.33 -> 2 2 -> 1	

Task 2 – Odd Occurrences

Write a program that extracts from a given sequence of words all elements that appear in it an **odd number of times** (case-insensitive).

- Words are given in a single line, space separated.
- Print the result elements in lowercase, in their order of appearance.

Examples

Input	Output	
Java C# PHP PHP JAVA C java	java, c#, c	
3 5 5 hi pi HO Hi 5 ho 3 hi pi	5, hi	
aaA SQL xx axx aA a XX c	a, sql, xx, c	

Task 3 – Largest 3

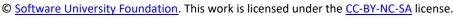
Read a list of real numbers and print largest 3 of them. If less than 3 numbers exit, print all of them.

Examples

Input	Output	
10 30 15 20 50 5	50 30 20	

Input	Output
20 30	30 20



















Task 4 - Short Words

Read a text, extract its words (separated by spaces) find all short words (less than 5 characters) and print them alphabetically, in lowercase, separate by a single comma and a single space

- Use case-insensitive matching.
- Remove duplicated words.

Examples

Input	Output		
In SoftUni you can study Java C# PHP and JavaScript JAVA and c# developers graduate in 2-3 years Go in	2-3, and, c#, can, go, in, java, php, you		

Task 5 - Sort Numbers

Read a list of decimal numbers and sort them in increasing order. Print the output as shown in the examples below.

Examples

Input	Output	
8 2 7 3	2 <= 3 <= 7 <= 8	
2 4 -9	-9 <= 2 <= 4	

Task 6 - Squares

Read a list of integers and extract all square numbers from it and print them in descending order. A square number is an integer which is the square of any integer. For example, 1, 4, 9, 16 are square numbers.

Examples

Input Output	
3 16 4 5 6 8 9	16 9 4
1 9 4 16 8 25 49 16	49 25 16 16 9 4 1

Task 7 - Miners

You are given a sequence of strings, each on a new line. Every odd line on the console is representing a resource (e.g. Gold, Silver, Copper, and so on), and every even – quantity. Your task is to collect the resources and print them each on a new line.

Print the resources and their quantities in format:

{resource} -> {quantity}

The quantities inputs will be in the range [1 ... 2 000]

Examples

Input	Output	
Gold	Gold -> 155	

Input	Output	
gold	gold -> 170	

















155	Silver	->	10
Silver	Copper	->	17
10			
Copper			
17			
stop			

155	silver	->	10
silver	copper	->	17
10			
copper			
17			
gold			
15			
stop			















