# 07. Destructors, Constructors and Copy-Assignment

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/1250/07-Destructors-Constructors-and-Copy-Assignment> (select “Compete” when prompted)

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.

NOTE: the Judge system treats each .cpp file as a compilation unit, compiles each such file and links them together to create the final executable, which is checked against the tests.

# Task 5 – List

You are given a List.h file containing the declarations for a List class representing a linked list, and a main.cpp file, which defines a main() function and uses the List class to merge several sorted lists from the standard input into a single sorted list printed on the standard output.

* Create a List.cpp file which contains the implementation of the List class
* The files should successfully compile together (e.g. in a Code::Blocks project with MinGW)
* The resulting program should correctly merge sorted lists read from the console into a sorted list, which should be printed on the console (main.cpp does this if you implement List.cpp)
* Submit a .zip file containing the List.cpp file and nothing else

How you choose to implement the linked list is up to you, but you should make sure all the public methods of the List class work correctly, as they are used by main.cpp. The declarations in List.h should be mostly self-explanatory, but if you are unsure what a method should do – just see how main.cpp uses it and make sure you implement it so that the program works correctly.

You are NOT allowed to modify main.cpp or List.h.

The task this program solves is merging multiple sorted (ascending) lists of integer numbers into a single sorted (ascending) list of integer numbers. For example, the lists 1 17, and -3 6 25 42 should be merged into the following list: -3 1 6 17 25 42.

### Input

One or more lines, each of which containing from 1 to 100 integers, separated by single spaces. The final line will not contain numbers and will only contain the string "end"

### Output

A line containing the the merged, sorted list, in ascending order, separated by single spaces.

### Restrictions

The total number of elements entered in the input will NOT exceed 10000

The number of elements per input list (line) will NOT exceed 100

Numbers in the input will be from -9999 to +9999 (both inclusive)

The total running time of your program should be no more than 0.5s

The total memory allowed for use by your program is 5MB

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 1 17  -3 6 25 42  end | -3 1 6 17 25 42 |
| 4  5 6  1 2 3  end | 1 2 3 4 5 6 |
| 1 3  2  end | 1 2 3 |