# 01. Pointers and References – 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.

Submit your solutions here: <https://judge.softuni.bg/Contests/1144/CPlusPlus-Advanced-2018-September-01-Pointers-and-References-Homework>

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 4 – Profits

You are given program in an ProfitsMain.cpp, as well as a Company.h and ProfitCalculator.h file, that read info about **companies** – **name**, **id**, **revenue** and **costs**, followed by info about profit calculations per company – **company id** followed by a **tax percentage** – and generates a report with the profit for each company in the input.

The report must contain exactly as many lines as there are companies, and each line should contain the name of the company on that line in the input, followed by a space, a '=', another space, and an integer value representing the profits of the company, e.g. a line of the output for a company called TheCompany with a profit of 42000 should look like this:

TheCompany = 42000

To generate the report, ProfitsMain.cpp uses a function named getProfitReportfrom a file named ProfitReport.h. The getProfitReport function receives 3 parameters:

* A pointer to the first company in an array of companies
* A pointer to the last company (inclusive) in an array of companies
* An std::map, which maps company ids to ProfitCalculators

The getProfitReport should use the appropriate ProfitCalculator from the map (i.e. the ProfitCalculator in the entry with a key matching the id of the company) to calculate each company’s profit.

The getProfitReport returns a string, containing the report for the provided companies, calculated through the provided ProfitCalculators, as described above.

Your task is to study the code in ProfitsMain.cpp, then create a file called **ProfitReport**.h (which ProfitsMain.cpp includes) containing the definition of the **getProfitReport** function, written in such a way that ProfitsMain.cpp compiles successfully and works as described above.

You should submit a single .zip file for this task, containing ONLY the **ProfitReport**.h file. The Judge system has a copy of the other files and will compile them along with your **ProfitReport**.h file in the same directory.

To correctly use the Company definition, and the ProfitCalculator definition, without interfering with their usage by ProfitsMain.cpp, use the following structure for the **OrderedInserter**.h file:

|  |
| --- |
| **ProfitReport.h** |
| #ifndef PROFIT\_REPORT\_H  #define PROFIT\_REPORT\_H  #include "Company.h"  #include "ProfitCalculator.h"  // Place your code here, as well as any other #include directives you might need  #endif // !PROFIT\_REPORT\_H |

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| acme 424242420 : 43000 1000  softuni\_foundation 20140414 : 0 0  itjoro 878968302 : 100 25  end  878968302 0  424242420 10  20140414 30  end | acme = 37800  softuni\_foundation = 0  itjoro = 75 |