C++ Fundamentals: Exam 2

The following tasks should be submitted to the SoftUni Judge system, which will be open starting **Sunday, 29 July 2018, 09:00** (in the morning) and will close on **Sunday, 29 July 2018, 15:00**. Submit your solutions here: https://judge.softuni.bg/Contests/Compete/Index/1117.

For this exam, the code for each task should be a single C++ file, the contents of which you copy-paste into the Judge system.

Please be mindful of the strict input and output requirements for each task, as well as any additional requirements on running time, used memory, etc., as the tasks are evaluated automatically and not following the requirements strictly may result in your program's output being evaluated as incorrect, even if the program's logic is mostly correct.

You can use C++03 and C++11 features in your code.

Unless explicitly stated, any integer input fits into **`int`** and any floating-point input can be stored in **`double`**. On the Judge system, a C++ **`int`** is a **`32-bit`** signed integer and a C++ **`double`** is a **`64-bit`** IEEE754 floating point number.

NOTE: the tasks here are NOT ordered by difficulty level.

Task 3 – Ranges (Exam-2-Task-3-Ranges)

A range is a **pair of integer numbers** – let's say that **`from`** and **`to`** form the range **`[from, to]`**.

If an integer number **`x`** is such that **`from <= x <= to`**, then we say that **`x`** is **inside** the range **`[from, to]`**, or that the range **`[from, to]`** contains **`x`**.

You are given a set of ranges, in which no two ranges intersect. That means that no range contains the **`from`** or **`to`** of another range.

You are also given a sequence of integer numbers – let's call them **check numbers**.

For each of the **check numbers**, print **`"in"`** if the number is inside any range, and **`"out"`** otherwise (i.e. if no range contains the number).

NOTE: there will be a large number of ranges and an even larger number of integer numbers.

Input

The input will be separated into two parts.

The first part will contain the ranges, each described as two integer numbers on a separate line of the standard input (the **`from`** and **`to`** of the range), until a line containing only the symbol **`'.'`** (dot) is reached.

After that, each line of the standard input will contain exactly one check number, until a line containing only the symbol **`'.'`** (dot) is reached.

Output

For each **check number** in the input, print **`"in"`** if that number is contained in any range, or **`"out"`** if no range contains that number.

Restrictions

There will be between **`1`** and **`10000`** ranges (inclusive).

There will be between **`1`** and **`100000`** check numbers (inclusive).

For every range, **`from <= to`**.

In **`30%`** of the tests, there will be no more than **`10`** ranges and **`10`** numbers.

The total running time of your program should be no more than **`0.4s`**

The total memory allowed for use by your program is **`8MB`**

Example I/O

Example Input	Expected Output
1 3 5 10 20 20 . 0	out in in out in

2 3 4 5 7 19 20 .	in out in
-5 0 1 3 . -10000 -1000 0 10 .	out out in out