C++ OOP – Exam Retake (19 September 2021)

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

Code should compile under the C++11 standard.

Submit your solutions here: https://judge.softuni.org/Contests/3152/CPlusPlus-OOP-Regular-Exam-19-September-2021

Only source code will be accepted as solution for each task.

Task 3 – Bomberman

Remember the "Nintendo" and "Terminator" TV games? Bomberman was one of them.
Your task is to play a similar game where you will lay out bombs and win score points.

The game is played on a 2D grid map of characters.
The map is filled with **ASCII digit characters** representing how much points does each tile award if you successfully bomb it.
The game is played on **rounds**. Each round you are given a command to execute.
After you execute the command you should print to the standard output the outcome of the command.

The possible commands are:

- ✓ **power up –** increases the power of your bomb with 1.
- ✓ **power down** – decreases the power of your bomb with 1. (minimal bomb power is 0)
- ✓ **bomb** [**row**] [**col**], where 'row' and 'col' will be **indexes** from the 2D grid map -place a bomb at the given location. You are assured that the coordinates will always be valid.
  The bomb shockwave destroys tiles only in **horizontal** and **vertical** direction (up, down, left and right).
  The bomb has a "power" – used to determine how many tiles in each direction should the shockwave span.

B	X	X
(**Bomb** with power 0)	X **B** X	X
	X	X X **B** X X
	(**Bomb** with power 1)	X
		X
		(**Bomb** with power 2)

  After a tile has been destroyed it can **NO** longer award score points if it's bombed another time.

  The output for the commands should be:

- ✓ "Increased bomb power to N" (where N is the bomb power after the increase)
- ✓ "Decreased bomb power to N" (where N is the bomb power after the decrease)
- ✓ "Score points" (where Score describes how many points were achieved after placing a bomb for the current round)

Input

First you should read 2 **integers** from the console (rows) and (cols).

After than you should read “rows” lines of data. Each row will contain “cols” number of ASCII characters.

Following up read another **integer** (N) representing the numbers of commands (game rounds), which you should play.

Lastly read N rows of data, containing the commands for each individual round for the game.

Restrictions

Time limit: 250ms (0.25s)
Memory limit: 16 MB

Examples

Input	Output
2 4 1472 0019 5 bomb 0 1 power up power up bomb 0 2 power down	4 points Increased bomb power to 1 Increased bomb power to 2 11 points Decreased bomb power to 1
3 4 0123 4567 8901 6 power up bomb 0 0 power up bomb 1 1 power down bomb 1 3	Increased bomb power to 1 5 points Increased bomb power to 2 27 points Decreased bomb power to 1 4 points

1 1 5 4 power up power up power up bomb 0 0	Increased bomb power to 1 Increased bomb power to 2 Increased bomb power to 3 5 points