

# CCC '10 S1 - Computer Purchase

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## Canadian Computing Competition: 2010 Stage 1, Senior #1

In order to increase your performance on the ABC (Another Buying Contest), you decide that you need a new computer. When determining which computer to buy, you narrow your search categories to:

- RAM (in gigabytes), denoted as  $R$ ;
- CPU speed (in megahertz), denoted as  $S$ ;
- disk drive space (in gigabytes), denoted as  $D$ .

You perform some analysis and determine that the most preferred machine is the machine that has the largest value of the formula  $2R + 3S + D$ .

Your task is to read a given list of computers and output the top two computers in order of preference, from highest preference to lowest preference.

## Input Specification

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The first line of input will be an integer  $n$  ( $0 \leq n \leq 10\,000$ ). Each of the remaining  $n$  lines of input will contain a computer specification. A computer specification is of the form:

- computer name (a string of less than 20 characters)
- the RAM available (an integer  $R$  with  $1 \leq R \leq 128$ )
- the CPU speed (an integer  $S$  with  $1 \leq S \leq 4000$ )
- the disk drive space (an integer  $D$  with  $1 \leq D \leq 3000$ )

There is one space between the name, RAM, CPU speed and disk drive space on each line.

## Output Specification

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The output is the name of the top two preferred computers, one name per line, sorted in decreasing order of preference. If there is a tie in the rankings, pick the computer(s) whose name(s) are lexicographically smallest (i.e., `Apple` is smaller than `De11`). If there is only one computer, output that computer on one line (i.e., do not print it twice).

## Sample Input

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```
4
ABC 13 22 1
DEF 10 20 30
GHI 11 2 2
JKL 20 20 20
```

## Output for Sample Input

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JKL
DEF
```

## Explanation of Output for Sample Input

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Computer `ABC` has a computed value of 93. Computer `DEF` has a computed value of 110. Computer `GHI` has a computed value of 30. Computer `JKL` has a computed value of 120. Therefore, computer `JKL` is the most preferred, followed by computer `DEF`.