



## Problem D

### RSSI fingerprinting

(Time Limit: 1 second)

You are an engineer of a tech company that builds indoor positioning systems. You get a set of RSSI (Received Signal Strength Indication) measurements measured by your colleague. RSSI is an indication of the power level being received by the receive radio after the antenna and possible cable loss. Therefore, the higher the RSSI value, the stronger the signal. Your task is to delete the stale RSSI measurements and to transform the remaining ones into a specific fingerprinting format defined by your company.

#### Input Format

The first line of the input contains an integer  $n$ ,  $0 \leq n \leq 10$ , indicating the number of test cases. For each test case, the first line contains an integer  $m$ ,  $0 \leq m \leq 99$ , indicating the number of RSSI measurements reported from an RSSI measurement tool. Each of the following  $m$  lines contains an RSSI measurement and each measurement contains one string  $S$  and two integers  $r$  ( $-99 \leq r \leq -20$ ) and  $t$  ( $0 \leq t$ ). The string  $S$  is the MAC address of a Wi-Fi access point. A MAC address is a 12 digits (6-bytes) of hexadecimal numbers written in the format MM:MM:MM:MM:MM:MM (e.g., B0:C1:9E:24:12:9D). Note that all the MAC addresses within the same test case are distinct. The integer  $r$  is the measured RSSI value and the integer  $t$  is the last time stamp the RSSI measurement tool detecting the access point. If  $t$  exceeds 1000, this measurement is stale and you must drop it.

#### Output Format

For each test case, output at most 3 RSSI measurements with last time stamp not exceeding 1000 in decreasing order based on the RSSI values. The qualified RSSI measurements with the same RSSI values are outputted according to the lexicographic order of their MAC addresses. For each RSSI measurement, we output its fingerprinting format, which contains its MAC address and the RSSI value separated by a blank, in a line.



Example

Sample Input:	Sample Output:
2	E8:CC:18:F2:4A:48 -71
5	BC:99:11:62:23:E7 -83
78:44:76:F3:95:BE -43 1380	F8:35:DD:B8:CE:92 -83
80:1F:02:BA:90:3E -85 532	FA:45:DD:B8:FE:72 -63
E8:CC:18:F2:4A:48 -71 336	
F8:35:DD:B8:CE:92 -83 972	
BC:99:11:62:23:E7 -83 528	
2	
E8:CC:18:F2:4A:48 -81 1336	
FA:45:DD:B8:FE:72 -63 972	