

# Triathlon Prediction (prob5)

## The Problem

In an effort to promote a healthy lifestyle, Mercer is hosting its first triathlon. A triathlon is a race where competitors swim some distance, then bike another distance, capped off with a run. Different triathlons will set different lengths for each of the segments of the race. For this problem, given the lengths of the three segments of the race in meters and the average speeds of the competitors for each mode of transport in meters/second, create a list sorting the competitors in their expected finishing orders with their times.

## Input

The first line of the input will contain a single positive integer,  $N$  ( $N \leq 100$ ), representing the number of races for which to make predictions. The data for each race follows. The first line for each race will contain four, space separated positive integers:  $c$  ( $c \leq 50$ ), the number of competitors in that race,  $s$  ( $s \leq 10000$ ), the number of meters for the swim,  $b$  ( $b \leq 200000$ ), the number of meters for the biking portion of the race, and  $r$  ( $r \leq 50000$ ), the number of meters for the run at the end of the race. The following  $c$  lines will contain information about each of the competitors, one per line. These lines will each have the following space separated information: name of the competitor (an uppercase alphabetic string of 20 or fewer letters), the swimming speed of that competitor in meters/second, the biking speed of that competitor in meters/second and the running speed of that competitor in meters/second. Each of the speeds will be positive real numbers less than or equal to 20 represented to at most two decimal places. It is guaranteed that each of the competitors will have unique finishing times (within a single race) when the number of seconds is truncated. All the finishing times will have a fractional number of seconds greater than .01.

## Output

For each race, output a single line header with the following format:

```
Triathlon #k
```

where k is the number of the triathlon, starting with 1.

Each of the following lines should have information about one competitor in the race, sorted by finish time. Each of these should have the name of the competitor, followed by a space, followed by their expected time to finish the race in the following format:

```
H hour(s) M minute(s) S second(s)
```

where H ( $0 \leq H < 24$ ), M ( $0 \leq M < 60$ ) and S ( $0 \leq S < 60$ ) are integers representing their race time. If the number of seconds isn't a whole number, simply truncate it. For example, 45.3 seconds should be written as 45, and 53.98 seconds should be written as 53 seconds.

## Sample Input

```
2
3 1000 100000 20000
ALICE 1.3 11.7 3.5
BOB 1.2 10.8 4.0
CHERYL 1.5 12.2 2.9
2 500 50000 8000
DAVINDRA 1.4 13.2 2.9
ISABELLA 1.3 12.8 4.1
```

## Sample Output

```
Triathlon #1
ALICE 4 hour(s) 10 minute(s) 30 second(s)
BOB 4 hour(s) 11 minute(s) 32 second(s)
CHERYL 4 hour(s) 22 minute(s) 39 second(s)
Triathlon #2
ISABELLA 1 hour(s) 44 minute(s) 2 second(s)
DAVINDRA 1 hour(s) 55 minute(s) 3 second(s)
```