## Introduction

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| |  | | --- | | problem **0** | | **Giraffe  Positioning  System** | | y points | |  |
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The military wants to use highly trained giraffes in their latest campaign. However, giraffes are extremely poor navigators. Your task is to create a Giraffe Positioning System with turn by turn directions.

You will be given a number of giraffes that you need to plan routes for, followed by a name and height (in feet) for each giraffe. Then, you will be told the dimensions of the field (in sectors). The field will be denoted by numbers representing the height of the lowest branch (in feet) in that sector. Your giraffes will remove any branches up to their height, anything more would be too slow and the mission would surely fail. Each foot of delicious foliage consumed will slow your team as though they moved through one sector. The insertion point is denoted by an S and the mission objective by an F.

Your goal is to select the paths so that the cumulative movements of the giraffes are minimized. In other words, it’s possible that, for example, the first giraffe may take a less than optimal path in order to optimize the total travel time of the entire group. Only one Giraffe can move through the combat zone at a time. Anything else would risk alerting hostiles. Giraffes will be released in the order provided by the roster.

Giraffes will move into a sector and then eat until it matches their height.

# Sample Input

3

George 12

Geoffrey 15

Irving 10

4 4

S 5 11 11

11 6 11 11

11 11 11 11

11 14 11 F

# Sample Output

Irving D D D R R R

George D E D E D E R R E R

Geoffrey D E E E D E E E D E E E R E R E E E R