**16. Space**

# Program Name: Space.java Input File: space.dat

After testing his time machine Walter found himself trapped in N-Dimensional Space, and needs help getting out in the shortest amount of time. The space he is trapped in has equal edge lengths. Moving through the 1st dimension costs 1 unit of time. Moving through the 2nd dimension costs 2 units of time. Moving through the Nth dimension costs N units of time. The 1st dimension is defined as the x axis and the 2nd dimension is defined as the y dimension.

**Input**

The first number in the input is the number of test cases. The first and second lines of each test case are the number of dimensions N and the side length of the space S. An N dimensional maze of side length S is represented as S N-1 dimensional segments, and those also are represented as such. The next S ^ (N-1) lines will represent one dimensional segments of the maze. A # represents a wall, S represents the starting position, E represents the ending position and . represents a space that Walter can move to.

**Output**

Print the fastest amount of time that Walter can get to the end of the space

**Example Input File**

3

2

3

S##

...

##E

3

4

##S#

##.#

##.#

##.#

####

####

####

##.#

####

####

####

##.#

##E#

##.#

##.#

##.#

2

10

.#########

E.......##

..###.#.##

..###.#.##

..###.#.##

..###.#.##

......S.##

##########

##########

##########

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**Example Output to Screen**

6

21

16