



# Problem 12

## Haunted House Inspector

10 points

JAVA: program name must be prob12.class  
C/C++ program name must be: prob12.exe

### Task Description

Every Halloween, the local fire department must inspect the charity-run Haunted House mazes, to ensure that the fire department's fire hoses are long enough to reach any potential fire within the attraction. To automate this process, you decide to write a computer simulation to show whether or not this is the case.

### Program Input

Your program will read in a file (prob12.in) containing a scaled map (one character equals one foot), with simulated fires located throughout a maze. The first line of the file will contain three numerical values, the width of the maze (characters on one line), the length of the maze (number of lines of input), and the length of your fire hose. The maze has a maximum of 60 feet on a side. Sides of the maze and interior walls are marked with hash “#” signs. The entry to the maze will be marked with an “S” along an outside wall. Fire locations are represented by “F”, and blank spaces fill the rest of the interior. Your hose must enter the building at the starting “S”, and traverse through the maze until it reaches its maximum length. Corners are taken at right angles (no diagonals), and the hose must touch the fire location to put it out.

```
60 7 75
#####
#FFFFFF FF      # #FFF #          #          # #FF  #FFFFFF#
##### # ##### # ##### # ##### #F#####
S F F  FFFFF FFF#  FFFFFFF # # #FFFF # F#      #FFFFFF#
#####F##### # ##### # ##### # ### #####F#
#  FFF  FFFFF      FFFFFFFF #          FFFFFF#
#####
```

### Program Output

Print out the building map showing the result of the simulation. Place a period (.) in each location that your hose could reach. If the fire was completely put out, also print out “All Fires Extinguished!”.

```
#####
#.....#.#.....#.....#.....#...#.....#FFFFFF#
#####.#.####.#####.#.####.####.#####.#F#####
.....#.....#.#.#.....#...#.....#F.....#
#####.#.####.#.#####.#.#####.#.###.#####.#
#.....#.....#.....#.....#.....#.....#
#####
```