

Problem 3

Maze Problem

Given a two dimensional array that represents a maze, as follows:

```
10S1
0111
1100
011D
```

where S represents the starting point, D represents the destination point, 1 means an open entry and 0 means a closed entry, you have to write a program that specifies at least one output path, in the form of the directions *North*, *East*, *South* and *West*, from Start to Destination.

Input

Input will consist of a file containing an arbitrary number of lines, each with "n" ($n \leq 10$) characters in them. There will be only one starting point, S, and a single destination point D. S and D can be located anywhere in the maze. The file name will be the only argument provided to your program and your program will be responsible for properly reading the input from this file.

Output

Acceptable output will consist of a single output path of *North*, *East*, *South* or *West*, delimited by commas. An acceptable output path will take you from Start to Destination through a series of open entries by following the *North*, *East*, *South* and *West* directions output by your program.

Sample input

```
file.txt
```

Sample input file (file.txt)

```
10S1
0111
1100
011D
```

Sample output

```
East, South, West, West, South, South, East, East
```