Problem Statement

You will be given a 2-dimensional grid of letters. Write a method to find the length of the

longest path of consecutive letters, starting at 'A'. Paths can step from one letter in the grid to any

adjacent letter (horizontally, vertically, or diagonally).

For example, in the following grid, there are several paths from 'A' to 'D', but none from 'A' to

'E':

 { "ABE",

   "CFG",

   "BDH",

   "ABC" }

One such path is:

   A B .

   C . .

   . D .

   . . .

        (spaces are for clarity only)

so, for this grid, your method should return 4.

Definition

Class: ABCPath

Method: length

Parameters: vector <string>

Returns: int

Method signature: int length(vector <string> grid)

(be sure your method is public)

Limits

Time limit (s): 840.000

Memory limit (MB): 64

Notes

- The longest path may start at any 'A' character in the input.

Constraints

- grid will contain between 1 and 50 elements, inclusive.

- Each element of grid will be between 1 and 50 characters long, inclusive.

- Each element of grid will have the same length.

- grid will contain only uppercase letters ('A'-'Z').

Examples

0)

{ "ABE", "CFG", "BDH", "ABC" }

Returns: 4

This is the example from the problem statement.

1)

{ "A" }

Returns: 1

2)

{ "BCDEFGHIJKLMNOPQRSTUVWXYZ" }

Returns: 0

Paths must start with an 'A'.

3)

{ "C", "D", "B", "A" }

Returns: 2

4)

{ "KCBVNRXSPVEGUEUFCODMOAXZYWEEWNYAAXRBKGACSLKYRVRKIO",

"DIMCZDMFLAKUUEPMPGRKXSUUDFYETKYQGQHNFFEXFPXNYEFYEX",

"DMFRPZCBOWGGHYAPRMXKZPYCSLMWVGMINAVRYUHJKBBRONQEXX",

"ORGCBHXWMTIKYNLFHYBVHLZFYRPOLLAMBOPMNODWZUBLSQSDZQ",

"QQXUAIPSCEXZTTINEOFTJDAOBVLXZJLYOQREADUWWSRSSJXDBV",

"PEDHBZOVMFQQDUCOWVXZELSEBAMBRIKBTJSVMLCAABHAQGBWRP",

"FUSMGCSCDLYQNIXTSTPJGZKDIAZGHXIOVGAZHYTMIWAIKPMHTJ",

"QMUEDLXSREWNSMEWWRAUBFANSTOOJGFECBIROYCQTVEYGWPMTU",

"FFATSKGRQJRIQXGAPLTSXELIHXOPUXIDWZHWNYUMXQEOJIAJDH",

"LPUTCFHYQIWIYCVOEYHGQGAYRBTRZINKBOJULGYCULRMEOAOFP",

"YOBMTVIKVJOSGRLKTBHEJPKVYNLJQEWNWARPRMZLDPTAVFIDTE",

"OOBFZFOXIOZFWNIMLKOTFHGKQAXFCRZHPMPKGZIDFNBGMEAXIJ",

"VQQFYCNJDQGJPYBVGESDIAJOBOLFPAOVXKPOVODGPFIYGEWITS",

"AGVBSRLBUYOULWGFOFFYAAONJTLUWRGTYWDIXDXTMDTUYESDPK",

"AAJOYGCBYTMXQSYSPTBWCSVUMNPRGPOEAVVBGMNHBXCVIQQINJ",

"SPEDOAHYIDYUJXGLWGVEBGQSNKCURWYDPNXBZCDKVNRVEMRRXC",

"DVESXKXPJBPSJFSZTGTWGAGCXINUXTICUCWLIBCVYDYUPBUKTS",

"LPOWAPFNDRJLBUZTHYVFHVUIPOMMPUZFYTVUVDQREFKVWBPQFS",

"QEASCLDOHJFTWMUODRKVCOTMUJUNNUYXZEPRHYOPUIKNGXYGBF",

"XQUPBSNYOXBPTLOYUJIHFUICVQNAWFMZAQZLTXKBPIAKXGBHXX" }

Returns: 19

5)

{ "EDCCBA", "EDCCBA" }

Returns: 3

6)

{ "AMNOPA", "ALEFQR", "KDABGS", "AJCHUT", "AAIWVA", "AZYXAA" }

Returns: 26