### SIENA COLLEGE

**21st Annual**

### High School Programming Contest

##### April 3, 2009

###### **Problem #6: Mountain Ranges**

Background Information: Given a rectangular area (called a *map*) which contains regions of Mountains (M) and valleys (V), a mountain range is a connected series of Mountainous areas which are adjacent to the north, south, east or west. Mountains ranges are not connection diagonal adjacencies. Either an M or a V is found at a location (*x*, *y*) on the map, where *x* is the row (starting at row 0) and *y* is the column (starting at column 0).

For example, the following 5 x 8 map

MVVVMVVV

MVVVVMVV

VVVVMVVV

VVVMMVVV

VVMMVVVV

contains 4 separate mountain ranges: {(0,0), (1,0)}, {(0, 4)}, {(4,2), (4,3), (3,3), (3,4), (2,4)} and {(1, 5)}. The *size* of a mountain range is the defined as the number of mountains in the range. In the above example, there are 4 mountain ranges, one of which has size 4, one of which has size 2, and the others having size 1. Your job is to find the largest size among all mountain ranges on a given map.

###### Programming Problem:

Input: An integer *r* representing the number of rows; an integer *c* representing a number of columns; *r* lines of *c* characters (M’s and V’s). The values *r* and *c* will be at most 100.

Output: The size of the largest mountain range.

###### Example 1: Input: 8 8

MVMVVVVM

MVVMVMVM

MVMMVVMV

MVVVMVMV

VVVMVMVM

VMVMVVMM

VMMVVMVM

MVMMMMVM

###### Output: 8

###### Example 2: Input: 4 6

MMVMVM

MVVMVM

VMVMVM

MMMMMM

###### Output: 13

###### Example 3: Input: 2 5

VVVVV

VVVVV

###### Output: 0