# Find Hills

# ZPRAC-16-17-Lab12

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FIND HILLS [30 points]

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ANNOUNCEMENT:
Up to 20% marks will be allotted for good programming practice. These include
- Comments for non trivial code
- Indentation: align your code properly
- Use dynamic memory allocation whenever memory is needed, not doing so will lead to zero marks
- Use the function definition given, changing the definition will lead to zero marks.

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In a 2D matrix of m rows and n columns, an element a[i][j] is called a hill if it's greater than all the 8 elements surrounding it, and its height is given by the maximum of the difference between its value and one of its neighbour's value. By definition, the edge elements which do not have 8 neighbours are not hills.
Given an m x n matrix, find the height of the tallest hill. If there no hills in the matrix, print -1.

Input:
First line contains m and n, next m lines follow, each containing n integers denoting the matrix a.

Output:
A single integer which is the required answer

Contraints:
$1 \le n, m \le 200$
$1 \le a[i][j] \le 10^9$

Example:
3 4
1 3 4 5
7 10 2 3
3 4 9 14

Output:
9

10 is the only hill with height 9.