

Homework 02: Peak Finding Problem

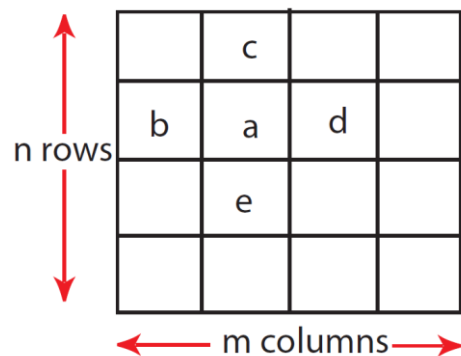
Due Tuesday, October 3th, 2017

Instruction

Submit your answer to this question via PC² under your account by the posted due time. No late submissions will be accepted. Note that homework is opened-book, but no outside assistance is permitted.

Problem

A peak element is an element that is greater than its neighbors. There is an integer matrix (see the figure) which has the following features: the numbers in adjacent positions are different; the matrix has n rows and m columns; and a is a 2D-peak iff $a \geq b$, $a \geq d$, $a \geq c$, $a \geq e$. (hint: you only need to compare the elements which has exactly four neighbors.)



Write a program that finds a peak element which has the maximal sum of difference of peak element a and its neighbor b , c , d , e in an input matrix. Return the index of the peak.

Sample input

```
[  
  [1 ,2 ,3 ,6 ,5],  
  [16,41,23,22,6],  
  [15,17,24,21,7],  
  [14,18,19,20,10],  
  [13,14,11,10,9]  
]
```

Sample output

return index of 41 (which is [1,1])