Problem 2428: Maximum Sum of an Hourglass

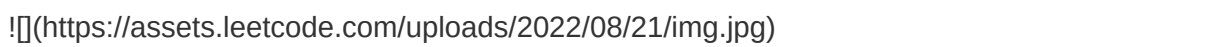
Problem Information

Difficulty: Medium
Acceptance Rate: 76.15%
Paid Only: No
Tags: Array, Matrix, Prefix Sum

Problem Description

You are given an `m x n` integer matrix `grid`.

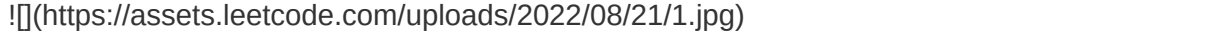
We define an **hourglass** as a part of the matrix with the following form:



Return _the**maximum** sum of the elements of an hourglass_.

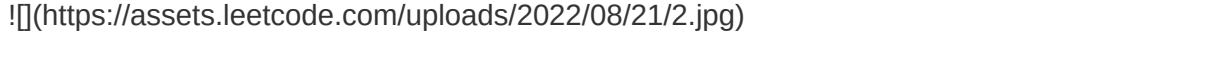
Note that an hourglass cannot be rotated and must be entirely contained within the matrix.

Example 1:



Input: grid = [[6,2,1,3],[4,2,1,5],[9,2,8,7],[4,1,2,9]] **Output:** 30 **Explanation:** The cells shown above represent the hourglass with the maximum sum: 6 + 2 + 1 + 2 + 9 + 2 + 8 = 30.

Example 2:



Input: grid = [[1,2,3],[4,5,6],[7,8,9]] **Output:** 35 **Explanation:** There is only one hourglass in the matrix, with the sum: 1 + 2 + 3 + 5 + 7 + 8 + 9 = 35.

Constraints:

* `m == grid.length` * `n == grid[i].length` * `3 <= m, n <= 150` * `0 <= grid[i][j] <= 106`

Code Snippets

C++:

```
class Solution {
public:
int maxSum(vector<vector<int>>& grid) {

}
};
```

Java:

```
class Solution {
public int maxSum(int[][] grid) {

}
}
```

Python3:

```
class Solution:
def maxSum(self, grid: List[List[int]]) -> int:
```