Problem 85: Maximal Rectangle

Problem Information

Difficulty: Hard
Acceptance Rate: 55.32%
Paid Only: No
Tags: Array, Dynamic Programming, Stack, Matrix, Monotonic Stack

Problem Description

Given a `rows x cols` binary `matrix` filled with `0`'s and `1`'s, find the largest rectangle containing only `1`'s and return _its area_.

Example 1:

Input: matrix = [["1","0","1","0","0"],["1","0","1","1","1"],["1","1","1","1","1"],["1","0","0","1","0"]] **Output:** 6
Explanation: The maximal rectangle is shown in the above picture.

Example 2:

Input: matrix = [["0"]] **Output:** 0

Example 3:

Input: matrix = [["1"]] **Output:** 1

Constraints:

* `rows == matrix.length` * `cols == matrix[i].length` * `1 <= rows, cols <= 200` * `matrix[i][j]` is `0` or `1`.

Code Snippets

C++:

```cpp
class Solution {
public:
    int maximalRectangle(vector<vector<char>>& matrix) {

    }
};
```

Java:

```java
class Solution {
    public int maximalRectangle(char[][] matrix) {

    }
}
```

Python3:

```python
class Solution:
    def maximalRectangle(self, matrix: List[List[str]]) -> int:
```