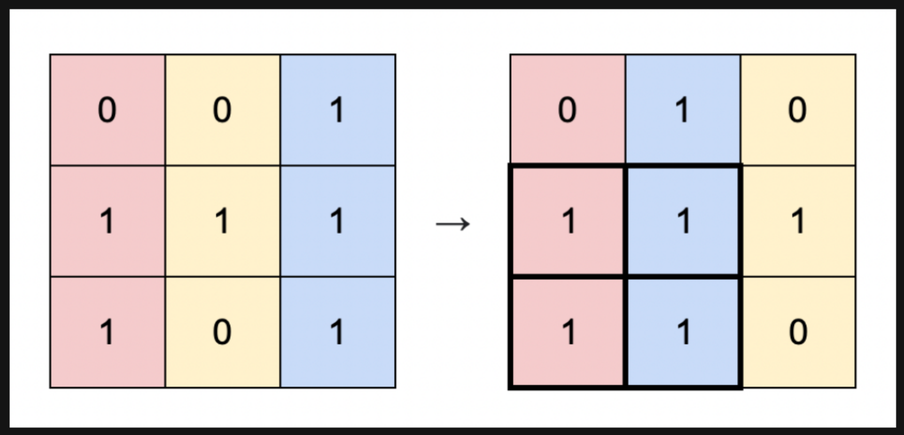
1727. Largest Submatrix With Rearrangements

Description

You are given a binary matrix `matrix` of size `m x n`, and you are allowed to rearrange the **columns** of the `matrix` in any order.

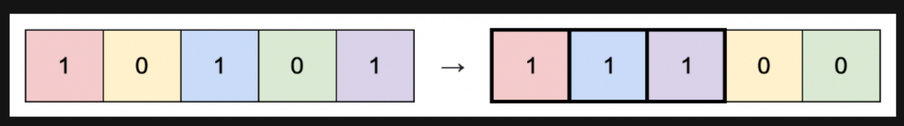
Return *the area of the largest submatrix within* `matrix` *where* ***every*** *element of the submatrix is* `1` *after reordering the columns optimally.*

Example 1:




```
Input: matrix = [[0,0,1],[1,1,1],[1,0,1]]
Output: 4
Explanation: You can rearrange the columns as shown above.
The largest submatrix of 1s, in bold, has an area of 4.
```

Example 2:




```
Input: matrix = [[1,0,1,0,1]]
Output: 3
Explanation: You can rearrange the columns as shown above.
The largest submatrix of 1s, in bold, has an area of 3.
```

Example 3:

```
Input: matrix = [[1,1,0],[1,0,1]]
Output: 2
Explanation: Notice that you must rearrange entire columns, and there is no way to make a submatrix of 1s larger than an area of 2.
```

Constraints:

- `m == matrix.length`
- `n == matrix[i].length`
- `1 <= m * n <= 10^5`
- `matrix[i][j]` is either `0` or `1`.