

240. Search a 2D Matrix II

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Write an efficient algorithm that searches for a `target` value in an `m x n` integer `matrix`. The `matrix` has the following properties:

- Integers in each row are sorted in ascending from left to right.
- Integers in each column are sorted in ascending from top to bottom.

Example 1:

1	4	7	11	15
2	5	8	12	19
3	6	9	16	22
10	13	14	17	24
18	21	23	26	30

Input: `matrix = [[1,4,7,11,15],[2,5,8,12,19],[3,6,9,16,22],[10,13,14,17,24],[18,21,23,26,30]]`, `target = 5`

Output: `true`

Example 2:

1	4	7	11	15
2	5	8	12	19
3	6	9	16	22
10	13	14	17	24
18	21	23	26	30

Input: matrix = [[1,4,7,11,15],[2,5,8,12,19],[3,6,9,16,22],[10,13,14,17,24],[18,21,23,26,30]], target = 20

Output: false

Constraints:

- `m == matrix.length`
- `n == matrix[i].length`
- `1 <= n, m <= 300`
- `-109 <= matix[i][j] <= 109`
- All the integers in each row are **sorted** in ascending order.
- All the integers in each column are **sorted** in ascending order.
- `-109 <= target <= 109`

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