3078. Match Alphanumerical Pattern in Matrix I Premium

Medium | Topics | Companies | Hint

You are given a 2D integer matrix `board` and a 2D character matrix `pattern`. Where `0 <= board[r][c] <= 9` and each element of `pattern` is either a digit or a lowercase English letter.

Your task is to find a submatrix of `board` that **matches** `pattern`.

An integer matrix `part` matches `pattern` if we can replace cells containing letters in `pattern` with some digits (each **distinct** letter with a **unique** digit) in such a way that the resulting matrix becomes identical to the integer matrix `part`. In other words,

- The matrices have identical dimensions.
- If `pattern[r][c]` is a digit, then `part[r][c]` must be the **same** digit.
- If `pattern[r][c]` is a letter `x`:
  - For every `pattern[i][j] == x`, `part[i][j]` must be the **same** as `part[r][c]`.
  - For every `pattern[i][j] != x`, `part[i][j]` must be **different** than `part[r][c]`.

Return *an array of length* `2` *containing the row number and column number of the upper-left corner of a submatrix of* `board` *which matches* `pattern`. *If there is more than one such submatrix, return the coordinates of the submatrix with the lowest row index, and in case there is still a tie, return the coordinates of the submatrix with the lowest column index. If there are no suitable answers, return* `[-1, -1]`.

Example 1:

> **Input:** `board = [[1,2,2],[2,2,3],[2,3,3]], pattern = ["ab","bb"]`
>
> **Output:** `[0,0]`
>
> **Explanation:** If we consider this mapping: `"a" -> 1` and `"b" -> 2`; the submatrix with the upper-left corner `(0,0)` is a match as outlined in the matrix above.
>
> Note that the submatrix with the upper-left corner (1,1) is also a match but since it comes after the other one, we return `[0,0]`.

Example 2:

> **Input:** `board = [[1,1,2],[3,3,4],[6,6,6]], pattern = ["ab","66"]`
>
> **Output:** `[1,1]`
>
> **Explanation:** If we consider this mapping: `"a" -> 3` and `"b" -> 4`; the submatrix with the upper-left corner `(1,1)` is a match as outlined in the matrix above.
>
> Note that since the corresponding values of `"a"` and `"b"` must differ, the submatrix with the upper-left corner `(1,0)` is not a match. Hence, we return `[1,1]`.

Example 3:

> **Input:** `board = [[1,2],[2,1]], pattern = ["xx"]`
>
> **Output:** `[-1,-1]`
>
> **Explanation:** Since the values of the matched submatrix must be the same, there is no match. Hence, we return `[-1,-1]`.

Constraints:

- `1 <= board.length <= 50`
- `1 <= board[i].length <= 50`
- `0 <= board[i][j] <= 9`
- `1 <= pattern.length <= 50`
- `1 <= pattern[i].length <= 50`
- `pattern[i][j]` is either a digit represented as a string or a lowercase English letter.

Seen this question in a real interview before? 1/5

Yes No

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Topics

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Hint 1

Use brute force and check all the possible submatrices.

Discussion (1)