Problem 566: Reshape the Matrix

Problem Information

Difficulty: Easy
Acceptance Rate: 64.43%
Paid Only: No
Tags: Array, Matrix, Simulation

Problem Description

In MATLAB, there is a handy function called `reshape` which can reshape an `m x n` matrix into a new one with a different size `r x c` keeping its original data.

You are given an `m x n` matrix `mat` and two integers `r` and `c` representing the number of rows and the number of columns of the wanted reshaped matrix.

The reshaped matrix should be filled with all the elements of the original matrix in the same row-traversing order as they were.

If the `reshape` operation with given parameters is possible and legal, output the new reshaped matrix; Otherwise, output the original matrix.

Example 1:

Input: mat = [[1,2],[3,4]], r = 1, c = 4 **Output:** [[1,2,3,4]]

Example 2:

Input: mat = [[1,2],[3,4]], r = 2, c = 4 **Output:** [[1,2],[3,4]]

Constraints:

* `m == mat.length` * `n == mat[i].length` * `1 <= m, n <= 100` * `-1000 <= mat[i][j] <= 1000` *
`1 <= r, c <= 300`

Code Snippets

C++:

```cpp
class Solution {
public:
vector<vector<int>> matrixReshape(vector<vector<int>>& mat, int r, int c) {


}
};
```

Java:

```java
class Solution {
public int[][] matrixReshape(int[][] mat, int r, int c) {


}
}
```

Python3:

```python
class Solution:
def matrixReshape(self, mat: List[List[int]], r: int, c: int) ->
List[List[int]]:
```