54. Spiral Matrix

Given a matrix of *m* x *n* elements (*m* rows, *n* columns), return all elements of the matrix in spiral order.

For example, Given the following matrix:

```
[
 [ 1, 2, 3 ],
 [ 4, 5, 6 ],
 [ 7, 8, 9 ]
]
```

```
class Solution {
public:
    vector<int> spiralOrder(vector<vector<int>>& matrix) {
        if(matrix.empty()) return vector<int>();
        int row=matrix.size(), col = matrix[0].size(), k=0;
        int x = 0, y=0;
        vector<int> res;
         while(true){
             if(y==col) break;
            for(int i=y;i<col;i++){
                res.push_back(matrix[x][i]);
             }
             x++;
             if(x==row) break;

             for(int i=x;i<row;i++){
                 res.push_back(matrix[i][col-1]);
             }
             col--;
             if(col==y)  break;

             for(int i=col-1;i>=y;i--){
                 res.push_back(matrix[row-1][i]);
             }

             row--;
             if(row==x)  break;
             for(int i=row-1;i>=x;i--){
                 res.push_back(matrix[i][y]);
             }
             y++;
         }
        return res;
    }
};
```