Wave Print Problem Matrix CodeStudio

Given a matrix of integers, you need to perform a wave print of the matrix. A wave print is obtained by traversing the matrix in a zigzag pattern, starting from the top-left element and alternating the traversal direction for each column.

Initial Matrix:

↓ ↑ ↓

13 34 33

↓ ↑ ↓

39 54 11

↓ ↑ ↓

18 22 27

Wave Print:

13 → 39 → 18 → 22 → 54 → 34 → 33 → 11 → 27

Function to perform wave print of the matrix

- The **wavePrint** function takes the matrix, the number of rows, and the number of columns as input and returns a vector **ans** containing the elements in wave print order.
- The function initializes an empty vector **ans** with enough space to store all the elements in the matrix.
- It then uses a nested loop to traverse the matrix. For each column, it checks if the column index is odd or even using the bitwise **&** operation (**c & 1**).
- If the column index is odd, it traverses the column in an upward direction, starting from the last row and moving towards the first row.
- If the column index is even, it traverses the column in a downward direction, starting from the first row and moving towards the last row.
- During the traversal, it stores the elements in the **ans** vector using the **index** variable to keep track of the current position.
- Finally, it returns the **ans** vector containing the wave print elements.

Time Complexity: The time complexity of the code is O(rows * cols) as it needs to visit each element in the matrix once.

Space Complexity: The space complexity is O(rows * cols) as it creates a vector to store the wave print elements, which can hold at most rows * cols elements.