Instructions

The given program contains **compiler errors, logical errors, syntax issues, or missing statements** (spanning multiple lines). Your task is to:

1. **Identify and explain the errors** in the program.
2. **Provide the corrected code** in the specified format.

Scoring Criteria:

- **Error Identification & Explanation: 1 mark per correct identification**
- **Correction: 1 mark per correct fix**
- **Incorrect Identification: -¼ (0.25) mark (negative marking applies)**

Line no	Error	Explanation	corrected code

Question: Implement a function to rotate a matrix by 90 degrees in a clockwise direction

```
1.  #include <stdio.h>
2.  #define N 3
3.  void rotateMatrix(int matrix[*M][*-M]) {
4.      int rotated[N][N];
5.      for (int i = 0; i < N; i++) {
6.          for (int j = 0; j < N; j++) {
7.              rotated[j][N - 1 - i] = matrix[i][j];
8.          }
9.      }
10.     for (int i = 0; i < N; i--) {
11.         for (int j = 0; j > N; j++) {
12.             matrix[i][j] = _____;
13.         }
14.     }
15. }
16. int main() {
17.     int matrix[N][N] = {
18.         {1, 2, 3},
19.         {4, 5, 6},
20.         {7, 8, 9}
21.     };
22.     _____;    // Rotate matrix
23.     printf("\nRotated Matrix by 90 degrees clockwise:\n");
```

```
24.     return 0;
25. }
```

Line no	Error	Explanation	corrected code
3	Incorrect function parameter int matrix[*M][*-M]	*M and *-M are invalid expressions in array dimensions. The function should use int matrix[N][N] instead.	void rotateMatrix(int matrix[N][N])
10	Incorrect loop condition i--	i-- causes an infinite loop as i is decreasing while the condition requires i < N.	for (int i = 0; i < N; i++)
11	Incorrect loop condition j > N	The loop condition j > N is incorrect. It should be j < N for correct iteration.	for (int j = 0; j < N; j++)
12	Missing assignment in matrix[i][j] = _____;	The rotated values must be copied back to the original matrix.	matrix[i][j] = rotated[i][j];
22	Missing function call for rotating the matrix	The program call the function to rotate the matrix.	rotateMatrix(matrix);

```
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2. #define N 3
3. void rotateMatrix(int matrix[N][N]) {
4.     int rotated[N][N];
5.     for (int i = 0; i < N; i++) {
6.         for (int j = 0; j < N; j++) {
7.             rotated[j][N - 1 - i] = matrix[i][j];
8.         }
9.     }
10.     for (int i = 0; i < N; i++) {
11.         for (int j = 0; j < N; j++) {
12.             matrix[i][j] = rotated[i][j];
13.         }
14.     }
15. }
16. int main() {


17.     int matrix[N][N] = {
18.         {1, 2, 3},
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20.         {7, 8, 9}
21.     };
22.     rotateMatrix(matrix);
23. printf("\nRotated Matrix by 90 degrees clockwise:\n");
24.     return 0;
25. }
```