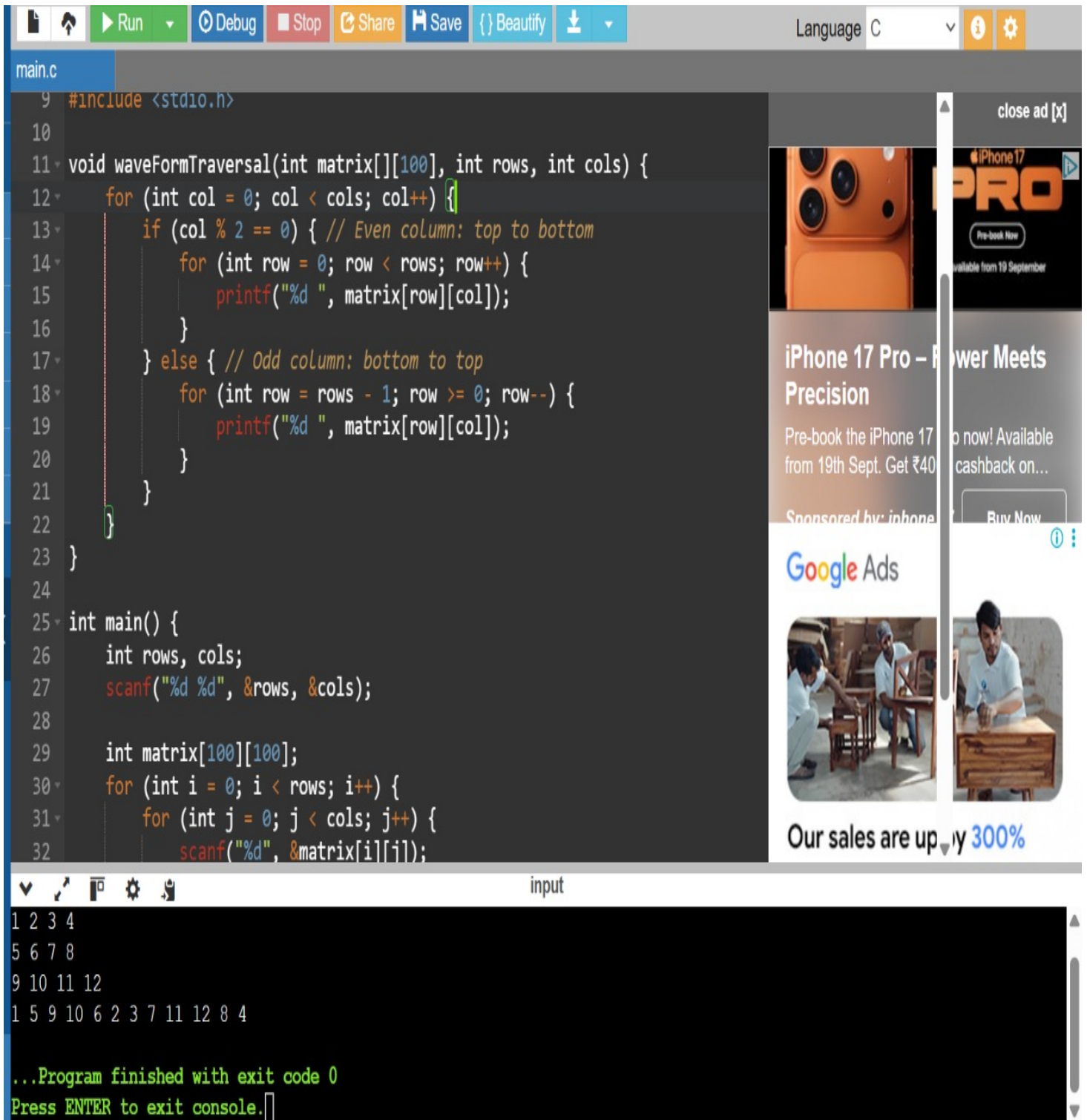


Problem statement -Wave form traversal

Example 1



```
main.c
9 #include <stdio.h>
10
11 void waveFormTraversal(int matrix[][100], int rows, int cols) {
12     for (int col = 0; col < cols; col++) {
13         if (col % 2 == 0) { // Even column: top to bottom
14             for (int row = 0; row < rows; row++) {
15                 printf("%d ", matrix[row][col]);
16             }
17         } else { // Odd column: bottom to top
18             for (int row = rows - 1; row >= 0; row--) {
19                 printf("%d ", matrix[row][col]);
20             }
21         }
22     }
23 }
24
25 int main() {
26     int rows, cols;
27     scanf("%d %d", &rows, &cols);
28
29     int matrix[100][100];
30     for (int i = 0; i < rows; i++) {
31         for (int j = 0; j < cols; j++) {
32             scanf("%d", &matrix[i][j]);
33         }
34     }
35
36     waveFormTraversal(matrix, rows, cols);
37 }
```

input

```
1 2 3 4
5 6 7 8
9 10 11 12
1 5 9 10 6 2 3 7 11 12 8 4



...Program finished with exit code 0
Press ENTER to exit console.
```

Example 2

```
main.c
15     printf("%d ", matrix[row][col]);
16     }
17     } else { // Odd column: bottom to top
18     for (int row = rows - 1; row >= 0; row--) {
19     printf("%d ", matrix[row][col]);
20     }
21     }
22     }
23 }
24
25 int main() {
26     int rows, cols;
27     scanf("%d %d", &rows, &cols);
28
29     int matrix[100][100];
30     for (int i = 0; i < rows; i++) {
31     for (int j = 0; j < cols; j++) {
32     scanf("%d", &matrix[i][j]);
33     }
34     }
35
36     waveFormTraversal(matrix, rows, cols);
37     return 0;
38 }
```

close ad [x]

CARS



₹3.82L

₹1.52L

input

```
4 5 6
7 8 9
10 11 12
1 4 7 10 11 8 5 2 3 6 9 12

...Program finished with exit code 0
Press ENTER to exit console.
```

Problem statement -Transpose of a matrix

Example 1



The image shows a screenshot of a C programming IDE. The main editor window displays a C program for transposing a matrix. The program prompts the user to enter the number of rows (n) and columns (m), then reads the matrix elements. It then prints the transpose of the matrix. The output shows the original matrix and its transpose.

```
5 Write your code in this editor and press "Run" button to compile and execute
6
7 *****
8
9 int main() {
10     int n, m;
11     scanf("%d %d", &n, &m);
12
13     int matrix[n][m];
14     for (int i = 0; i < n; i++) {
15         for (int j = 0; j < m; j++) {
16             scanf("%d", &matrix[i][j]);
17         }
18     }
19
20     // Print transpose
21     for (int j = 0; j < m; j++) {
22         for (int i = 0; i < n; i++) {
23             printf("%d ", matrix[i][j]);
24         }
25         printf("\n");
26     }
27
28     return 0;
29 }
```

input

```
1 4 7
2 5 8
3 6 9

...Program finished with exit code 0
Press ENTER to exit console.
```

Example 2



The screenshot shows an online C code editor with a toolbar at the top containing icons for Run, Debug, Stop, Share, Save, Beautify, and a download icon. The language is set to C. The code in the editor is as follows:

```
5 Write your code in this editor and press "Run" button to compile and execute
6
7 *****
8
9 int main() {
10     int n, m;
11     scanf("%d %d", &n, &m);
12
13     int matrix[n][m];
14     for (int i = 0; i < n; i++) {
15         for (int j = 0; j < m; j++) {
16             scanf("%d", &matrix[i][j]);
17         }
18     }
19
20     // Print transpose
21     for (int j = 0; j < m; j++) {
22         for (int i = 0; i < n; i++) {
23             printf("%d ", matrix[i][j]);
24         }
25         printf("\n");
26     }
27
28     return 0;
29 }
```



The output of the program is shown in a console window. It displays the input values 4 and 5, followed by a 4x5 matrix of input values. The output then shows the transpose of this matrix, which is a 5x4 matrix. The program finished with exit code 0.

```
1 4
2 5
3 6
...Program finished with exit code 0
Press ENTER to exit console.
```

Problem statement -Spiral traversal of matrix

Example 1



The image shows a screenshot of a C++ IDE. The top toolbar includes buttons for Run, Debug, Stop, Share, Save, Beautify, and a download icon. The editor window, titled 'main.c', contains the following C++ code for spiral traversal of a matrix:

```
8
9
10 #include <stdio.h>
11
12 void spiralTraversal(int n, int m, int arr[n][m]) {
13     int top = 0, bottom = n - 1, left = 0, right = m - 1;
14     while (top <= bottom && left <= right) {
15         // Traverse from left to right
16         for (int i = left; i <= right; i++) {
17             printf("%d ", arr[top][i]);
18         }
19         top++;
20
21         // Traverse from top to bottom
22         for (int i = top; i <= bottom; i++) {
23             printf("%d ", arr[i][right]);
24         }
25         right--;
26
27         // Traverse from right to left
28         if (top <= bottom) {
29             for (int i = right; i >= left; i--) {
30                 printf("%d ", arr[bottom][i]);
31             }

```

Below the code editor, the console output is displayed. It shows the input matrix and the resulting spiral traversal sequence:

```
1 2 3
4 5 6
7 8 9
1 2 3 6 9 8 7 4 5

...Program finished with exit code 0
Press ENTER to exit console.
```


Example 2

```
main.c
8
9
10 #include <stdio.h>
11
12 void spiralTraversal(int n, int m, int arr[n][m]) {
13     int top = 0, bottom = n - 1, left = 0, right = m - 1;
14     while (top <= bottom && left <= right) {
15         // Traverse from left to right
16         for (int i = left; i <= right; i++) {
17             printf("%d ", arr[top][i]);
18         }
19         top++;
20
21         // Traverse from top to bottom
22         for (int i = top; i <= bottom; i++) {
23             printf("%d ", arr[i][right]);
24         }
25         right--;
26
27         // Traverse from right to left
28         if (top <= bottom) {
29             for (int i = right; i >= left; i--) {
30                 printf("%d ", arr[bottom][i]);
31             }
32         }
33     }
34 }
```

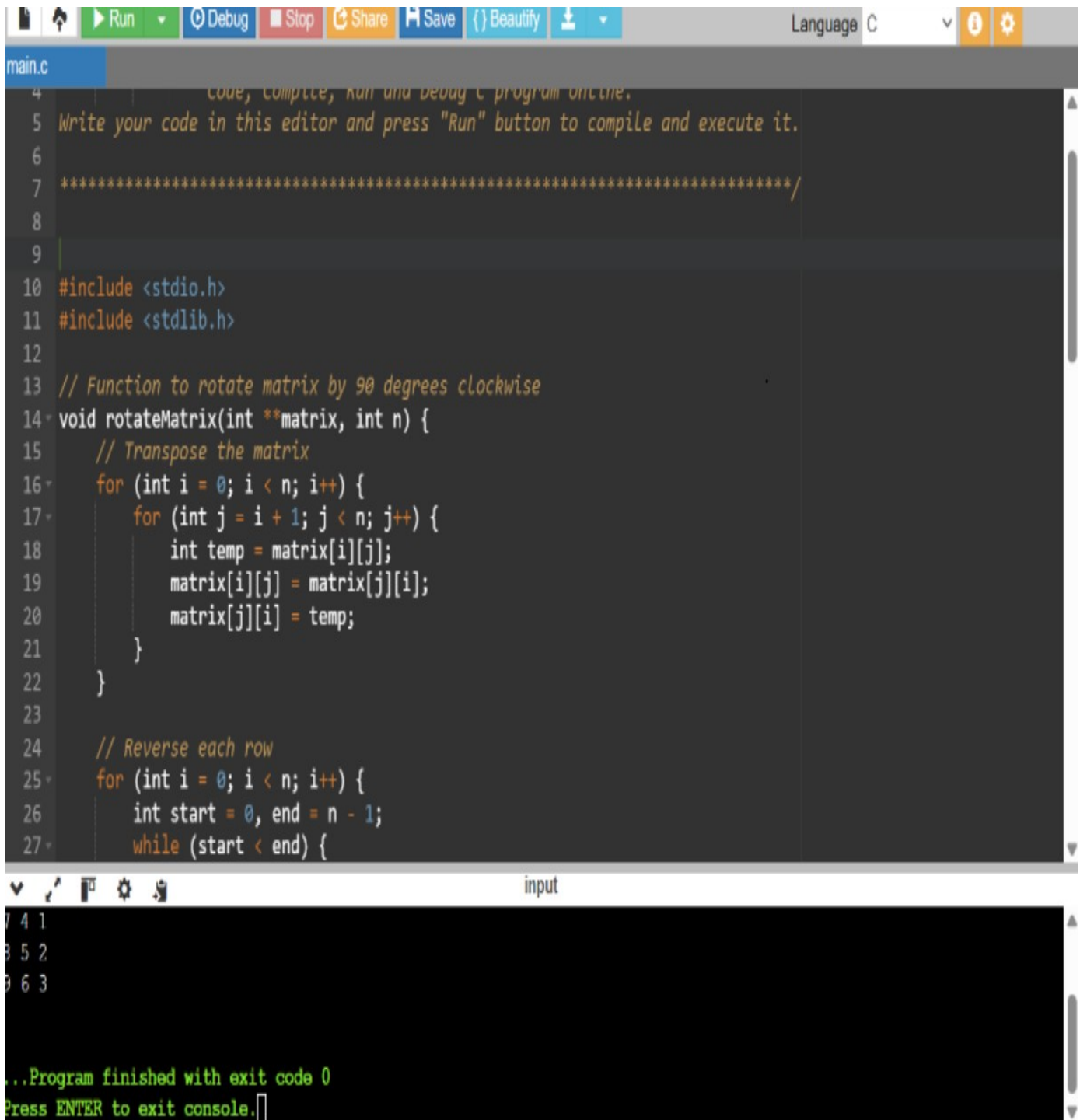
input

```
2 3 4
5 7 8
10 11 12
2 3 4 8 12 11 10 9 5 5 7

..Program finished with exit code 0
Press ENTER to exit console.
```

Problem statement -Rotate matrix by 90° clockwise

Example 1



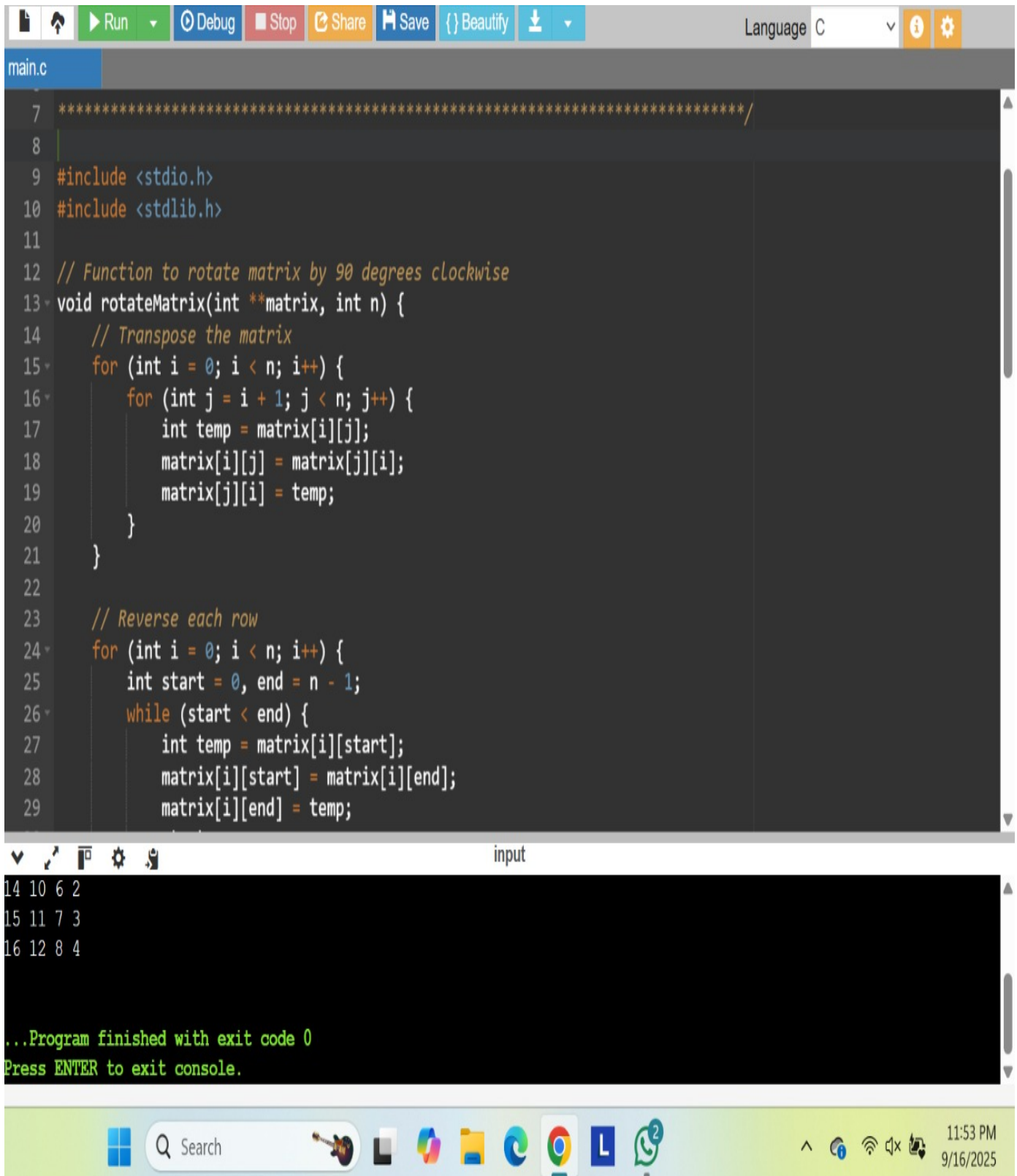
```
main.c
4      Code, Compile, Run and Debug C program online.
5      Write your code in this editor and press "Run" button to compile and execute it.
6
7      *****/
8
9
10 #include <stdio.h>
11 #include <stdlib.h>
12
13 // Function to rotate matrix by 90 degrees clockwise
14 void rotateMatrix(int **matrix, int n) {
15     // Transpose the matrix
16     for (int i = 0; i < n; i++) {
17         for (int j = i + 1; j < n; j++) {
18             int temp = matrix[i][j];
19             matrix[i][j] = matrix[j][i];
20             matrix[j][i] = temp;
21         }
22     }
23
24     // Reverse each row
25     for (int i = 0; i < n; i++) {
26         int start = 0, end = n - 1;
27         while (start < end) {
```

input

```
7 4 1
8 5 2
9 6 3

...Program finished with exit code 0
Press ENTER to exit console.
```

Example 2



The image shows a code editor window with a C program and a console window below it. The code editor has a toolbar with buttons for Run, Debug, Stop, Share, Save, Beautify, and a dropdown menu. The language is set to C. The code in the editor is as follows:

```
7 *****/
8
9 #include <stdio.h>
10 #include <stdlib.h>
11
12 // Function to rotate matrix by 90 degrees clockwise
13 void rotateMatrix(int **matrix, int n) {
14     // Transpose the matrix
15     for (int i = 0; i < n; i++) {
16         for (int j = i + 1; j < n; j++) {
17             int temp = matrix[i][j];
18             matrix[i][j] = matrix[j][i];
19             matrix[j][i] = temp;
20         }
21     }
22
23     // Reverse each row
24     for (int i = 0; i < n; i++) {
25         int start = 0, end = n - 1;
26         while (start < end) {
27             int temp = matrix[i][start];
28             matrix[i][start] = matrix[i][end];
29             matrix[i][end] = temp;
30         }
31     }
32 }
```

The console window shows the input and the program's output:

```
input
14 10 6 2
15 11 7 3
16 12 8 4

...Program finished with exit code 0
Press ENTER to exit console.
```

The Windows taskbar at the bottom shows the Start button, a search bar, and several application icons. The system clock indicates the time is 11:53 PM on 9/16/2025.