19 June

**C Program to rotate a Matrix by 90 Degree in clockwise and Anticlockwise Direction.**

#include <stdio.h>

// Function to reverse rows of the matrix

int main()

{

int mat[10][10], arr[10][10], m, n, i, j, temp, k;

printf("Enter the total number of Rows: ");

scanf("%d", &m);

printf("Enter the total number of Columns: ");

scanf("%d", &n);

printf("Enter the elements:\n");

for (i = 0; i < m; i++)

for (j = 0; j < n; j++)

scanf("%d", &mat[i][j]);

//---print original matrix---

printf("\nThe matrix before rotation\n");

for (i = 0; i < m; i++)

{

for (j = 0; j < n; j++)

printf("%d\t", mat[i][j]);

printf("\n");

}

//---transpose of matrix---

for (int i = 0; i < m; i++)

for (int j = i; j < n; j++)

{

temp = mat[i][j];

mat[i][j] = mat[j][i];

mat[j][i] = temp;

}

//---copy matrix transpose

for (i = 0; i < m; i++)

for (j = 0; j < n; j++)

arr[i][j] = mat[i][j];

//---reverse rows for clockwise rotation--

for (int i = 0; i < m; i++)

{

k = n-1;

for (int j = 0; j < k; j++)

{

temp = mat[i][j];

mat[i][j] = mat[i][k];

mat[i][k] = temp;

k--;

}

}

//--- print matrix after Clockwise rotation---

printf("\nThe matrix after rotation - Clockwise\n");

for (i = 0; i < m; i++)

{

for (j = 0; j < n; j++)

printf("%d\t", mat[i][j]);

printf("\n");

}

//---reverse rows for clockwise rotation--

for (int i = 0; i < m; i++)

{

k = n-1;

for (int j = 0; j < k; j++)

{

temp = arr[j][i];

arr[j][i] = arr[k][i];

arr[k][i] = temp;

k--;

}

}

//--- print matrix after Anticlockwise rotation---

printf("\nThe matrix after rotation - Anticlockwise\n");

for (i = 0; i < m; i++)

{

for (j = 0; j < n; j++)

printf("%d\t", arr[i][j]);

printf("\n");

}

return 0;

}