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Computer Programming Lab

CEN-392

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Program 5

Code :-

#include <iostream>

using namespace std;

int matrix[10][10];

int n=0, m=0;

void Print\_Matrix()

{

    cout << endl

         << "\_\_\_\_Matrix\_\_\_" << endl<<endl;;

    for (int i = 0; i < n; i++)

    {

        for (int j = 0; j < m; j++)

        {

            cout << matrix[i][j] << "   ";

        }

        cout << endl;

    }

}

void Print\_Helical()

{

    if(n==0||m==0)

    {

        cout<<endl<<"Matrix Input First!"<<endl;

        return;

    }

    cout << endl

         << "Operation Helical Order Is Selected." << endl;

    Print\_Matrix();

    int rows = 0, rowe = n - 1, cols = 0, cole = m - 1;

    int total = n \* m;

    cout << endl

         << "Helical Order Of The Input Matrix : " << endl;

    while (total > 0)

    {

        for (int i = cols; i <= cole && total-- > 0; i++)

        {

            cout << matrix[rows][i] << " ";

        }

        rows++;

        for (int i = rows; i <= rowe && total-- > 0; i++)

        {

            cout << matrix[i][cole] << " ";

        }

        cole--;

        for (int i = cole; i >= cols && total-- > 0; i--)

        {

            cout << matrix[rowe][i] << " ";

        }

        rowe--;

        for (int i = rowe; i >= rows && total-- > 0; i--)

        {

            cout << matrix[i][cols] << " ";

        }

        cols++;

    }

    cout << endl;

}

void Input()

{

    cout << endl

         << "Opertion New Matrix Input Is Selected." << endl;

    cout << "Number Of Rows : ";

    cin >> n;

    cout << "Number Of Column : ";

    cin >> m;

    cout << "Enter The Element Of The Matrix : " << endl;

    for (int i = 0; i < n; i++)

    {

        for (int j = 0; j < m; j++)

        {

            cin >> matrix[i][j];

        }

    }

}

void Menu()

{

    cout << endl

         << "\_\_\_Task To Performs\_\_\_" << endl;

    cout << "1.New Matrix Input." << endl;

    cout << "2.Helical Order." << endl;

    cout << "3.Exit." << endl;

    cout << "Enter Your Choice : ";

}

bool Options()

{

    int opt;

    cin >> opt;

    switch (opt)

    {

    case 1:

        Input();

        break;

    case 2:

        Print\_Helical();

        break;

    case 3:

        return 0;

    default:

        cout << "Invalid Input!\nTry Again!" << endl;

        break;

    }

    return 1;

}

int main()

{

    system("cls");

    cout << "\_\_Vicky\_Gupta\_20BCS070\_\_" << endl;

    while (true)

    {

        Menu();

        if (!Options())

            break;

    }

    cout << endl

         << "Exiting..." << endl;

    return 0;

}

Output :-

Text

Description automatically generated