
Computer Programming Lab

CEN-392

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 :-

```
__Vicky_Gupta_20BCS070__
```

```
___Task To Performs___
```

```
1.New Matrix Input.
```

```
2.Helical Order.
```

```
3.Exit.
```

```
Enter Your Choice : 1
```

```
Opertion New Matrix Input Is Selected.
```

```
Number Of Rows : 4
```

```
Number Of Column : 5
```

```
Enter The Element Of The Matrix :
```

```
10 11 12 13 14
```

```
15 16 17 18 19
```

```
20 21 22 23 24
```

```
25 26 27 28 29
```

```
___Task To Performs___
```

```
1.New Matrix Input.
```

```
2.Helical Order.
```

```
3.Exit.
```

```
Enter Your Choice : 2
```

```
Operation Helical Order Is Selected.
```

```
_____Matrix____
```

```
10    11    12    13    14
```

```
15    16    17    18    19
```

```
20    21    22    23    24
```

```
25    26    27    28    29
```

```
Helical Order Of The Input Matrix :
```

```
10 11 12 13 14 19 24 29 28 27 26 25 20 15 16 17 18 23 22 21
```

```
___Task To Performs___
```

```
1.New Matrix Input.
```

```
2.Helical Order.
```

```
3.Exit.
```

```
Enter Your Choice : 3
```

```
Exitng...
```