1)Sum of Squares-

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace \_2d\_array

{

class SumOfSquares

{

static void Main(string[] args)

{

int max = 0, m = 0, n = 0;

int[,] arr = {

{6,7,3},

{4,5,9},

{2,8,1}

};

int sum = 0;

for (int i = 0; i < arr.GetLength(0) - 1; i++)

{

for (int j = 0; j < arr.GetLength(1) - 1; j++)

{

sum = 0;

for (int row = i; row <= i + 1; row++)

{

for (int col = j; col <= j + 1; col++)

{

sum = sum + arr[row, col];

}

}

if (sum > max)

{

max = sum;

m = i;

n = j;

}

}

}

for (int i = m; i <= m + 1; i++)

{

for (int j = n; j <= n + 1; j++)

{

Console.Write("{0,3} ", arr[i, j]);

}

Console.WriteLine();

}

Console.ReadLine();

}

}

}

2)Transpose of a Matrix-

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace \_2d\_array

{

class Transpose

{

public static void Main(string[] args)

{

int[,] arr = {

{6,7,3},

{4,5,9},

{2,8,1}

};

for (int i = 0; i < arr.GetLength(0) ; i++)

{

for (int j = 0; j < arr.GetLength(1) ; j++)

{

if (j > i) {

int temp=arr[i,j];

arr[i, j] = arr[j, i];

arr[j, i] = temp;

}

}

}

for (int i = 0; i < arr.GetLength(0) ; i++)

{

for (int j = 0; j < arr.GetLength(1) ; j++)

{

Console.Write("{0,3}",arr[i,j]);

}

Console.WriteLine();

}

Console.ReadLine();

}

}

}

3)Perfect Square-

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace ArrayDemo

{

class Demo2

{

static void Main(string[] args)

{

int[,] input = {

{0,0,0,0,0,},

{0,1,1,0,0},

{0,1,1,0,0},

{0,1,1,0,0},

{0,0,0,0,0},

};

int f\_row = 0, f\_col = 0;

int l\_row = 0, l\_col = 0;

int ctr = 0;

for (int i = 0; i < 5; i++)

{

for (int j = 0; j < 5; j++)

{

if (input[i, j] == 1)

{

f\_row = i;

f\_col = j;

ctr++;

break;

}

}

if (ctr == 1) break;

}

ctr = 0;

for (int i = 4; i >= 0; i--)

{

for (int j = 4; j >= 0; j--)

{

if (input[i, j] == 1)

{

l\_row = i;

l\_col = j;

ctr++;

break;

}

}

if (ctr == 1) break;

}

ctr = 0;

bool perfect = true;

for (int i = f\_row; i <= l\_row; i++)

{

for (int j = f\_col; j <= l\_col; j++)

{

if (input[i, j] == 0)

{

perfect = false;

ctr++;

break;

}

}

if (ctr == 1) break;

}

// Console.WriteLine(perfect);

ctr = 0;

if (perfect)

{

for (int i = 0; i <= 4; i++)

{

for (int j = 0; j <= 4; j++)

{

if (j < f\_col || j > l\_col)

{

if (input[i, j] == 1)

{

perfect = false;

ctr++;

break;

}

}

}

if (ctr == 1) break;

}

}

// Console.WriteLine(perfect);

if (perfect == true)

Console.WriteLine("Yes");

else

Console.WriteLine("No");

Console.ReadLine();

}

}

}

4)Directions-

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace \_2d\_array

{

using System;

public class directions

{

public static void Main(string[] args)

{

string[] directions = { "N", "E", "S", "w" };

int[] moves = { 0, 2, 0, 2, 0, 3, 2, 0, 1 };

int current = 0;

string s = Console.ReadLine();

for (int i = 0; i < directions.Length; i++) {

if (s.Equals(directions[i]))

{

current = i;

}

}

for (int m = 0; m < moves.Length; m++)

{

switch (moves[m])

{

case 0:

current = current > 3 ? 0 : ++current;

break;

case 2:

current = --current < 0 ? 3 : current;

break;

case 1:

break;

case 3:

current = (current + 2) > 3 ? current - 2 : current + 2;

break;

}

}

Console.WriteLine(directions[current]);

Console.ReadLine();

}

}

}

5)Array Pattern-

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace ArrayDemo

{

class Demo1

{

static void Main(string[] args)

{

int r = 3, c = 1;

int tr = 0, tc = 0;

int[,] array = new int[5, 5];

for (int i = 1; i <= 25; i++)

{

tr = r; tc = c;

array[r, c] = i;

r--; c++;

if (r < 0) r = 4;

if (c > 4) c = 0;

if (array[r, c] != 0)

{

r = tr + 1;

c = tc;

}

if (r > 4) r = 0;

}

for (r = 0; r < 5; r++)

{

for (c = 0; c < 5; c++)

{

Console.Write("{0,3}",array[r, c]);

}

Console.WriteLine();

}

Console.ReadLine();

}

}

}