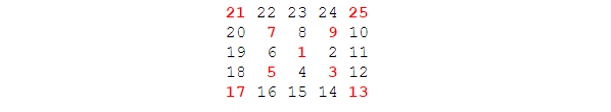
Assignment 2 Week 1

PART-A

④

Starting with the number 1 and moving to the right in a clockwise direction a 5 by 5 spiral is formed as follows:



It can be verified that the sum of the numbers on the diagonals is 101. What is the sum of the numbers on the diagonals in a 1001 by 1001 spiral formed in the same way?

ALGORITHM:

* Get the user input which is checked for odd number which is the only way we can create a spiral matrix
* Calculate the Temp integer which is half of the side of array.
* Create a function that calculates the sum of diagonals of the 2D array.
* Compute the sum and Print it in the Console.

PROGRAM:

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Week1Assignment2ansreal

{

class Class1

{

public int temp;

public int size;

public void calctemp()

{

bool repeat = true;

Console.Write("Enter the matrix size:");

//Repeat the operation till user proved input odd number

while (repeat)

{

size = Convert.ToInt32(Console.ReadLine());

if (size % 2 == 1)

{

//calculate a half size of the length of matrix

temp = ((size - 1) / 2);

repeat = false;

}

else

Console.Write("Enter a valid odd number:");

}

}

public void calcsum()

{

// formula to find the sum of diagonal elements in the spiral matrix

double sum=(16 \* (Math.Pow(temp, 3)) + 30 \* (Math.Pow(temp, 2)) + 26 \* temp + 3) / 3;

Console.WriteLine("{0} is the sum of diagonal of {1} row spiral matrix ", sum,size);

}

static void Main()

{

Class1 objsum = new Class1();

objsum.calctemp();

objsum.calcsum();

Console.ReadKey();

}

}

}

START

Check if the number is odd which is required in spiral matrix

NO

In==even

Yes

Calculate the diagonal sum and Print it

End

