**CHIDURA SREENIDHI**

**C# EXERCISES 10Q**

using System;

namespace Console\_Hexaware

{

internal class Exercise

{

//1.Fibonacci Series 1 to 50

public static void Main(String[] args)

{

int a = 0, b = 1, c;

Console.WriteLine("Fibonacci Series from 1 to 50:");

Console.Write(a + " " + b + " ");

for (int i = 2; i < 50; i++)

{

c = a + b;

Console.Write(c + " ");

a = b;

b = c;

}

Console.WriteLine();

//2.user input and check prime or not

Console.WriteLine("enter a number:");

int num = Convert.ToInt32(Console.ReadLine());

bool isprime = true;

if (num < 2)

{

isprime = false;

}

else

{

for (int i = 2; i <= Math.Sqrt(num); i++)

{

if (num % i == 0)

{

isprime = false;

break;

}

}

}

if (isprime)

Console.WriteLine(num + "is prime");

else

Console.WriteLine(num + "is not prime");

//3.display the prime numbers from 1 to 100

Console.WriteLine("Prime numbers from 1 to 100 are:");

for (int i = 2; i <= 100; i++)

{

bool isPrime = true;

for (int j = 2; j <= Math.Sqrt(i); j++)

{

if (i % j == 0)

{

isPrime = false;

break;

}

}

if (isPrime)

{

Console.Write(i + " ");

}

}

//4.acce[t a string and check ther it is a palindrome or not

Console.WriteLine("\nEnter a string to check if it is a palindrome:");

string input = Console.ReadLine();

string rev = new string(input.Reverse().ToArray());

if (input.Equals(rev, StringComparison.OrdinalIgnoreCase))

{

Console.WriteLine($"{input} is a palindrome.");

}

else

{

Console.WriteLine($"{input} is not a palindrome.");

}

//5.accept a number and print its factorial

Console.WriteLine("Enter a number to calculate its factorial:");

int N = Convert.ToInt32(Console.ReadLine());

long factorial = 1;

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

{

factorial \*= i;

}

Console.WriteLine($"Factorial of {N} is {factorial}.");

//6,7. accecpt a 3\*3 matrix and display its addition and multiplication

Console.WriteLine("Enter a 3x3 matrix (9 elements):");

int[,] matrix = new int[3, 3];

for (int i = 0; i < 3; i++)

{

for (int j = 0; j < 3; j++)

{

matrix[i, j] = Convert.ToInt32(Console.ReadLine());

}

}

Console.WriteLine("Matrix entered:");

for (int i = 0; i < 3; i++)

{

for (int j = 0; j < 3; j++)

{

Console.Write(matrix[i, j] + " ");

}

Console.WriteLine();

}

// Matrix addition

int[,] additionResult = new int[3, 3];

for (int i = 0; i < 3; i++)

{

for (int j = 0; j < 3; j++)

{

additionResult[i, j] = matrix[i, j] + matrix[i, j];

}

}

Console.WriteLine("Addition of the matrix with itself:");

for (int i = 0; i < 3; i++)

{

for (int j = 0; j < 3; j++)

{

Console.Write(additionResult[i, j] + " ");

}

Console.WriteLine();

}

// Matrix multiplication

int[,] multiplicationResult = new int[3, 3];

for (int i = 0; i < 3; i++)

{

for (int j = 0; j < 3; j++)

{

multiplicationResult[i, j] = 0;

for (int k = 0; k < 3; k++)

{

multiplicationResult[i, j] += matrix[i, k] \* matrix[k, j];

}

}

}

Console.WriteLine("Multiplication of the matrix with itself:");

for (int i = 0; i < 3; i++)

{

for (int j = 0; j < 3; j++)

{

Console.Write(multiplicationResult[i, j] + " ");

}

Console.WriteLine();

}

//8.within 3 \* 3 matrix display all the numbers sum

Console.WriteLine("Enter a 3x3 matrix (9 elements):");

int[,] matrix1 = new int[3, 3];

for (int i = 0; i < 3; i++)

{

for (int j = 0; j < 3; j++)

{

matrix1[i, j] = Convert.ToInt32(Console.ReadLine());

}

}

Console.WriteLine("Matrix entered:");

for (int i = 0; i < 3; i++)

{

for (int j = 0; j < 3; j++)

{

Console.Write(matrix1[i, j] + " ");

}

Console.WriteLine();

}

int sum = 0;

for (int i = 0; i < 3; i++)

{

for (int j = 0; j < 3; j++)

{

sum += matrix1[i, j];

}

}

Console.WriteLine($"Sum of all numbers in the 3x3 matrix is: {sum}");

//9..within 3\*3 matrix display all the even and odd numbers sum

Console.WriteLine("Enter a 3x3 matrix (9 elements):");

int[,] matrix2 = new int[3, 3];

for (int i = 0; i < 3; i++)

{

for (int j = 0; j < 3; j++)

{

matrix2[i, j] = Convert.ToInt32(Console.ReadLine());

}

}

Console.WriteLine("Matrix entered:");

for (int i = 0; i < 3; i++)

{

for (int j = 0; j < 3; j++)

{

Console.Write(matrix2[i, j] + " ");

}

Console.WriteLine();

}

int evenSum = 0, oddSum = 0;

for (int i = 0; i < 3; i++)

{

for (int j = 0; j < 3; j++)

{

if (matrix2[i, j] % 2 == 0)

{

evenSum += matrix2[i, j];

}

else

{

oddSum += matrix2[i, j];

}

}

}

Console.WriteLine($"Sum of even numbers in the 3x3 matrix is: {evenSum}");

Console.WriteLine($"Sum of odd numbers in the 3x3 matrix is: {oddSum}");

//10.within the 3 \* 3 matrix display principal diagonal elements sum

Console.WriteLine("Enter a 3x3 matrix (9 elements):");

int[,] matrix3 = new int[3, 3];

for (int i = 0; i < 3; i++)

{

for (int j = 0; j < 3; j++)

{

matrix3[i, j] = Convert.ToInt32(Console.ReadLine());

}

}

Console.WriteLine("Matrix entered:");

for (int i = 0; i < 3; i++)

{

for (int j = 0; j < 3; j++)

{

Console.Write(matrix3[i, j] + " ");

}

Console.WriteLine();

}

int principalDiagonalSum = 0;

for (int i = 0; i < 3; i++)

{

principalDiagonalSum += matrix3[i, i];

}

Console.WriteLine($"Sum of principal diagonal elements in the 3x3 matrix is: {principalDiagonalSum}");

}

}

}