Lab 01

1)Console application to read name and the batch

using System;

namespace NameAndBatchConsoleApp

{

class Program

{

static void Main(string[] args)

{

Console.Write("Enter your name: ");

string name = Console.ReadLine();

Console.Write("Enter your batch: ");

string batch = Console.ReadLine();

Console.WriteLine($"Name: {name}");

Console.WriteLine($"Batch: {batch}");

}

}

}

Console application to calculate the area of a circle

using System;

namespace CircleAreaConsoleApp

{

class Program

{

static void Main(string[] args)

{

Console.Write("Enter the radius of the circle: ");

double radius = Convert.ToDouble(Console.ReadLine());

double area = Math.PI \* radius \* radius;

Console.WriteLine($"Area of the circle: {area}");

}

}

}

Console application to show the summation of two inputs

using System;

namespace SummationConsoleApp

{

class Program

{

static void Main(string[] args)

{

Console.Write("Enter the first number: ");

int num1 = Convert.ToInt32(Console.ReadLine());

Console.Write("Enter the second number: ");

int num2 = Convert.ToInt32(Console.ReadLine());

int sum = num1 + num2;

Console.WriteLine($"Sum of the two numbers: {sum}");

}

}

}

Console application to calculate salary after tax deduction

using System;

namespace SalaryAfterTaxConsoleApp

{

class Program

{

static void Main(string[] args)

{

Console.Write("Enter the employee's salary: ");

double salary = Convert.ToDouble(Console.ReadLine());

Console.Write("Enter the tax rate (in decimal): ");

double taxRate = Convert.ToDouble(Console.ReadLine());

double taxAmount = salary \* taxRate;

double salaryAfterTax = salary - taxAmount;

Console.WriteLine($"Salary after tax deduction: {salaryAfterTax}");

}

}

}

Lab 02

Console application to calculate the sum of two user input numbers

using System;

namespace SumConsoleApp

{

class Program

{

static void Main(string[] args)

{

Console.Write("Enter the first number: ");

int num1 = Convert.ToInt32(Console.ReadLine());

Console.Write("Enter the second number: ");

int num2 = Convert.ToInt32(Console.ReadLine());

int sum = num1 + num2;

Console.WriteLine($"Sum of the two numbers: {sum}");

}

}

}

Console application to calculate sum, subtraction, multiplication, and division of two user input numbers

using System;

namespace MathOperationsConsoleApp

{

class Program

{

static void Main(string[] args)

{

Console.Write("Enter the first number: ");

double num1 = Convert.ToDouble(Console.ReadLine());

Console.Write("Enter the second number: ");

double num2 = Convert.ToDouble(Console.ReadLine());

double sum = num1 + num2;

double subtraction = num1 - num2;

double multiplication = num1 \* num2;

double division = num1 / num2;

Console.WriteLine($"Sum: {sum}");

Console.WriteLine($"Subtraction: {subtraction}");

Console.WriteLine($"Multiplication: {multiplication}");

Console.WriteLine($"Division: {division}");

}

}

}

Console application to calculate the area and circumference of a circle for a given radius

using System;

namespace CircleCalculationsConsoleApp

{

class Program

{

static void Main(string[] args)

{

Console.Write("Enter the radius of the circle: ");

double radius = Convert.ToDouble(Console.ReadLine());

double area = Math.PI \* radius \* radius;

double circumference = 2 \* Math.PI \* radius;

Console.WriteLine($"Area of the circle: {area}");

Console.WriteLine($"Circumference of the circle: {circumference}");

}

}

}

Console application to check if a given number is even or odd

using System;

namespace EvenOddConsoleApp

{

class Program

{

static void Main(string[] args)

{

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

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

if (number % 2 == 0)

{

Console.WriteLine("The number is even.");

}

else

{

Console.WriteLine("The number is odd.");

}

}

}

}

Upgraded console application to check even or odd for 10 user inputs

using System;

namespace EvenOddMultipleInputsConsoleApp

{

class Program

{

static void Main(string[] args)

{

for (int i = 1; i <= 10; i++)

{

Console.Write($"Enter number {i}: ");

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

if (number % 2 == 0)

{

Console.WriteLine("The number is even.");

}

else

{

Console.WriteLine("The number is odd.");

}

}

}

}

}

ConvertValues class with the kilometerToMeter method (no return type and no parameter)

using System;

namespace DistanceConverterApp

{

class ConvertValues

{

public void kilometerToMeter()

{

Console.Write("Enter the distance in kilometers: ");

double km = Convert.ToDouble(Console.ReadLine());

double meters = km \* 1000;

Console.WriteLine($"The distance in meters is: {meters} m");

}

}

}

ConvertValues class with the kilometerToMeter method (no return type with parameter)

using System;

namespace DistanceConverterApp

{

class ConvertValues

{

public void kilometerToMeter(double km)

{

double meters = km \* 1000;

Console.WriteLine($"The distance in meters is: {meters} m");

}

}

}

ConvertValues class with the kilometerToMeter method (with return type and parameter)

using System;

namespace DistanceConverterApp

{

class ConvertValues

{

public double kilometerToMeter(double km)

{

double meters = km \* 1000;

return meters;

}

}

}

Main programme class

using System;

namespace DistanceConverterApp

{

class Program

{

static void Main(string[] args)

{

ConvertValues converter = new ConvertValues();

// Method 1 (no return type and no parameter)

converter.kilometerToMeter();

// Method 2 (no return type with parameter)

Console.Write("Enter the distance in kilometers: ");

double kmValue = Convert.ToDouble(Console.ReadLine());

converter.kilometerToMeter(kmValue);

// Method 3 (with return type and parameter)

Console.Write("Enter the distance in kilometers: ");

double kmValue2 = Convert.ToDouble(Console.ReadLine());

double meters = converter.kilometerToMeter(kmValue2);

Console.WriteLine($"The distance in meters is: {meters} m");

}

}

}

Question 2

using System;

namespace CircleCalculationApp

{

class FindValues

{

public double FindArea(double radius)

{

double area = Math.PI \* radius \* radius;

return area;

}

public double FindCircumference(double radius)

{

double circumference = 2 \* Math.PI \* radius;

return circumference;

}

}

class Program

{

static void Main(string[] args)

{

Console.Write("Enter the radius of the circle: ");

double radius = Convert.ToDouble(Console.ReadLine());

FindValues calculator = new FindValues();

double area = calculator.FindArea(radius);

double circumference = calculator.FindCircumference(radius);

Console.WriteLine($"Area of the circle: {area}");

Console.WriteLine($"Circumference of the circle: {circumference}");

}

}

}

Lab 03

Create a new class file called "ArrayOperations.cs" with the following content

using System;

namespace ArrayOperationsApp

{

public class ArrayOperations

{

public void FindArrayInfo(int[] arr)

{

int min = arr[0];

int max = arr[0];

int sum = 0;

// Find the minimum, maximum, and sum of the array elements

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

{

if (arr[i] < min)

min = arr[i];

if (arr[i] > max)

max = arr[i];

sum += arr[i];

}

double average = (double)sum / arr.Length;

Console.WriteLine($"Minimum value: {min}");

Console.WriteLine($"Maximum value: {max}");

Console.WriteLine($"Average value: {average}");

// Reverse the array

Array.Reverse(arr);

Console.WriteLine("Reversed array:");

foreach (int value in arr)

{

Console.Write($"{value} ");

}

Console.WriteLine();

}

}

}

Modify the "Program.cs" file (main class) to input values to the array and call the "FindArrayInfo" method

using System;

namespace ArrayOperationsApp

{

class Program

{

static void Main(string[] args)

{

int[] myArray = new int[10];

Console.WriteLine("Enter 10 values for the array:");

for (int i = 0; i < 10; i++)

{

Console.Write($"Value {i + 1}: ");

myArray[i] = Convert.ToInt32(Console.ReadLine());

}

ArrayOperations arrayOps = new ArrayOperations();

arrayOps.FindArrayInfo(myArray);

}

}

}

Modify the "Program.cs" file (main class) to take user input for the size of the array and call the "CreateAndFillArray" method

using System;

namespace ArrayOperationsApp

{

class Program

{

static void Main(string[] args)

{

Console.Write("Enter the size of the array: ");

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

ArrayOperations arrayOps = new ArrayOperations();

arrayOps.CreateAndFillArray(size);

}

}

}

Lab 07

using System;

namespace ArrayOperationsApp

{

class Program

{

static void Main(string[] args)

{

Console.Write("Enter the size of the arrays: ");

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

int[] array1 = new int[size];

int[] array2 = new int[size];

int[] resultArray = new int[size];

// Input values for the first array

Console.WriteLine("Enter values for the first array:");

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

{

Console.Write($"Value {i + 1}: ");

array1[i] = Convert.ToInt32(Console.ReadLine());

}

// Input values for the second array

Console.WriteLine("Enter values for the second array:");

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

{

Console.Write($"Value {i + 1}: ");

array2[i] = Convert.ToInt32(Console.ReadLine());

}

// Scalar Sum

int scalarSum = 0;

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

{

scalarSum += array1[i] + array2[i];

}

Console.WriteLine($"Scalar Sum: {scalarSum}");

// Vector Sum

Console.WriteLine("Vector Sum:");

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

{

resultArray[i] = array1[i] + array2[i];

Console.Write($"{resultArray[i]} ");

}

Console.WriteLine();

// Vector Product

Console.WriteLine("Vector Product:");

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

{

resultArray[i] = array1[i] \* array2[i];

Console.Write($"{resultArray[i]} ");

}

Console.WriteLine();

// Scalar Product

int scalarProduct = 0;

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

{

resultArray[i] = array1[i] \* array2[i];

scalarProduct += resultArray[i];

}

Console.WriteLine($"Scalar Product: {scalarProduct}");

}

}

}

Question 8

Create a new class file called "Animal.cs" with the following content

using System;

namespace AnimalApp

{

public class Animal

{

public void Display()

{

Console.WriteLine("I am an animal.");

}

}

}

Create another class file called "Dog.cs" with the following content

using System;

namespace AnimalApp

{

public class Dog : Animal

{

public void DisplayDog()

{

Console.WriteLine("I have four legs.");

}

}

}

Modify the "Program.cs" file (main class) to create relevant class objects and display the required output

Modify the "Program.cs" file (main class) to create relevant class objects and display the required output