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//program 1

using System;

class Program

{

static void Main()

{

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

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

Console.Write("Enter the width of the triangle: ");

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

Console.WriteLine();

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

{

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

{

Console.Write(number + " ");

}

Console.WriteLine();

}

}

}

//program2

using System;

class Program

{

static void Main()

{

Console.WriteLine("Enter the elements of the first array (separated by spaces):");

int[] array1 = GetIntArrayFromInput();

Console.WriteLine("Enter the elements of the second array (separated by spaces):");

int[] array2 = GetIntArrayFromInput();

bool result = CheckFirstOrLastElementEquality(array1, array2);

Console.WriteLine("First or last element equality: " + result);

}

static int[] GetIntArrayFromInput()

{

string input = Console.ReadLine();

string[] numbers = input.Split(' ');

int[] array = new int[numbers.Length];

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

{

array[i] = int.Parse(numbers[i]);

}

return array;

}

static bool CheckFirstOrLastElementEquality(int[] array1, int[] array2)

{

if (array1.Length > 0 && array2.Length > 0)

{

if (array1[0] == array2[0] || array1[array1.Length - 1] == array2[array2.Length - 1])

{

return true;

}

}

return false;

}

}

//program3

using System;

class Program

{

static void Main()

{

Console.WriteLine("Enter the marks obtained in Maths:");

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

Console.WriteLine("Enter the marks obtained in Physics:");

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

Console.WriteLine("Enter the marks obtained in Chemistry:");

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

int totalMarks = mathMarks + physicsMarks + chemistryMarks;

bool isEligible = (mathMarks >= 65 && physicsMarks >= 55 && chemistryMarks >= 50 && totalMarks >= 180)

|| (mathMarks + physicsMarks >= 140);

if (isEligible)

{

Console.WriteLine("Eligible for admission to the professional course.");

}

else

{

Console.WriteLine("Not eligible for admission to the professional course.");

}

}

}

//program4

using System;

class Program

{

static void Main()

{

Console.WriteLine("Enter the number of rows in the Fibonacci Triangle:");

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

GenerateFibonacciTriangle(numRows);

}

static void GenerateFibonacciTriangle(int numRows)

{

int firstNumber = 0;

int secondNumber = 1;

int nextNumber;

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

{

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

{

Console.Write(firstNumber + " ");

nextNumber = firstNumber + secondNumber;

firstNumber = secondNumber;

secondNumber = nextNumber;

}

Console.WriteLine();

}

}

}

//program5

using System;

using System.Collections.Generic;

class Program

{

static void Main()

{

Stack<int> stack = new Stack<int>();

stack.Push(10);

stack.Push(20);

stack.Push(30);

stack.Push(40);

stack.Push(50);

Console.WriteLine("Original Stack:");

PrintStack(stack);

int elementToRemove = 30;

RemoveElementFromStack(stack, elementToRemove);

Console.WriteLine("Stack after removing element {0}:", elementToRemove);

PrintStack(stack);

}

static void RemoveElementFromStack(Stack<int> stack, int element)

{

Stack<int> tempStack = new Stack<int>();

while (stack.Count > 0)

{

int current = stack.Pop();

if (current != element)

{

tempStack.Push(current);

}

else

{

break;

}

}

while (tempStack.Count > 0)

{

int current = tempStack.Pop();

stack.Push(current);

}

}

static void PrintStack(Stack<int> stack)

{

foreach (int element in stack)

{

Console.Write(element + " ");

}

Console.WriteLine();

}

}

//program6

using System;

class Vehicle

{

private string brand;

private string color;

private double price;

private int yearOfManufacturing;

public Vehicle(string brand, string color, double price, int yearOfManufacturing)

{

this.brand = brand;

this.color = color;

this.price = price;

this.yearOfManufacturing = yearOfManufacturing;

}

public void DisplayDetails()

{

Console.WriteLine("Brand: {0}", brand);

Console.WriteLine("Color: {0}", color);

Console.WriteLine("Price: {0}", price);

Console.WriteLine("Year of Manufacturing: {0}", yearOfManufacturing);

}

public double CalculateDepreciation(int currentYear)

{

int yearsOld = currentYear - yearOfManufacturing;

double depreciationPercentage = 0.1;

double depreciationAmount = price \* yearsOld \* depreciationPercentage;

double currentMarketValue = price - depreciationAmount;

return currentMarketValue;

}

}

class Program

{

static void Main()

{

Vehicle car = new Vehicle("Toyota", "Blue", 25000, 2018);

Console.WriteLine("Vehicle Details:");

car.DisplayDetails();

Console.WriteLine();

int currentYear = 2023;

double currentMarketValue = car.CalculateDepreciation(currentYear);

Console.WriteLine("Current Market Value: {0}", currentMarketValue);

}

}