

Detyra te shtepise

Hyrje ne Struktura e te te Dhenave

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Viti I-Grupi II

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1.Write an expression that checks whether an integer is odd or even.

using System;

namespace ConsoleApp1

{

class Program

{

static void Main(string[] args)

{

Random rnd = new Random();

int a = rnd.Next(0, 100);

Console.WriteLine(a);

if (a % 2 == 0)

{

Console.WriteLine("Even");

}

else

{

Console.WriteLine("Odd");

}

}

}

}

2.Write a Boolean expression that checks whether a given integer in divisible by both 5 and 7,without a remainder.

using System;

namespace ConsoleApp2

{

class Program

{

static void Main(string[] args)

{

int number;

Console.WriteLine("Enter your number: ");

bool isInt = int.TryParse(Console.ReadLine(), out number);

if (isInt)

{

if (number % 2 == 0)

{

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

}

else

{

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

}

}

else

{

Console.WriteLine("Not a valid entery!");

}

}

}

}

3.Write an expression that checks for a given integer if its third figit(right to left) is 7.

using System;

namespace ConsoleApp3

{

class Program

{

static void Main(string[] args)

{

Console.Write("Please enter a number: ");

int number = int.Parse(Console.ReadLine());

int thirdDigit = (number / 100) % 10;

if(thirdDigit == 7)

{

Console.WriteLine("The third Digits IS seven!");

}

else

{

Console.WriteLine("The third digit iS NOT seven.");

}

}

}

}

4.Write an expression that checks whether the third bit in a given integer is 1 or 0.

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

namespace \_5.CheckIfBit3Is1Or0

{

class Program

{

static void Main()

{

bool is3Digit1 = false;

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

int number;

bool isNumber = int.TryParse(Console.ReadLine(), out number);

if (isNumber)

{

if ((number & 8) == 8)

{

is3Digit1 = true;

}

Console.WriteLine("Is the third digit equal to 1?:{0}", is3Digit1);

}

else

{

Console.WriteLine("Not a valid entry!");

}

}

}

}

5.Write an expression that calculates the area of a trapezoid by given sides a, b and height h.

using System;

namespace ConsoleApp5

{

class Program

{

static void Main(string[] args)

{

Console.Write("Ju lutem jepni gjatesine e trapezit: ");

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

Console.Write("Ju lutem jepni gjeresine e trapezit: ");

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

Console.Write("Ju lutem jepni lartesine e trapezit: ");

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

int sip = (gjatesia + gjeresia) \* (lartesia / 2);

Console.WriteLine(" ");

Console.WriteLine("Siperfaqja e trapezit eshte : " + sip);

}

}

}

6.Write a program that prints on the console the perimeter and the area of a recentagle by given side and height entered by the user.

using System;

namespace ConsoleApp6

{

class Program

{

static void Main(string[] args)

{

int l, b;

Console.Write("Enter the length of Rectangle: ");

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

Console.Write("Enter the breadth of Rectangle: ");

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

int area = 1 \* b;

int peri = 2 \* (1 + b);

Console.WriteLine("Area of Rectangle is = {0} and Perimeter is = {1}", area, peri);

Console.ReadKey();

}

}

}

7.The gravitional field of the Moon is approximately 17% of that on the Earth.Write a program that calculates the weight of a man on the moon by given a weight on the Earth.

using System;

namespace ConsoleApp7

{

class Program

{

static void Main(string[] args)

{

Console.WriteLine("Please enter your current weight: ");

double weightEarth = double.Parse(Console.ReadLine());

double weightMoon = weightEarth \* 0.17;

Console.WriteLine("Your weight {0} kg. on the Moon will be: {1} kg.", weightEarth, weightMoon);

}

}

}

8.Write an expression that checks for a given point{x,y} if it is within the circle K[{0,0},R=5].Explanation: the point {0,0} is the center of the circle and 5 is the radius.

using System;

public class Program

{

public static void Main()

{

for (int i = 0; i <= 1; i--)

{

int c = 5 \* 5;

Console.WriteLine("Enter the a^2: ");

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

Console.WriteLine("Enter the b^2: ");

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

double ansa = a \* a;

double ansb = b \* b;

double ans = ansa + ansb;

Console.WriteLine(ans <= c ? "Inside of the circle" : "Out of bounds");

}

Console.Read();

}

}

9. Write an expression that checks for a given point{x,y} if it is within the circle K[{0,0},R=5] and out of the rectangle[{-1,1}, {5,5}].Clarification: for the recentangle the lower left and the upper right corners are given.

using System;

namespace ConsoleApp9

{

class Program

{

static void Main(string[] args)

{

Console.Write("Enter x: ");

int x = Convert.ToInt32(Console.ReadKey());

Console.Write("Enter y: ");

int y = Convert.ToInt32(Console.ReadKey());

bool isInsideCircle = (x \* x + y \* y <= 5) ? true : false;

bool isOutsideRectangle = (x < -1 && x > 5 && y < 1 && y > 5) ? true : false;

Console.WriteLine("The point O({0},{1}) is inside K((0,0),5)?: {2}", x, y, isInsideCircle);

Console.WriteLine("The point O({0},{1}) is outside rectangle ((-1, 1), (5, 5)?: {2}", x, y, isOutsideRectangle);

}

}

}

10.Write a program that takes as input a four-digit number in format abcd(e.g.2011) and performs the following actions:

-Calculates the sum of the digits(in our example 2+0+1+1=4).

-Prints on the console the number in reserved order: dcba(in our example 1102).

-Puts the last digit in the first position: dabc(in our example 1201)

-Exchange the second and the third digits: acbd(in our example 2101).

using System;

namespace ConsoleApp10

{

class Program

{

static void Main(string[] args)

{

Console.Write("Enter number: ");

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

int a = number / 1000;

int b = (number / 100) % 10;

int c = (number / 10) % 10;

int d = number % 10;

Console.WriteLine("1.Sum of digits = {0}", a + b + c + d);

Console.WriteLine("2.Digits backwards = {3}{2}{1}{0}", a, b, c, d);

Console.WriteLine("3.Last digit on first place = {3}{0}{1}{2}", a, b, c, d);

Console.WriteLine("4.Replace third and second digit = {0}{2}{1}{3}", a, b, c, d);

}

}

}

11.We are given numbers n and position p.Write a sequence of operations that prints the value of the bit on the position p in the number (0 or 1).Example: n=35,p=5->1.Another example:n=35,p=6->0.

using System;

namespace ConsoleApp11

{

class Program

{

static void Main(string[] args)

{

int n = 35, p = 6, i = 1, mask = i << p;

Console.WriteLine((n & mask) != 0 ? "Third bit is 1" : "Third bit is 0");

}

}

}

12.Write a Boolean expression that checks if the bit on position p in the integer v has the value 1.Examole v=5.p=1->false.

using System;

namespace ConsoleApp12

{

class Program

{

static void Main(string[] args)

{

bool isDigit1 = false;

byte p;

int v;

Console.Write("Enter the position of the bit p:");

bool ispByte = byte.TryParse(Console.ReadLine(), out p);

Console.Write("Enter the integer number v:");

bool isvInt = int.TryParse(Console.ReadLine(), out v);

if (ispByte && isvInt && p < 32)

{

int mask = 1 << p;

if ((v & mask) == mask)

{

isDigit1 = true;

}

Console.WriteLine("Is bit{0} of intiger {1} equal to 1?:{2}", p, v, isDigit1);

}

else

{

Console.WriteLine("Not a valid entry!");

}

}

}

}

13.Wre are given the number n,the value v(v=0 or 1)and the position p.Write a sequence of operations that changes the value of n,so the bit on the position p has the value of v.Example: n=35, p=5, v=0->3.Another example:n=35, p=2,v=1->n=39.

using System;

namespace ConsoleApp13

{

class Program

{

static void Main(string[] args)

{

int n = 350;

int v = 0;

int p = 3;

n = (v == 0) ? n = n & (~(1 << p)) : n = n | (1 << p);

Console.WriteLine(n);

}

}

}

14.Write a program that checks if a given number n(1 < n <100) is a prime number(i.e. it is divisible without remainder only to itself and 1).

using System;

namespace ConsoleApp14

{

class Program

{

static void Main(string[] args)

{

int number = 1;

bool isPrime = true;

if (number > 2)

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

{

if (number % i == 0) isPrime = false;

}

Console.WriteLine("{0} is prime?: {1}", number, isPrime);

}

}

}

15.Write a program that exchanges the values of the bits on positions 3,4 and 5 with bits on the positions 24,25 and 16 of a given 32-bit unsigned integer.

using System;

namespace ConsoleApp18

{

class Program

{

static void Main(string[] args)

{

uint n;

Console.Write("Enter the unsigned integer number n:");

bool isnInt = uint.TryParse(Console.ReadLine(), out n);

if (isnInt)

{

Console.WriteLine("binary initial n:");

Console.WriteLine(Convert.ToString(n, 2).PadLeft(32, '0'));

n = ((~(7u << 24 | 7u << 3)) & n) | (((n & (7u << 3)) << 21) | ((n & (7u << 24)) >> 21));//Swap bits 3,4,5 with 24,26,26

Console.WriteLine("binary new n:");

Console.WriteLine(Convert.ToString(n, 2).PadLeft(32, '0'));

}

else

{

Console.WriteLine("Not a valid entry!");

}

}

}

}

16.Write a program that exchanges bits{p,p+1,…p+k-1} with bits{q,q+1,…q+k-1} of a given 32-bit unsigned integer.

using System;

namespace ConsoleApp17

{

class Program

{

static void Main(string[] args)

{

uint n;

byte p, q, k;

Console.Write("Enter the unsigned integer number n:");

bool isnInt = uint.TryParse(Console.ReadLine(), out n);

Console.Write("Enter the start position of the first bit sequence p:");

bool ispByte = byte.TryParse(Console.ReadLine(), out p);

Console.Write("Enter the start position of the second bit sequence q:");

bool isqByte = byte.TryParse(Console.ReadLine(), out q);

Console.Write("Enter the lenght of the sequence k:");

bool iskByte = byte.TryParse(Console.ReadLine(), out k);

if (isnInt & ispByte & isqByte & iskByte)

{

if ((p + k) < 31 && (q + k) < 31 && (Math.Abs(p - q) >= k))

{

if (p > q)

{

byte temp = q;

q = p;

p = temp;

}

Console.WriteLine("binary initial n:");

Console.WriteLine(Convert.ToString(n, 2).PadLeft(32, '0'));

n = ((~(((uint)Math.Pow(2, k) - 1) << q | ((uint)Math.Pow(2, k) - 1) << p)) & n) | (((n & (((uint)Math.Pow(2, k) - 1) << p)) << (Math.Abs(p - q))) | ((n & (((uint)Math.Pow(2, k) - 1) << q)) >> (Math.Abs(p - q))));//Swap bits p with bits q

Console.WriteLine("binary new n:");

Console.WriteLine(Convert.ToString(n, 2).PadLeft(32, '0'));

}

else

{

Console.WriteLine("Not a valid entry!");

}

}

else

{

Console.WriteLine("Not a valid entry!");

}

}

}

}