Завдання 1

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace lab9\_1

{

class Program

{

static void Main(string[] args)

{

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

Random rand = new Random();

for (int i = 0; i < mas.GetLength(0); i++)

for (int j = 0; j < mas.GetLength(1); j++)

mas[i, j] = rand.Next(-10, 10);

Console.WriteLine("Матриця");

MethodAct(mas, Show);

Console.WriteLine();

Console.WriteLine("Матриця з позитивними елементами");

MethodAct(mas, ShowPositive);

Console.WriteLine();

Console.WriteLine("Матриця з позитивними елементами , які помножені на 3");

MethodFunc(ref mas, Mult3);

MethodAct(mas, Show);

Console.WriteLine();

Console.ReadLine();

}

static void MethodAct(int[,] arr, Action<int> act)

{

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

{

for (int j = 0; j < arr.GetLength(1); j++)

{

act(arr[i, j]);

}

Console.WriteLine();

}

}

static void MethodFunc(ref int[,] arr, Func<int, int> func)

{

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

for (int j = 0; j < arr.GetLength(1); j++)

if (arr[i, j] > 0)

arr[i, j] = func(arr[i, j]);

}

static void Show(int num)

{

Console.Write(num + " ");

}

static void ShowPositive(int num)

{

if (num >= 0)

Console.Write(num + " ");

}

static int Mult3(int num)

{

return num \* 3;

}

}

}

Завдання 2

using System;

using System.Collections.Generic;

using System.IO;

using System.Linq;

using System.Text;

using System.Text.RegularExpressions;

using System.Threading.Tasks;

namespace lab9\_2

{

class Program

{

public static string patch = "text.in";

static void ReadFiles(FileStream file, Action<FileStream> act)

{

act(file);

file.Seek(0, SeekOrigin.Begin);

}

static void Show(FileStream file)

{

byte[] arr = new byte[file.Length];

file.Read(arr, 0, arr.Length);

Console.Write(System.Text.Encoding.Default.GetString(arr));

}

static void ShowNum(FileStream file)

{

string num = "";

byte[] arr = new byte[file.Length];

file.Read(arr, 0, arr.Length);

string str = Encoding.Default.GetString(arr);

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

{

while (Char.IsDigit(str[i]))

{

num += str[i];

if (i == str.Length - 1) break;

else i++;

}

if (num != "")

{

Console.Write(num + " ");

num = "";

}

}

}

static void DotReplace(FileStream file)

{

byte[] arr = new byte[file.Length];

file.Read(arr, 0, arr.Length);

string str = Encoding.Default.GetString(arr).Replace(".", " ").Replace(",", " ");

byte[] arr2 = Encoding.Default.GetBytes(str);

file.SetLength(0);

file.Write(arr2, 0, arr2.Length);

Console.WriteLine(str);

}

static void Main(string[] args)

{

using (FileStream file = new FileStream(patch, FileMode.Open, FileAccess.ReadWrite))

{

ReadFiles(file, Show);

Console.WriteLine();

ReadFiles(file, ShowNum);

Console.WriteLine();

ReadFiles(file, DotReplace);

};

Console.ReadLine();

}

}

}

Завдання 3

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace lab9\_3

{

class Program

{

delegate double CircleDel(double a);

static void Main(string[] args)

{

CircleDel cDel;

Circle c = new Circle();

double r = 2;

cDel = c.Length;

Console.WriteLine("Довжина кола: {0}", cDel(r));

cDel = c.Area;

Console.WriteLine("Площа круга: {0}", cDel(r));

cDel = c.Volume;

Console.WriteLine("Об'єм кулi: {0}", cDel(r));

Console.ReadLine();

}

}

}

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace lab9\_3

{

class Circle

{

public double Length(double r)

{

return 2 \* Math.PI \* r;

}

public double Area(double r)

{

return Math.PI \* r \* r;

}

public double Volume(double r)

{

return (4 / 3) \* Math.PI \* r \* r \* r;

}

}

}

Завдання 4

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace lab9\_4

{

class Program

{

delegate int Operation(int a, int b);

static void Main(string[] args)

{

Dictionary<String, Operation> op = new Dictionary<String, Operation>();

op["add"] = (a, b) => a + b;

op["mult"] = (a, b) => a \* b;

Console.WriteLine(op["add"](5, 3));

Console.WriteLine(op["mult"](6, 7));

Console.ReadLine();

}

}

}