02 Arrays and Strings

Test your Knowledge

1.

When to use String vs. StringBuilder in C# ?

String can be used in any situation, string builder is used when you want to modify part of the string easier

2.

What is the base class for all arrays in C#?

Arrays class

3.

How do you sort an array in C#?

Array.sort();

4.

What property of an array object can be used to get the total number of elements in an array?

length

5.

Can you store multiple data types in System.Array?

In a single array, no, but all data type can be store in arrays

6.

What’s the difference between the System.Array.CopyTo() and System.Array.Clone()?

CopyTo needs a existing array to copy to and it can specify the index to paste.

Clone returns a new Object of the array

Practice Arrays

1.

Copying an Array

Write code to create a copy of an array. First, start by creating an initial array. (You can use

whatever type of data you want.) Let’s start with 10 items. Declare an array variable and

assign it a new array with 10 items in it. Use the things we’ve discussed to put some values in the array.

Now create a second array variable. Give it a new array with the same length as the first.

Instead of using a number for this length, use the Length

property to get the size of the original array.

Use a loop to read values from the original array and place them in the new array. Also print out the contents of both arrays, to be sure everything copied correctly.

2.

Write a simple program that lets the user manage a list of elements. It can be a grocery list,

"to do" list, etc. Refer to

Looping Based on a Logical Expression

if necessary to see how to

implement an infinite loop. Each time through the loop, ask the user to perform an

operation, and then show the current contents of their list. The operations available should

be Add, Remove, and Clear. The syntax should be as follows:

+ some item

- some item

--

Your program should read in the user's input and determine if it begins with a “+” or “-“ or

if it is simply “—“ . In the first two cases, your program should add or remove the string

given ("some item" in the example). If the user enters just “—“ then the program should

clear the current list. Your program can start each iteration through its loop with the

following instruction:

Console.WriteLine("Enter command (+ item, - item, or -- to clear)):");

3.

Write a method that calculates

all prime numbers in given range

and returns them as array

of integers

staticint[] FindPrimesInRange(startNum, endNum) { }

4.

Write a program to read an array of n integers

(space separated on a single line) and an

integer k, rotate the array right ktimes

and sum the obtained arrays after each rotation as

shown below.

After r rotations the element at position I goes to position (I + r) % n.

The sum[] array can be calculated by two nested loops:

for r = 1... k; for I = 0... n - 1.

Input Output Comments

3 2 4 -1 3 2 5 6 rotated1[] = -1 3 2 4

2rotated2[] = 4 -1 3 2

sum[] = 3 2 5 6

1 2 3 4 5 12 10 8 6 9 rotated1[] = 5 1 2 3 4

3rotated2[] = 4 5 1 2 3

rotated3[] = 3 4 5 1 2

sum[] = 12 10 8 6 9

5.

Write a program that finds the

longest sequence of equal elements

in an array of integers.

If several longest sequences exist, print the leftmost one.

Input Output

2 1 1 2 3 3 2 2 2 1 2 2 2

1 1 1 2 3 1 3 3 1 1 1

4 4 4 4 4 4 4 4

0 1 1 5 2 2 6 3 3 1 1

7.

Write a program that finds the

most frequent number

in a given sequence of numbers. In

case of multiple numbers with the same maximal frequency, print the leftmost of them

1 / 4