First Arrays Manipulations

https://csci-1301.github.io/about#authors

June 16, 2021 (10:53:12 PM)

Contents

1 First Array Manipulation

1.1 Warm-up

Write a program that implements the following steps:

1. declares an array `myArray` of `int` of size 5,

   Question What values are stored in this array

2. initializes `myArray` with the values 1, 2, 3, 4 and 5,

   Question There are a few different ways you can declare and initialize array of size 5 holding values 1, 2, 3, 4 and 5. Can you think of two different ways to do this?

3. displays the content of `myArray`.

1.2 Going wrong

Now, let us write *incorrect* statements.

Add the following statement to the program you created in the warm-up part, and observe how C# reacts, that is, try to compile and execute the program after adding this line:

```
myArray = { 1, 2 ,3, 4, 5};
```

Remove the previous line. Then add this statement:

```
Console.WriteLine(myArray[5]);
```

try to compile and execute the program.

Then, remove previous line, and add this:

```
myArray[5] = 12;
```

try to compile and execute the program again.

Remove previous line. Add this line and try executing the program:

```
Console.WriteLine(myArray);
```

Now answer the following questions.

1. One of these statements is not "incorrect" in the sense that it won't prevent your program from executing, but it is not doing what you would have expected: which one?
2. Can you read and understand the error messages you obtained for the others?

2 Second Array Manipulation

Write a program that

1. declares an array `myArray` of `int` of size 10,
2. initializes `myArray` with the values 1, 2, 3, ..., 9 and 10,
3. displays the content of `myArray`.
4. sums the values stored in `myArray` and displays the result.
5. computes the product of the values stored in `myArray` and displays the result.

3 Exploring arrays

For this exercise you will need an array to work with. Let's create one:

- declare a `char` array of length 6, name it `letters`
- initialize the first 4 indices of `letters` with following values: `'a'`, `'b'`, `'c'`, `'d'`
- initialize index 5 of `letters` with value `'f'`

Now, write the following statements:

1. Write a statement to display the last `char` value in `letters`? (should display `f`)
2. Write a statement to display value stored at index 4. What is the value? Why?
3. Write a statement to display characters in the first half of the array (`'a'`, `'b'`, `'c'` but no others).

Execute your program to ensure you seeing the expected output before proceeding.

Next, update the part of the program where `letters` is declared and change `letters` length to 8. Do not modify any other parts of the program. Then execute the program again.

Answer the following questions:

1. What is the last `char` of the `letters` array now after changing the length?
2. Does your program still output *the last* `char` value in `letters` array?
3. When displaying the first half of the array, does your program still display *the first half*? (After changing length the first half contains values `'a'`, `'b'`, `'c'`, `'d'`)
4. If you did not get the last value, or first half you expected, can you think of a way to perform these array operations in a way that can accomodate arrays of different lengths?