Polytechnic University of Puerto Rico
Electrical and Computer Engineering & Computer Science Department
CECS 2223 – Computer Programming I Lab

Lab 6

Name: Coral S. Schmidt Montilla ID#: 148830

1. Copy the source code developed for Lab 6 and paste it as **text** below. (*15 points*)

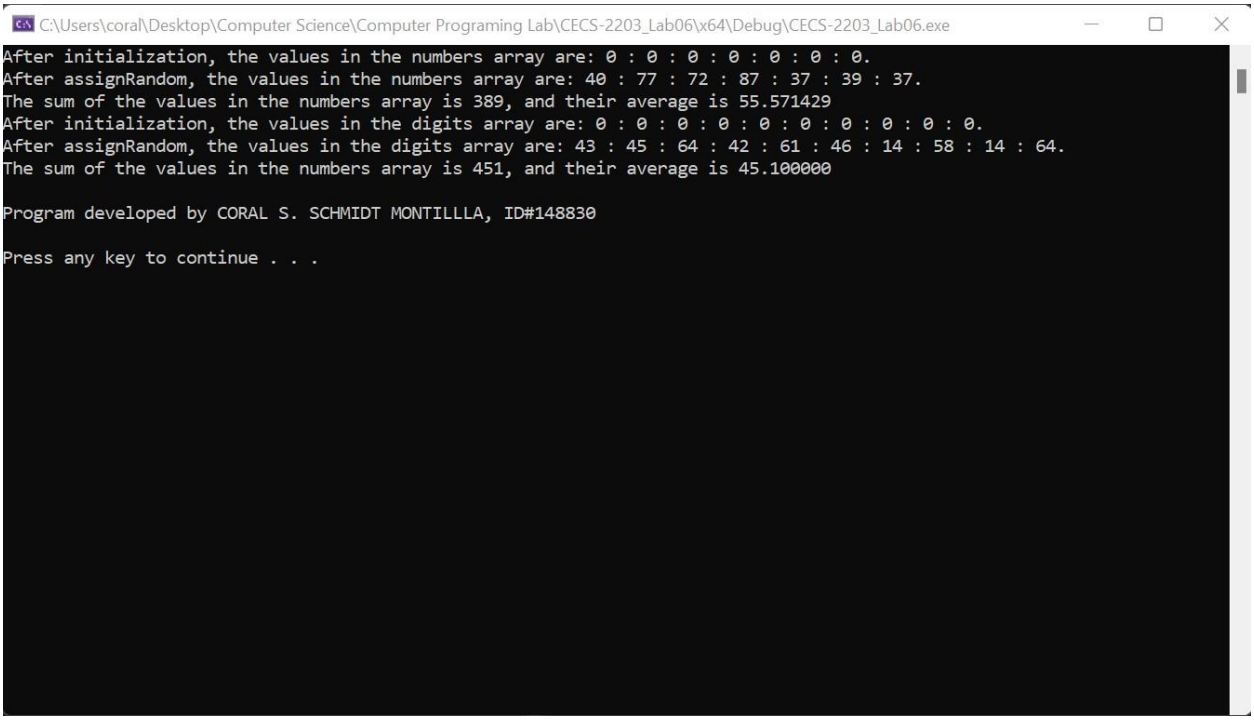
```
/*
* CECS 2203, Computer Programming I Lab
* Spring 2023, Sec. 06
* Date: April 27, 2023
* Topic: Lab 7 - Static variables and arrays as arguments to functions
* File name: lab06.cpp
*
* Complete the program by writing the correct C++ statements.
*
* Name: CORAL S. SCHMIDT MONTILLA, YOUR ID# 148830
*/
// write the appropriate include statement
#include <iostream>

// write the appropriate using statement
using namespace std;

// declare a method named assignRandom which receives an integer array and a
// constant integer value as parameters and has no return value.
void assignRandom(int[], const int);

// declare a method named computeMean which receives a constant integer array
// and a constant integer value as parameters and returns a double value.
double computeMean(const int[], const int);

// declare a method named addValues which receives a constant integer array
// and a constant integer value as parameters and returns an integer value.
int addValues(const int[], const int);

// declare a method named displayValues which receives a constant integer array
// and a constant integer value as parameters and has no return value.
void displayValues(const int[], const int);

void personalInfo(); // method prototype

int main() {
	// Write the statement that declares the constant integer variables LENGTH
and
	// CAPACITY and initializes the first one to 7 and the second one to 10.
	const int LENGTH = 7;
	const int CAPACITY = 10;

	// Write the statement that declares an integer array named numbers and
	// initializes all elements to 0. Use the constant LENGTH as the size of the
array.
	int numbers[LENGTH] = { 0 };
```

```
	// Print the phrase "After initialization, the values in the numbers array
are: ", do not include an endl
	printf("After initialization, the values in the numbers array are: ");

	// call the displayValues method to print the values in the numbers array
	displayValues(numbers, LENGTH);

	// call the assignRandom method to set new values for the numbers array
	assignRandom(numbers, LENGTH);

	// Print the phrase "After assignRandom, the values in the numbers array are:
", do not include an endl
	printf("After assignRandom, the values in the numbers array are: ");

	// call the displayValues method to print the values in the numbers array
	displayValues(numbers, LENGTH);

	// Print the phrase
	// "The sum of the values in the numbers array is [sum], and their average is
[average]"
	// Substitute [sum} for the return value of the addValues method and
[average] for the
	// return value of the computeMean function. Make sure to add a blank line
after the phrase.
	printf("The sum of the values in the numbers array is %i, and their average
is %f\n", addValues(numbers, LENGTH), computeMean(numbers, LENGTH));

	// Write the statement that declares an integer array named digits and
	// initializes all elements to 0. Use the constant CAPACITY as the size of
the array.
	int digits[CAPACITY] = { 0 };

	// Print the phrase "After initialization, the values in the digits array
are: ", do not include an endl
	printf("After initialization, the values in the digits array are: ");

	// call the displayValues method to print the values in the digits array
	displayValues(digits, CAPACITY);

	// call the assignRandom method to set new values for the digits array
	assignRandom(digits, CAPACITY);

	// Print the phrase "After assignRandom, the values in the digits array are:
", do not include an endl
	printf("After assignRandom, the values in the digits array are: ");

	// call the displayValues method to print the values in the digits array
	displayValues(digits, CAPACITY);

	// Print the phrase
	// "The sum of the values in the digits array is [sum], and their average is
[average]"
```

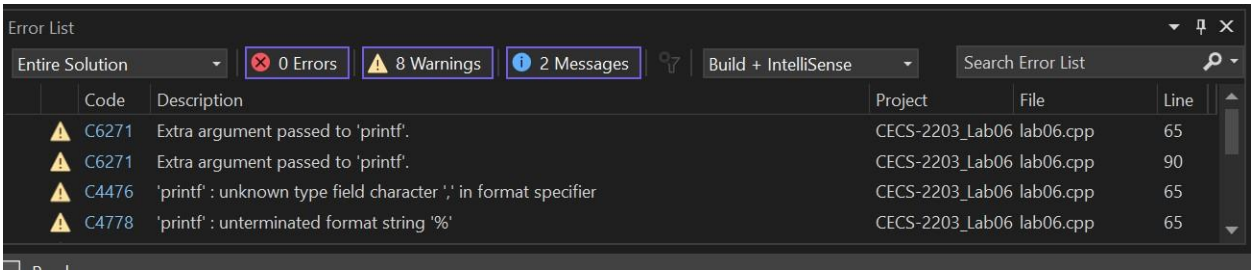
```
	// Substitute [sum} for the return value of the addValues method and
[average] for the
	// return value of the computeMean function.
	printf("The sum of the values in the numbers array is %i, and their average
is %f\n", addValues(digits, CAPACITY), computeMean(digits, CAPACITY));

	// Write the statement that calls the personalInfo method
	personalInfo();

	system("pause"); // for Visual Studio only
	return 0;
}
// Method definitions

// The assignRandom which receives an integer array and its size as parameters
// and has no return value. It assigns a random value in the range of 2 to 99 to
// every element of the array. Declare a static unsigned integer variable named
// spark and initialize it to 0. Call the srand method using the value of spark as
// argument to seed the pseudo random number generator. Develop a for iteration
// control structure which assigns a random value to each element of the array.
// Increment the value of spark after the values have been assigned.
void assignRandom(int arr[], const int size) {

	static unsigned int spark = 0;

	srand(spark);

	for (int i = 0; i < size; i++) {

		arr[i] = rand() % 98 + 2;

	}

	spark++;

}

// The computeMean method receives an integer array and its size as parameters
// and returns a double value. It computes the average of the values in the array
// by returning the result of the return value of addValues divided by the size.
// Make sure that the value returned is a double!
// DO NOT declare variables in this method.
double computeMean(const int array[], const int size) {

	return static_cast<double>(addValues(array, size)) / size;

}


// The addValues method receives an integer array and its size as parameters
// and returns an integer value. It computes the sum of the values in the array.
// Declare an integer variable named suma and initialize it to 0. Develop a for
// iteration control structure that adds all the values and stores the intermediate
// sum in suma. The method returns the value of suma.
```

```
int addValues(const int arrAy[], const int tamano) {

	int suma = 0;

	for (int i = 0; i < tamano; i++) {
		suma += arrAy[i];
	}

	return suma;

}

// The displayValues method receives an integer array and its size as parameters
// and has no return value. It prints the values in the array separated by colons,
except
// for the last one which is followed by a period. For example, if the contents of
the
// array are 4, 5, and 6, this method would print "4 : 5 : 6."
// Make sure to add a blank line after the values are printed.
void displayValues(const int arr[], const int misurare) {

	for (int i = 0; i < misurare; i++) {

		printf("%i", arr[i]);

		if (i != misurare - 1)
			printf(" : ");

		else
			printf(". \n");
	}


}


// The personalInfo method has no parameters or return value. It prints the phrase
// "Program developed by [YOUR NAME], ID#[YOUR ID NUMBER]", where the square
brackets
// and the text within is substituted with your personal information. Make sure to
add
// a blank line before and after the phrase is printed.
void personalInfo() {

	printf("\nProgram developed by CORAL S. SCHMIDT MONTILLLA, ID#148830\n\n");

}
```

2. Paste the screenshots of the program's execution below. (*5 points*)



3. Comment on any warnings or errors revealed by Visual Studio. If any error messages were present, list the error and describe how you corrected it. If no errors or warnings were revealed, comment on the most important aspect of developing the solution. (*5 points*)



Me di cuenta que en los printf escribi i% enves de %i.