**CS240 Programming In C**

Homework 3

Arrays

100 pts

Due Tuesday Apr. 2 11:59 pm

(50 pts.) Please write a program where you separate odd and even integers in separate arrays. Your program will take the following inputs, a value for the number of elements in an array, as well as array elements. Then based on these inputs, you will separate odd and even integers into separate arrays. Lastly you will print the elements. An example is shown belowA screenshot of a computer

Description automatically generated

Please note that your code should also explicitly print out the elements of the array as well as the even elements and the odd elements. Please name this Q1.c

(25 pts.) Please write a program where you will count the total number of duplicate elements in an array. Your program will take the following inputs, a value for the number of elements in an array, as well as array elements. Your code will then print out the number of duplicates found in the array. An example is shown below:

A black screen with white text

Description automatically generated

A black screen with white text

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A black screen with white text

Description automatically generated

Notice that when “1” is repeated, there is only one duplicate element found in the array. When “1” and “3” are repeated, we see that there are two duplicate elements found in the array. Lastly, when “1” is repeated two times we also see that the printout states there are 2 duplicate elements found in the array. You should test your code for these conditions. Your code should also explicitly print out the elements of the array as well as the total number of duplicate elements found in the array. Please name this Q2.c

(25 pts.) Please write a program where you will print all unique elements in an array. Your code will take the following inputs, a value for the number of elements in the array as well as array elements. An example is shown below:

A screen shot of a computer

Description automatically generated

Notice here that “2” “3” and “5” only occur once hence they are unique in this array. “1” is repeated therefore it is not unique. Your code must take an arbitrary value for the array size and then be able to store and find the unique values. Your code should also explicitly print out the elements of the array as well as the unique elements found in the array. Please name this Q3.c

Please thoroughly test your code for errors and bugs before submission. You must include a makefile with your submission. If your code does not compile you will incur an automatic **50-point penalty**.

**Please submit the following to the Unix Server:**

* Q1,Q2,Q3.c files
* Makefile
* Readme