GOODLUCK CAISER MALATA
ADVANCED ALGORITHMS AND DATA STRUCTURES

A) SCENARIO: MATCHING SOCKS

The merchant has a big pile of socks from which she/he wants to pair up socks such that she/he keeps the pile as organized pairs of similar socks. Pairing up the socks will be based on the color (two socks of the same color will be paired up).

INTERPRETATION

There is a total number of socks found in the pile and an array representing the colors of each sock. The ***matchingSocks*** function will return the number of pairs of socks. The socks with no matching colors will be discarded.

For example:

number of socks: 10

Array of colors[10] = {1,2,1,3,4,2,5,4,1,3}

Pairs returned: 4

Point to note: We have come up with 1 pair of color 1, 1 pair of color 2, 1 pair of color 3, and 1 pair of color 4 hence 3 pair

B) PSEUDOCODE

1. Create a function, the function will take an array and number of socks as an argument.
2. Inside the function name a variable to hold the count value for the number of pairs. N.b initial value is zero
3. The following step is to sort the array in ascending/descending order
4. Create a while loop that will check all the sorted values of the array. The while loop will check for the resemblance in the item and next to it, if they are the same it adds up to the count variable, if not it will proceed to the next item of the array.
5. Lastly, return the value which was stored by the count variable.

C) **TIME COMPLEXITY**: **0(n)**

D) TESTING:

Code returned zero errors and passed all the test cases with hackerank. below is a screenshot with hackerank test result.