CO322 – Data Structures and Algorithms

Lab 03 - Algorithm Explanation for the Problems

E/18/180 – Kodituwakku M.K.N.M.

1. Closest Numbers

First I made a function to sort the array and then I sorted the input array. Then I made a new array to store the difference between adjacent numbers and then I looped through the input array and took the difference and store it in the new array and also I stored the minimum difference in a variable after taking the all the difference between adjacent numbers next I looped again the diff array and if the difference is not the minimum value I changed the input array element to max int value if the difference is min difference value then I don't changed the adjacent two values and after looping through all the array then I returned the array.

When printing if the element in the array isn't the max int value then I printed those values.

2. Lily's Homework

First I made a copy of the integer array to make it to the decreasing order and then I made another two arrays for each ascending and descending sorted arrays and then I sorted the two arrays in normal and reverse sort ways.

Then I made a function to find the minimum and maximum numbers and their index numbers in a given array and return it as the array of {minIndex, maxIndex}.

By the above function I found the index numbers of the minimum and maximum element of the given array.

Then I checked the given array is equal to the sorted arrays and if not I increment the value of swap value or reverseSwap value separately with comparing to min and max values respectively.

After iterating through whole array I returned the minimum value of the swap and reverseSwap value.

3. Fraudulent Activity Notifications

In this initially the notification count is 0.

Then I declared a array of freqArray of 201 elements to track the frequency

Then I looped through the expenditure array and updated frequency in the freqArray array.

Then I calculated the median of the different subsets and add those to new medianArr array.

Then I took the daily expenditure and calculated the notification count and returned the notification count.

4. Names scores

First I took the number of names in the list and made a array of names and add the names to the list and then sorted using collection methods. Then added to a hash map with the index value and the name.
Then I took the query value asked and passed the corresponding query value and the name.
Then I calculated the name value and multiplied the value by the query value and returned the result and printed that value.