

Net ID: wpicc001

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Sources Used:

Communicated with fellow student: Amneh Alsuqi

Website used: <https://www.geeksforgeeks.org/merge-sort/>

Problem A:

Submission ID: 131994975

For Problem A, Merge Them, the process of coding it started quite simple. Take in the first input that is the number of students, and then create an array that takes in the number score for each student.

I then call the mergeSort function, which serves the purpose in recursively calling itself but limiting the size of the array being “worked” by halving it every time. This process repeats until the size of the array being checked is no longer 2 elements. In turn for every call of the mergeSort function, right before the end of the function, it will call the merge function, whose purpose is to compare any given range of elements within the array to then sort them.

For this programming assignment in particular, in order to obtain the number of candies needed, every time the merge function is called and the values of the array are being compared to each other, the final and beginning value of the now sorted range of scores in the array is used to calculate the local difference in scores. That is, the number of candies needed for this specific instance of merging. This value is then returned and added to the recursively calling function that is mergeSort.

Everytime mergeSort is called, it returns the final local value of candies, and adds it to the current total. When the function is done completely, the final return will pass the number of candies to the main method, outputting it.

Problem B:

Submission ID: 131990964

Problem B used Insertion Sort to sort the number of inputted departments and their faculty in order of lowest number of faculty to the highest. With the intention to obtain a majority vote, only a half plus one number of departments was needed to calculate the necessary faculty. Iterating through the array of departments, the majority number of faculty was obtained from each, and added to a total number of faculty. When done iterating, our total number of faculty is our final answer.