ReflexAct1.3.pdf

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The program uses merge Sort and sequential Search.

**Merge Sort**  
The Merge Sort algorithm is a sorting algorithm that is based on the Divide and Conquer paradigm. In this algorithm, the array is initially divided into two equal halves and then they are combined in a sorted manner.  
  
**Sequential Search**

Method for finding an element within a list. It sequentially checks each element of the list until a match is found or the whole list has been searched.

As first step we started opening the txt file and reading line by line (this has a complexity of O (n)) so then we can storage each line into a vector and take the information of the line with the substring method.

We started sorting the info of the file; with sort () method and it ordered all the numeric information provided, this method has a complexity of O (n log n).

Then we converted months to integers to sort them with a function, once as integers we could apply a merge Sort algorithm to order the information by month.

Once having the information in order, we could apply search algorithms, we chose to use sequential Search with a complexity O (n) since we must return a range of data that the user ask for, we couldn’t use Binary Search.  
We used two Sequential Search, one for the start Date and other for the end Date from the user to obtain the range into the ordered information.

And for last we return that information into a new txt file to storage the data asked with a complexity of O (n); the Complexity of the program is O (n log n).