

Lab Assignment 6 :Sorting

Q1. Write an efficient program to sort a file of integers. The input file is a large piece of data (say 100,000 integers), whereas maximum size of an array that can be used inside the program is 1000 integers. Note that you are not allowed to read and write to the same file simultaneously. Generate the input file of numbers using the built-in random number generator rand().

Q2. Assume that you want to sort an array A of n integers each known to be in the range 0,1,2....99. Use an array B of size 100 to count how many times each k in the range 0,1,2,.....9 occurs in A. Then use these counts to rewrite the array A in the sorted order. Your program should use only a number of operations proportional to the size n of A.

Q3. You are given an array of n dates in dd-mm-yyyy format. Propose and algorithm to sort the array in chronological order.

Q4. Suppose an unsorted linked list is in memory. Write a C program to search for an item, and if the search is successful interchange the item with the element in the front of the list. This type of list is known as self-organizing list. It has the property that the items which are frequently accessed are moved to the beginning of the list.