

CS330 - Sorting Problems

Read about the properties of the following sorting algorithms in your text and online resources that you can find and then select the sort algorithm(s) that you would use in the following scenarios. Clearly explain what property of the sorting algorithm(s) makes it a good choice.

- insertion sort
 - selection sort
 - bubble sort
 - heap sort
 - quick sort
 - merge sort
 - radix sort
1. You are working on an embedded device (an ATM) that only has 4KB (4,096 bytes) of free memory, and you wish to sort the 2,000,000 transactions withdrawal history by the amount of money withdrawn (discarding the original order of the transactions)
 2. You are running a library catalog. You know that the books in your collection are almost in sorted ascending order by title, with the exception of one book which is in the wrong place. You want the catalog to be completely sorted in ascending order
 3. To determine which of your Facebook friends were early adopters, you decide to sort them by their Facebook account ids, which are 64-bit integers. (Recall that you are super popular, so you have very many Facebook friends.)
 4. You have a couple of thousand records of information that contain several fields including name, address, and grades. The records are already sorted by name. You want to sort the information by grade but want to make sure that records with the same grade will be listed in order of the sorted names.