

Priority Queues and Heaps

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1 Real Life Example – Selecting Privileged Bank Customers

1.1 Java Code

(code: pq1)

We represent the accounts with integers denoting their balance amount.

2 Priority Queue ADT

3 PQ using Lists

3.1 Fast add, slow remove

(selection sort)

3.2 Slow add, fast remove

(insertion sort)

3.3 Effect of Mutable fields

The functional characteristics of the priority queue may vary from implementation to implementation if the fields being compared are mutable.

3.4 Generic PQs

1. Using `java.lang.Comparable` (code: pq2)
2. Using `java.util.Comparator` (code: pq3)

3.5 Performance Analysis

4 Heap