

Use the Library database to answer the following questions.

1. Write a relational algebra expression to find the libnum of libraries that house a copy of all books written by Anton Chekhov.

2. Suppose the Copy table contains 50,000 rows and there are 100 rows per page. Also suppose there are 50 main memory page buffers that can be used for sorting.

a. How many secondary memory accesses (reads and writes) will be done in order to sort the Copy table? Use the external sorting algorithm (i.e. partial sort then k-way merging) described in the lecture on external sorting.

b. How many merge phases are required to complete the sort?