Name 1:
Name 2:

Suppose that each heap block can hold 10 tuples, and each index block can hold 100 index records (for B+tree indexes). Nodes of the index are 70% full. The relation contains 1 million records.

Determine, for each of the structures determine:

i) The total number of blocks needed by the heap and the leaves of the index.
ii) The average number of disk I/Os needed to retrieve a given search key.

Assume that nothing is in memory initially, and that the search key is the primary key of the table.

a) The table is an unsorted heap, packed 10 to a block. The B+tree is dense.
b) The table is a sorted heap with 10 records per block. The B+tree is sparse and only the first record in each block is in the index.