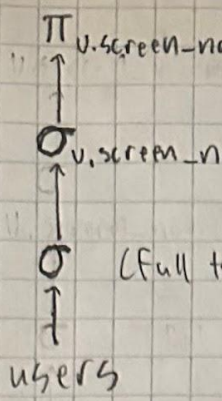
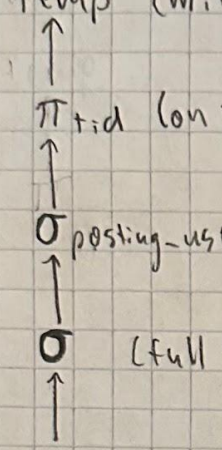
2a. Query 1:



bytes per record: (1·80)+(1·80)+(1·80)+(1·80)+(1·80)+(4·1)+(4·1) = 408
Records per page: floor(4000/408) = floor(9.8) = 9
Num pages: ceil(5000/9) = ceil(555.5) = 556

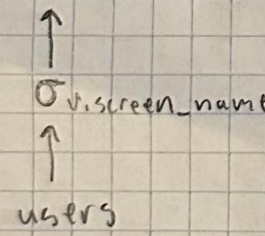
Query 2:



- Disc I/O cost = cost full table scan + write
- Full table scan:
  # bytes per record: (8·1)+(4·1)+(4·1)+(4·1)+(4·1)+(1·80) = 104
  # Records per page: floor(4000/104) = floor(38.4) = 38
  # num page: ceil(10000/38) = ceil(263.1) = 264
- Writing:
  # rows to write: 10000 · 0.1 = 1000
  # bytes per row: 8·1 = 8
  # rows per page: floor(4000/8) = 500
  # data pages to write: ceil(1000/500) = 2

2+264 = 266

2b. Query 1:



Query 2: