Lecture Notes 04
CSE 350 Spring 2026

Quiz 2/3/26

Q1: Consider the naïve EM heap insertion algorithm on Page 14 of lecture slides 03. How many I/Os does this function incurs in the worst case?

Answer: 5. Partial page read entirely contained in a disk page will incur one I/O. Partial page write entirely contained in a disk page will, however, incur up to two I/Os, because the system may have to read the page into an internal buffer, combine the updates in the buffer, and write it back. In this function, there is one partial page read and two partial page writes, so the total amount of I/Os can be up 5.

Q2: Complete the pseudocode for the function `close_heap_with_cache(L)` on Page 15 of lecture slides 03.

Answer:

```
def close_heap_with_cache(L):
    pwrite(L.fd, L.p, 4096, L.pn * 4096)
    pread(L.fd, L.p, 4096, 0)
    p[0:4] <- L.N
    pwrite(L.fd, L.p, 4096, 0)
```