

## Exercise 10

**Problem 1.** In the lecture, we saw that in Epoch-based Reclamation, a deleting process takes a snapshot of all process epochs and records it with the deleted node in the limbo list. Does this snapshot need to be atomic? Why or why not?

**Problem 2.** Write pseudocode for the SCAN method of Hazard Pointers. Recall that the SCAN method goes through the limbo list of a process and checks for every node in the list if it protected by some process' hazard pointer. Can you implement SCAN such that it runs in  $O(m + n)$  time, where  $m$  is the number of nodes in the limbo list and  $n$  is the number of processes?