Quiz 1.1

 What if we reverse the order of the first two lines the 2-process Peterson's algorithm

P0:	P1:
turn = 1;	turn = 0;
<pre>flag[0] = true;</pre>	<pre>flag[1] = true;</pre>
•••	

Would it work?

- Prove that the Tournament Tree algorithm satisfies:
 - ✓ mutual exclusion: no two processes are in the critical section at a time
 - ✓ starvation freedom: every process in the trying section eventually reaches the critical section (assuming no process fails in the trying, critical, or exit sections)



Quiz 1.2: safety

- Let S be a safety property. Show that if all finite runs of an implementation I are safe (belong to S) then all runs of I are safe
- 2. Show that every unsafe run σ has an unsafe finite prefix σ' : every extension of σ' is unsafe
- 1. Show that every property is an intersection of a safety property and a liveness property



Quiz 1.3: liveness

- Show how the elements of the "periodic table of progress" are related to each other
 - ✓Hint: for each pair of properties, A and B, check if any run of A is a run of B (A is stronger than B), or if there exists a run of A that is not in B (A is not stronger than B)
 - ✓Can be shown by transitivity: if A is stronger than B and B is stronger than C, then A is stronger than C



Quiz 1.4: linearizability

- Show that the sequential queue implementation considered before is linearizable and wait-free as is if used by two processes: one performing only enqueue operations and one performing only dequeue operations
- Devise a simple queue implementation shared by any number of processes in which enqueue and dequeue operations can run concurrently (data races between these operations are allowed)

