Assignment 1

PART 1

Q1

- Step 0: flag[0] = false, flag[1] = false
- Step 1: P0 sets flag[0] = true. Process swaps to P1
- Step 2: P1 sets flag[1] = true. Process swaps to P0
- Step 3: P0 runs in while loop
- Step 4: P1 runs in while loop
- Step 5: Both processes stuck in while loop → Deadlock

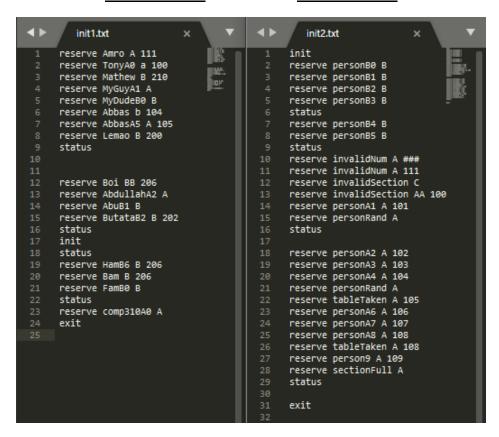
Q2

- Step 0: turn = 0
- Step 1: P0 executes critical section. P1 isn't near critical section yet
- Step 2: P0 finishes critical section. turn = 1
- Step 3: P0 wants to re-enter critical section but turn = 1. P1 still isn't near critical section
- Step 4: P0 is busy waiting in while loop causing starvation

```
/* process 0 */
.
while (turn != 0);
/* critical section */
turn = 1;
.
.
/* process 1 */
.
while (turn != 1);
/* critical section */
turn = 0;
.
```

Test File - Init1

Test File - Init2



To view trace of the outputs of the two test files being run concurrently, please refer to the files **out1.txt** and **out2.txt**. The program was run using rand time generators so the output might change a little from run to run. The file **out1.txt** is the output of the program using the **init1.txt** input file.

The file out2.txt is the output of the program using the init2.txt input file.