Quiz 7

Software Systems
Spring 2018

This quiz is open book, open notes, open Internet. For short answer questions, your responses should be clear and concise as well as correct.

1. Suppose Thread A is Running and Thread B is Blocked. Give an example of a sequence of events that might cause Thread B to move from the Blocked state to the Running state.

2. What does it mean to say that a data structure is thread safe?
3. Draw a thread diagram for the following program. Put the output from each print statement in the appropriate place in the diagram. If there is more than one possible diagram for this program, show any one of them.

```c
int main() {
    for (int i=0; i<2; i++) {
        printf("a\n");
        pid_t pid = fork();

        if (pid == 0) {
            printf("%d\n", i);
            exit(i);
        }
    }
    printf("b\n");

    for (int i=0; i<2; i++) {
        pid_t pid = wait(&status);
        printf("c\n");
    }
}
```

4. One possible sequence of outputs from this program is `aa01bcc`. Give examples of two other possible sequences.

BONUS QUESTION JUST FOR FUN: What would the diagram and output be if we comment out the `exit`?