

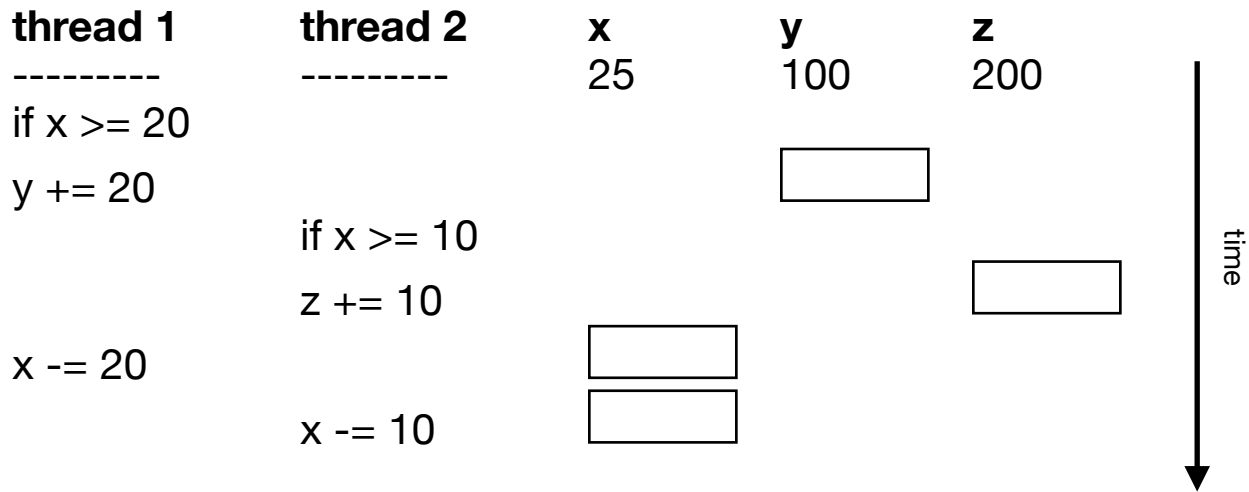
# CS 544, Race Condition Worksheet

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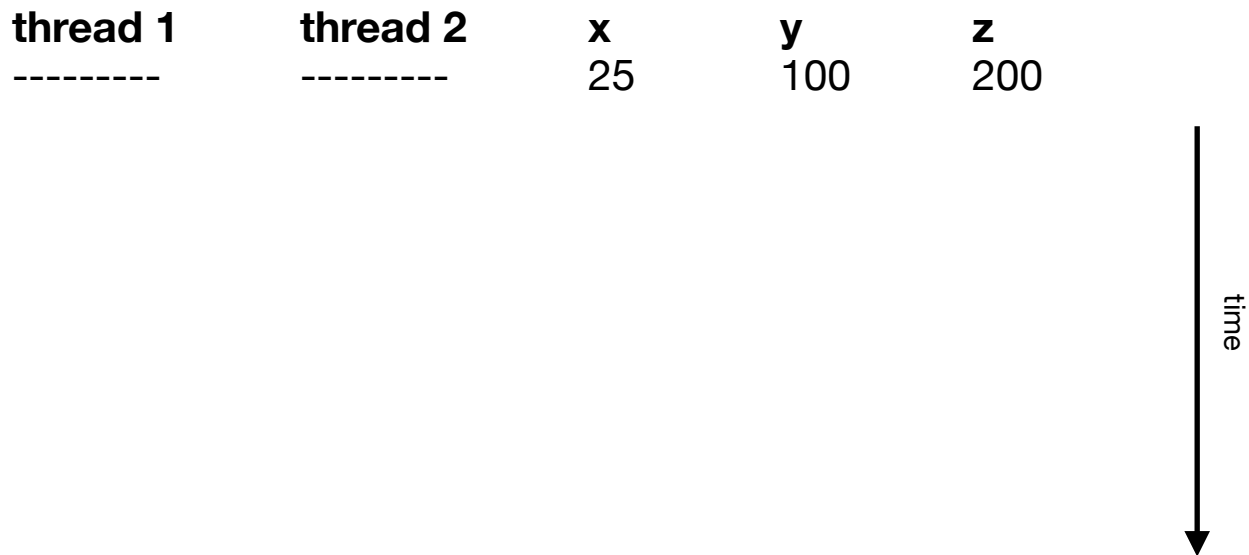
thread 1
if x >= 20:
    y += 20
    x -= 20
    
```

```

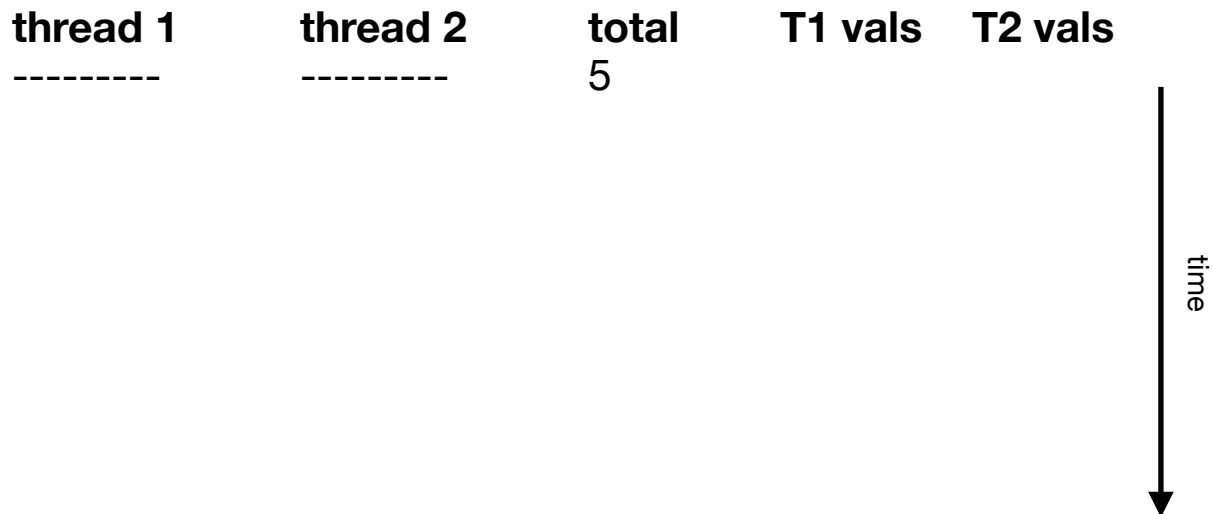
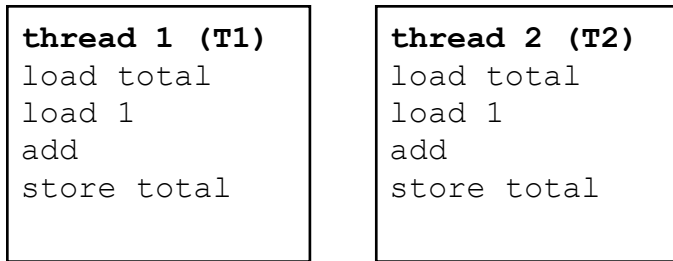
thread 2
if x >= 10:
    z += 10
    x -= 10
    
```



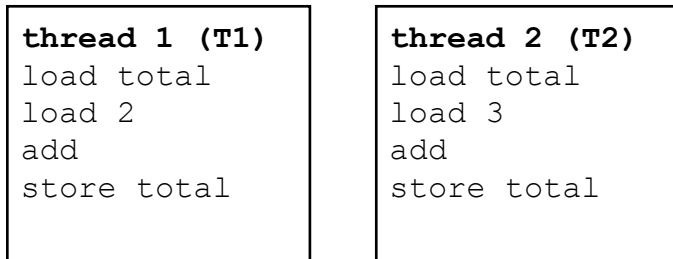
**Problem 1:** Fill in the above boxes to indicate the variable changes.



**Problem 2:** Fill in a timeline above so that x is always  $\geq 0$  and z ends at 210.



**Problem 3:** Choose a bytecode-level interleaving above to finish with total=6.



**Problem 4:** Assume any bytecode-level interleaving is possible, and total starts at 0. What is the SMALLEST possible final value for total?