

CSCI 315 Operating Systems Design  
Fall 2016 - Prof. Felipe Perrone  
Activity 7

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Work in pairs on this activity.

Consider that two threads  $T1$  and  $T2$  have access to a shared variable  $a$ , which is initialized with value 0. Imagine that the only modifications to the shared variable will be as follows:  $T1$  will do  $a+=3$  and that  $T2$  will do  $a+=7$ .

1) Write MIPS assembly code for thread  $T1$  to do  $a+=3$ .

2) Write MIPS assembly code for thread  $T2$  to do  $a+=7$ .

3) Assume that you are not told anything about what the threads do before and after their increments to  $a$ , which thread executes first, or about the order in which threads will be scheduled. Determine the possible values that variable  $a$  will contain after both threads  $T1$  and  $T2$  have finished executing.