Assignment 5

1. import threading
2. import time 3.

4. class TokenRing:

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def init (self, numProcesses): self.num\_processes = numProcesses self.threads = []

self.mutex = threading.Semaphore(1)

self.tokens = [threading.Event() for \_ in range(numProcesses)] self.current\_token = 0

for i in range(numProcesses):

t = threading.Thread(target=self.process, args=(i,)) self.threads.append(t)

def start(self):

for thread in self.threads: thread.start()

def process(self, process\_id): while True:

self.tokens[process\_id].wait()

self.mutex.acquire()

print("Process id: ", process\_id," is in critical section." ) time.sleep(2)

self.mutex.release()

print("Porcess id: ", process\_id, "is released")

next\_process\_id = (process\_id + 1)%self.num\_processes self.tokens[next\_process\_id].set()

self.tokens[process\_id].clear() def initalate\_token\_ring(self):

self.tokens[0].set()

1. if name == " main ":
2. num\_processes = 4
3. tokenRing = TokenRing(num\_processes)
4. tokenRing.start()
5. tokenRing.initalate\_token\_ring() 45.

1. Token

