CS552 Assignment 2

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1 Question 1

2 Question 2

2.1 Version 1

Algorithm 1 Cross Bridge, Version 1, PV

Input: int pass[2] = {0, 0}
Input: semaphore mutex[2] = {1, 1}, mutexBridge = 1
  procedure CROSS(i)
     P(mutex[i])
     if pass[i] == 0 **then**
        pass[i] += 1
        P(mutexBridge)
     else
        pass[i] += 1
     end if
     V(mutex[i])

     Cross Bridge

     P(mutex[i])
     pass[i] -= 1
     if pass[i] == 0 **then**
        V(mutexBridge)
     end if
     V(mutex[i])
  end procedure

This is my *first* document prepared in LaTeX.

Algorithm 2 Cross Bridge, Version 1, Monitor

Input: int pass[2] = {0, 0}
Input: condition OKtoPass[2]
Input: boolean busy = false

    procedure STARTCROSS(i)
        if busy **and** pass[1-i] > 0 **then**
            OKtoPass[i].wait
        end if
        pass[i] += 1
        OKtoPass[i].signal
    end procedure

    procedure ENDCROSS(i)
        pass[i] -= 1
        if pass[i] == 0 **then**
            OKtoPass[1-i].signal
        end if
    end procedure

Algorithm 3 Euclid's algorithm

1: **procedure** EUCLID(a, b)   ▷ The g.c.d. of a and b
2:     $r \leftarrow a \bmod b$
3:     **while** $r \neq 0$ **do**   ▷ We have the answer if r is 0
4:         $a \leftarrow b$
5:         $b \leftarrow r$
6:         $r \leftarrow a \bmod b$
7:     **end while**
8:     **return** b ▷ The gcd is b
9: **end procedure**