Assignment #2

1. b)

Available	Allocation	Need
[1,5,2,0]	P_0 [0,0,1,2]	P_0 [0,0,0,0]
	P_1 [1,0,0,0]	P_1 [0,7,5,0]
	P_2 [1,3,5,4]	P_2 [1,0,0,2]
	P_3 [0,6,3,2]	P_3 [0,0,2,0]
	P_4 [0,0,1,4]	P_4 [0,6,4,2]

- Work = [1,5,2,0] = Available
- Safety Sequence = $[P_0, P_2, P_3, P_4, P_1]$

i0 $Need_0 \leq Work$

$[0,0,0,0] \leq [1,5,2,0]$

$Work = [1,5,2,0] + Allocation_0 = [1,5,2,0] + [0,0,1,2]$

$Work = [1,5,3,2]$

i1 $Need_1 \leq Work$

$[0,7,5,0] \not\leq [1,5,3,2]$

i2 $Need_2 \leq Work$

$[1,0,0,2] \leq [1,5,3,2]$

$Work = Work + Allocation_2 = [1,5,3,2] + [1,3,5,4]$

$Work = [2,8,8,6]$

i3 $Need_3 \leq Work$

$[0,0,2,0] \leq [2,8,8,6]$

$Work = Work + Allocation_3 = [2,8,8,6] + [0,6,3,2]$

$Work = [2,14,11,8]$

i4 $Need_4 \leq Work$

$[0,6,4,2] \leq [2,14,11,8]$

$Work = Work + Allocation_4 = [2,14,11,8] + [0,0,1,4]$

$Work = [2,14,12,12]$

i1 $Need_1 \leq Work$

$[0,7,5,0] \leq [2,14,12,12]$

- The systems in a safe state the safe sequence is $[P_0, P_2, P_3, P_4, P_1]$.