Question #1.

Consider the following example of a system:

PID	Allocation			Max			Available (Work)			Need (Max- Allocatio		
	A	B	C	A	B	C	A	B	C	A	B	C
P_0	O	1	1	8	5	3	4	4	2	8	4	2
P_1	2	1	3	4	2	2	~~6~~ ~~5~~ ~~5~~			2	1	-1
P_2	3	O	3	9	O	4	~~9~~ ~~5~~ ~~8~~			6	O	1
P_3	2	1	3	3	2	3	~~11~~ ~~6~~ ~~11~~			1	1	O
P_4	1	1	3	5	3	3	~~12~~ ~~7~~ ~~14~~			4	2	O
							12	8	15			

① Make Need Matrix.

     Need = Max - Allocation.

Safe Sequence
P_1
P_2
P_3
P_4
P_0

(i)② Check whether the system is in safe or unsafe state using bankers algorithm (safety algorithm)

① if $Need_{Res} \leq Availability_{Res}$

     update: $Availability_{Res} += Allocation_{Res}$

For P_0 : X

for P_1 : ✓ => $Available_{Res} += Allocation_{Res} => (4,4,2)+(2,1,3)$

                           $= (6,5,5)$

For P_2 : ✓ => $(6,5,5) + (3,0,3) = (9,5,8)$