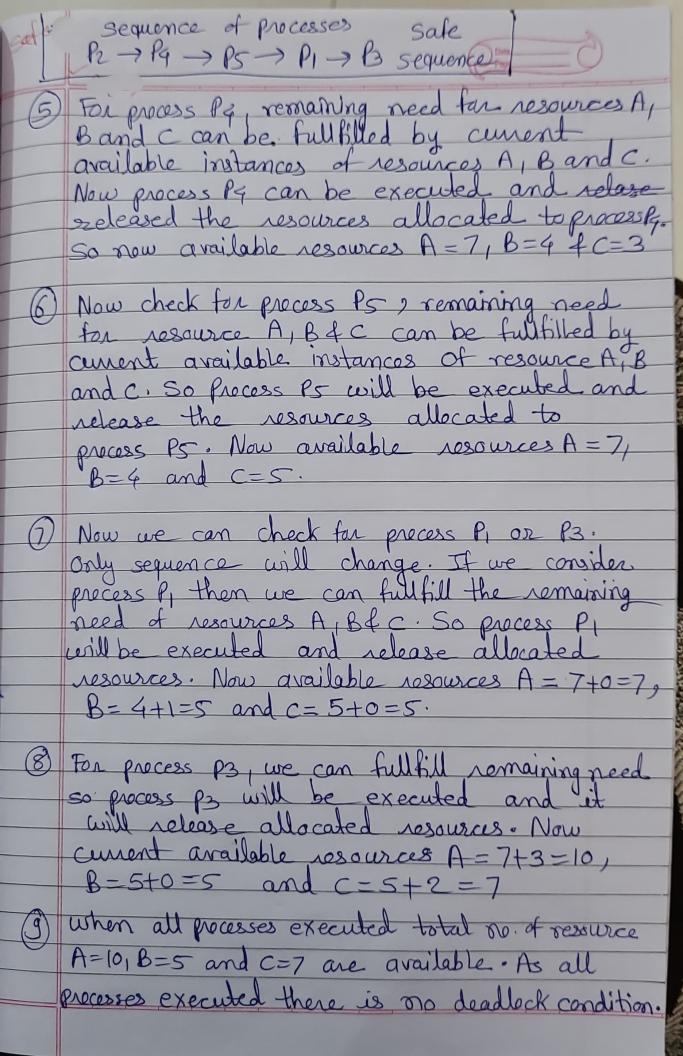
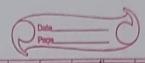
To a second seco		Com	0
Example of Bankon	19 Algorithm	n e i ieur	
consider a system in three sesons five instances seven instances.	0	,	,
consider a system	with C. Bank	er's Algorith	mı
Ps and three see	wice there	nocosses p	· though
Resource type A h	as ten met	ancia rosa	C
B has thre instances	and resour	ce type c	nas type
Suppose that at time of the system has I	ma Ta Al	010	11
of the system has I	seem to kee	tollourng S	mapshot
and the state of	ACUAL V	H=101	B=5&
Process A R C	Max Need	Available	Remaining
Process A B C	ABC	ABC	Need
P. O. I.O. I.	Idolinia	1	ARC
P2 200 3	7 5 5	332	743
	322	5 3 2	1 22
	122	100	16.00
PS 0002 10	5 3 3	7 4 3 to to +2	211
7000 5		745	5 3 13
Calculate available	10000	io" Total	**
- No. of resources	allocated	to all a	resources
April 1	U/1 8	to all f	i.
Available resources A	=10-7=3	of total	
sources (2=7-5=2	2	
			1 1
maximum maining or	reed of a	esources =	
Calculate Remaining or maximum maximum	Need of re	sources - a	llocated
for ca. for a co	exciong 1	1 400 9	resources
For eg. for process P, Ro = 7-0=7	maining ne	ed of res	source A
-1-0=1	U		

Remaining need of resource B=5-1=6 Remaining need of resource C = 3-0=3. Now we will check that whether we can fulfill the remaining need of any process with the help of available number of resources A, B and C. 2) For process P, we require 7 so instance of resource A but we have only 3 instance quailable folosource A. Similarly we require 4 instances of resource B but we have only 3. We also require 3 instances of resource c but have 2 instances of resource c available with us. So I can fullfill remaining need of only resource a means process Pr will not be executed. Now check for process P2. Here, process P2 remaining need for resources A, B and C is less than respective available instances of resources A, B and C. Means need of process B is fulfilled so process P2 will get executed and resources allocated added to curent available resources. Now available resources A = 5, B=3 & C=2 4) Now check for process P3, remaining need for resource A can not be fullfilled with current available instances of A, so we have to check for process for





Banker's Algorithm Example Solutions

Assume that there are 5 processes, Po through

P4 and 4 types of resources. At To use have

the following system state:

Max Instances of Resource TypeA = 3 [2 allocated +]

Naviolable Max Instances of Resource Type B = 17 [12 allocated+ Max Instances of Resource Type C = 16 F14 allocated+ Max Instances of Resource Type D - 12 F12 allocated + O Available

	Criven Matrices											11	Need Matrix =				
	Alla	7a)	ja	n	Max Madrix			matrix			max Matrix-Allo cation						
	711109		0	D	A	B	C	D		B	C	D	A	B	C	D	
	H	B	1	0		2	1	0	1	5	2	0	0	1	0	0	
Po	0	0	3		1	6	6	2	1	6	3	0	0	4	2	1	
PI	1	3	1	5	2	2	6	6	1	12	6	2	1	0	0		
P2		2	0	0	10	5	6	2	1	12	7	6		0	2	0	
R3	0	0	0	1	0	6	5	6	2	14	10	7	0	6	4	2.	
P4		10	11	9	10	0)	0	0	17	11	12					
Total	2	12	14	12		301	0.00		2	11/	16	12		11/11/11			

1. Create the need Matrix (max allocation)

reed (i) = Max (i) - Allocated (i

$$\begin{array}{c}
(1=0) \Rightarrow (0|2|1|0) - (0|1|1|0) = (0|1|0|0) \\
(1=1) \Rightarrow (1|6|5|2) - (1|2|3|1) = (0|4|2|1) \\
(1=2) \Rightarrow (2|3|6|6) - (1|3|6|5) = (1|0|0|1)
\end{array}$$

(=3)=) (0,6,5,2)-(0,6,3,2)=(0,0,2,0 (1=4) = (0161516) - (0101114) = (01614,2)

