Lecture-16
BDu

classmate
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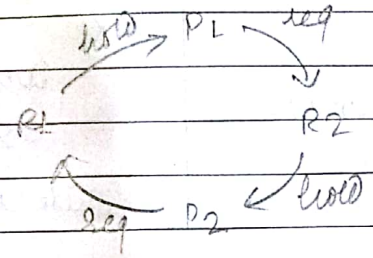
Page

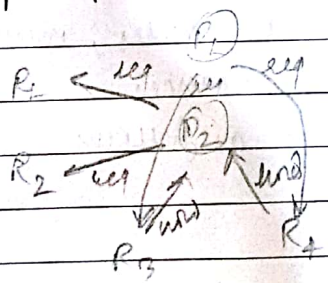
Shareable resources - mutual exclusion is not needed.
Non-shareable resources - need to guarantee mutual exclusion by process synchronization.

Hold and wait
A process can request for a resource only when it has released its previously allocated resources.



Disadvantages -
i) Starvation
ii) Low resource utilization.

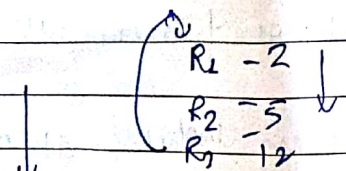
No preemption



A process will release a resource voluntarily only after its job is complete.

Circular wait

R1 - 2
R2 - 5
:
:
Rn - 99

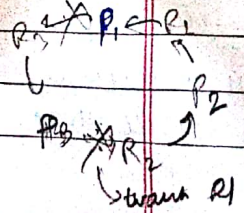


Req(R1) < Req(R2) < Req(R3)

Release - decreasing order of number

The process request the resources according to ascending order of their value.

some assign no.



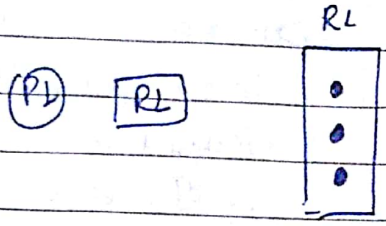
Deadlock prevention

Resource allocation graph

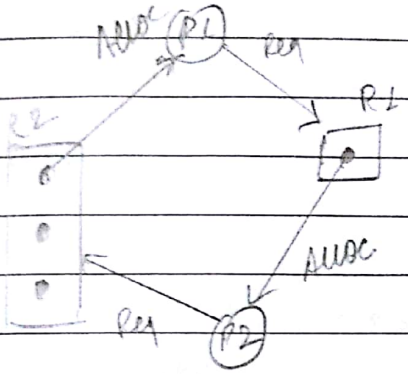
$G = (V, E)$

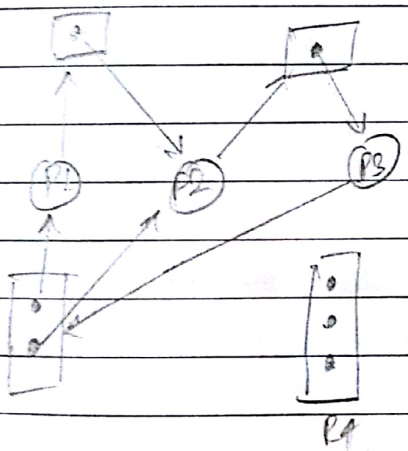
$V = (V_1, V_2)$

V_1 — Process, V_2 — Resources



R1 has 3 diff instances

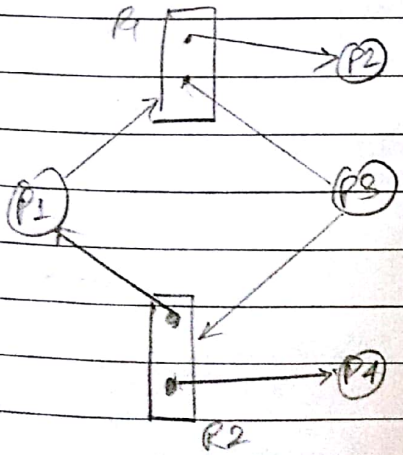




P1 → R1 → P2 → R3

R2 — P3

A cycle exists, so there is deadlock.



P1 → R1 → P3

R2

A cycle in the resource allocation graph is not only the sufficient conditions for deadlock. It is necessary but not sufficient.