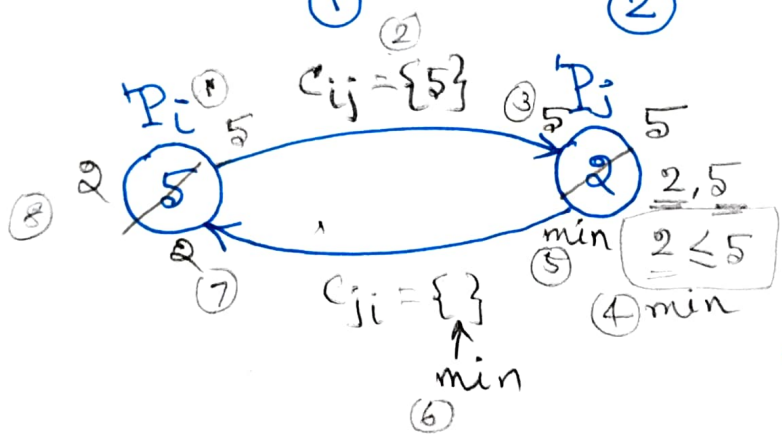
# Model of Distributed Executions.

27 Jan 2022
11 - 12 Noon

* Send Event
  Receive Event
  } - State of the respective processes
  → State of the channel connecting $P_i$ & $P_j$ (2)

* Local Computation:
  (Internal event – does not require message passing)
  ↳ State (1) of the process $P_i$
  ↑
  Event (local (or) send / receive)
  (1) (2)

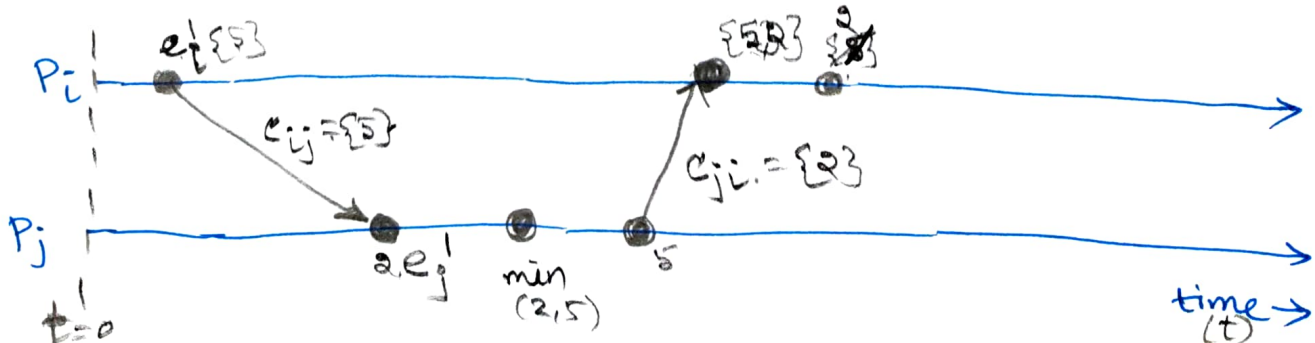



$\leq$

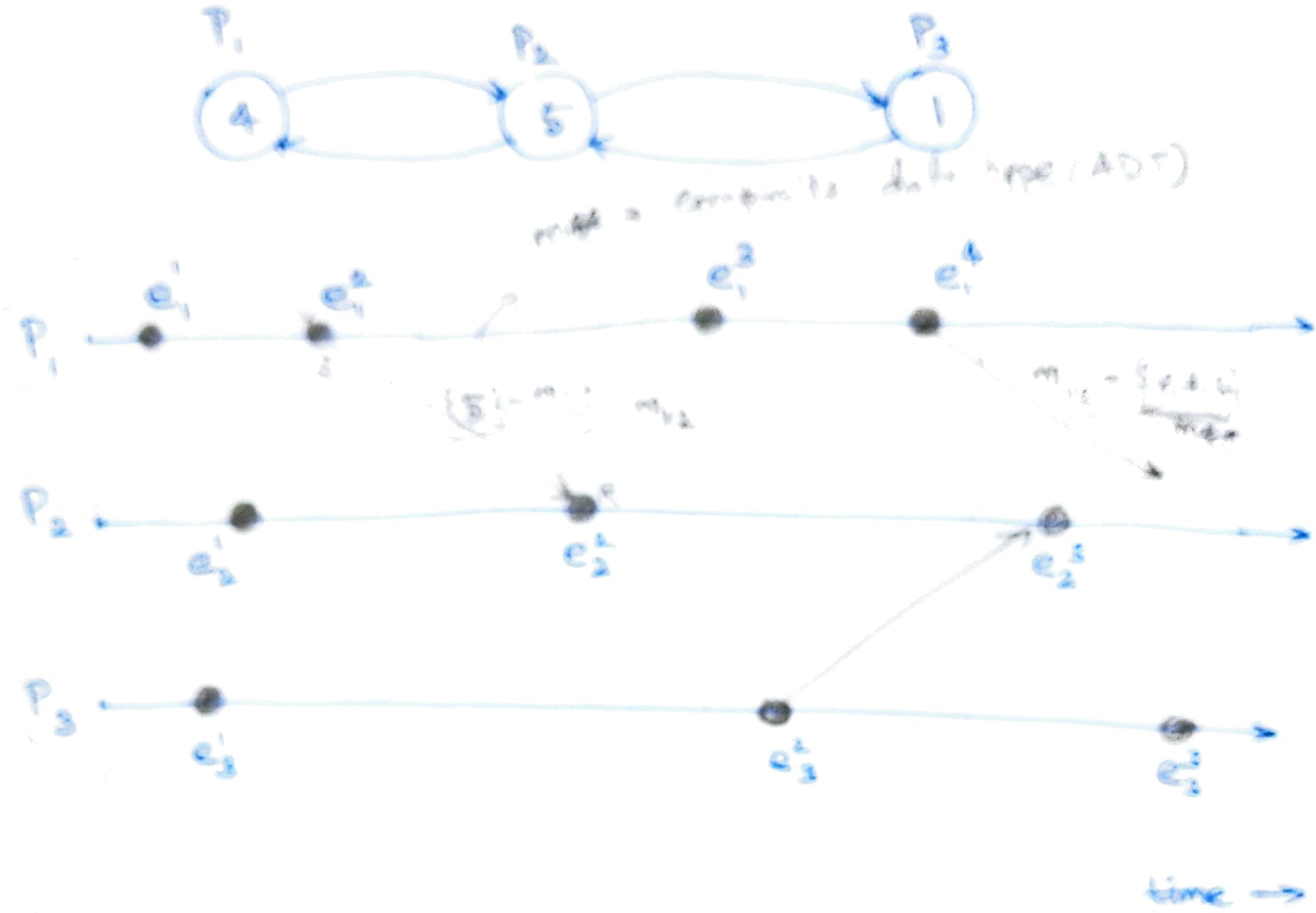
$m_i \leq m_{i+1}$
$(P_i)$ $(P_{i+1})$
send / receive) compute

Send (m) $\xrightarrow{c_{ij}}$ receive (m)
$P_i$ msg $P_j$

Refer to S-T diagram (fault-free setting)



# State - Time Diagram

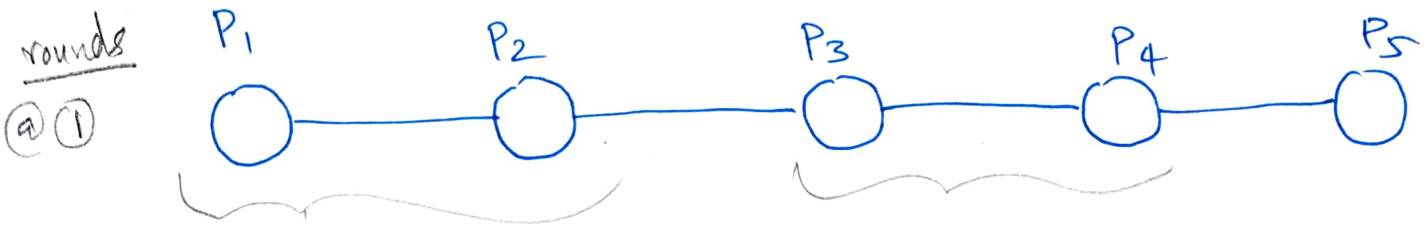



@ $P_1$ : 4 @ $P_2$ : 3 @ $P_3$ : 3

each $P_i$ has its own clock and their speeds are not related ↘ no global clock

$e_i^j$ – local event @ $P_i$

rounds




Deadline:
Feb 28, 2022
on or before 23:59 hrs

# Assignment - I

1. Implement
   - a) odd-even
   - b) Sasaki's
   - c) time-optimal (median based) algo
2. Compare their performances:
   - # elements (n)
   - Input sequences (increasing, decreasing, random)
   - running time
3. Plot the running time of 3 algos
   a) for different values of n (n = 100, 1000, 100K, 1m)
   b) for different input sequence

Assume n (with the foll. values. test for n = 10, 100)
n = 1000, 10,000, 100,000, 1m