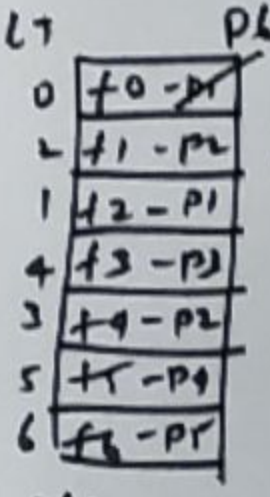
Page Replacement — FIFO, LRU, OPT

Global, Local

Replacing a page frame in Main Memory, because there is a shortage of page frames (FFL = ∅)

– Input parameters – # of pages frames in memory



Page P6 Replacement

FIFO – Load time page

Not a good parameter to do replacement

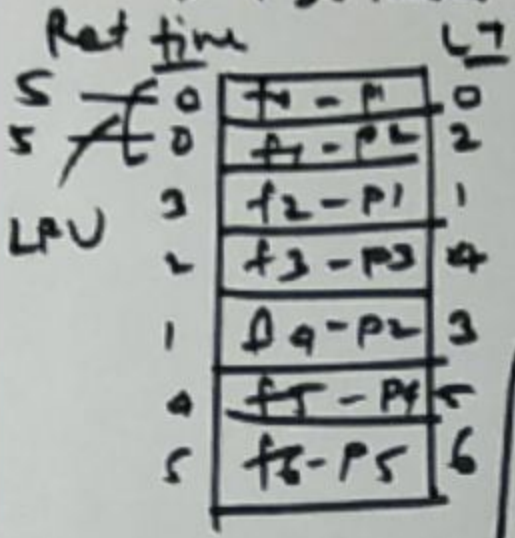
– Control bit

LRU – Least Recently used

↙

Rep. for – Usage characteristics of a page

– Page table



P6 — (t=6)

Load time – Never updated

Just before P6 arrived

f0, f1 referenced

Ref time – f0 : 0 → 5

f1 : 0 → 5

OPT — Theoretical

Understand performance of other algorithms

- Compute 2 qp parameters
  - # of PFs
  - PFF
    page fault frequency

For any Algo, if PF is high
↳ Algo is not good.

For Any Algo.

Input: No of frames, Ref string

output: PF, PFF → $\frac{\#\text{ of PF}}{\text{length of Ref str.}}$

Opt - Futuristic.
↳ attempts finding future reference

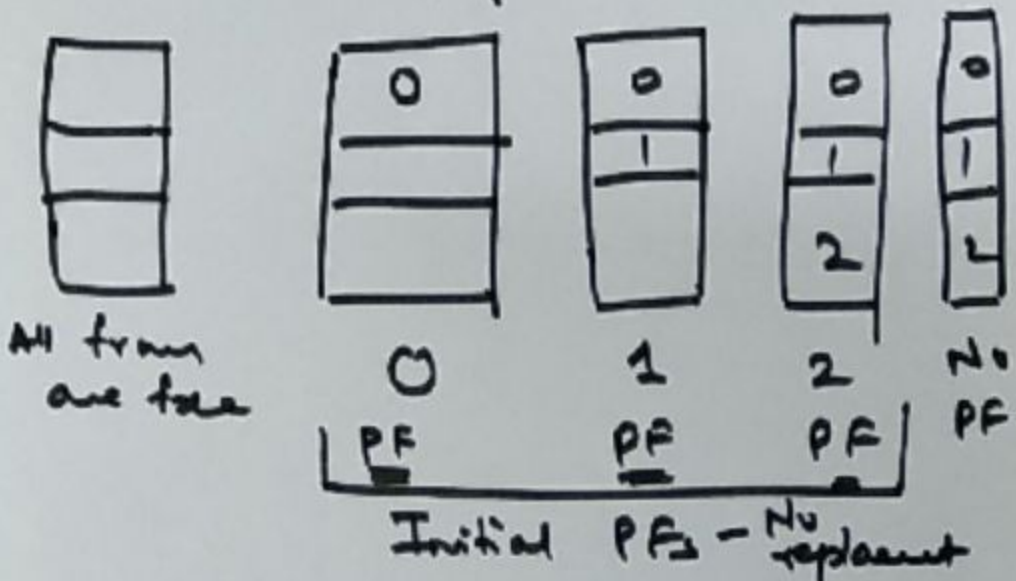
Ref. string

0 1 2 0 3 2 4

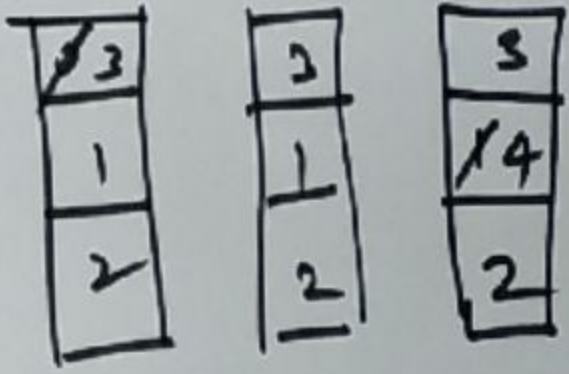
(4)

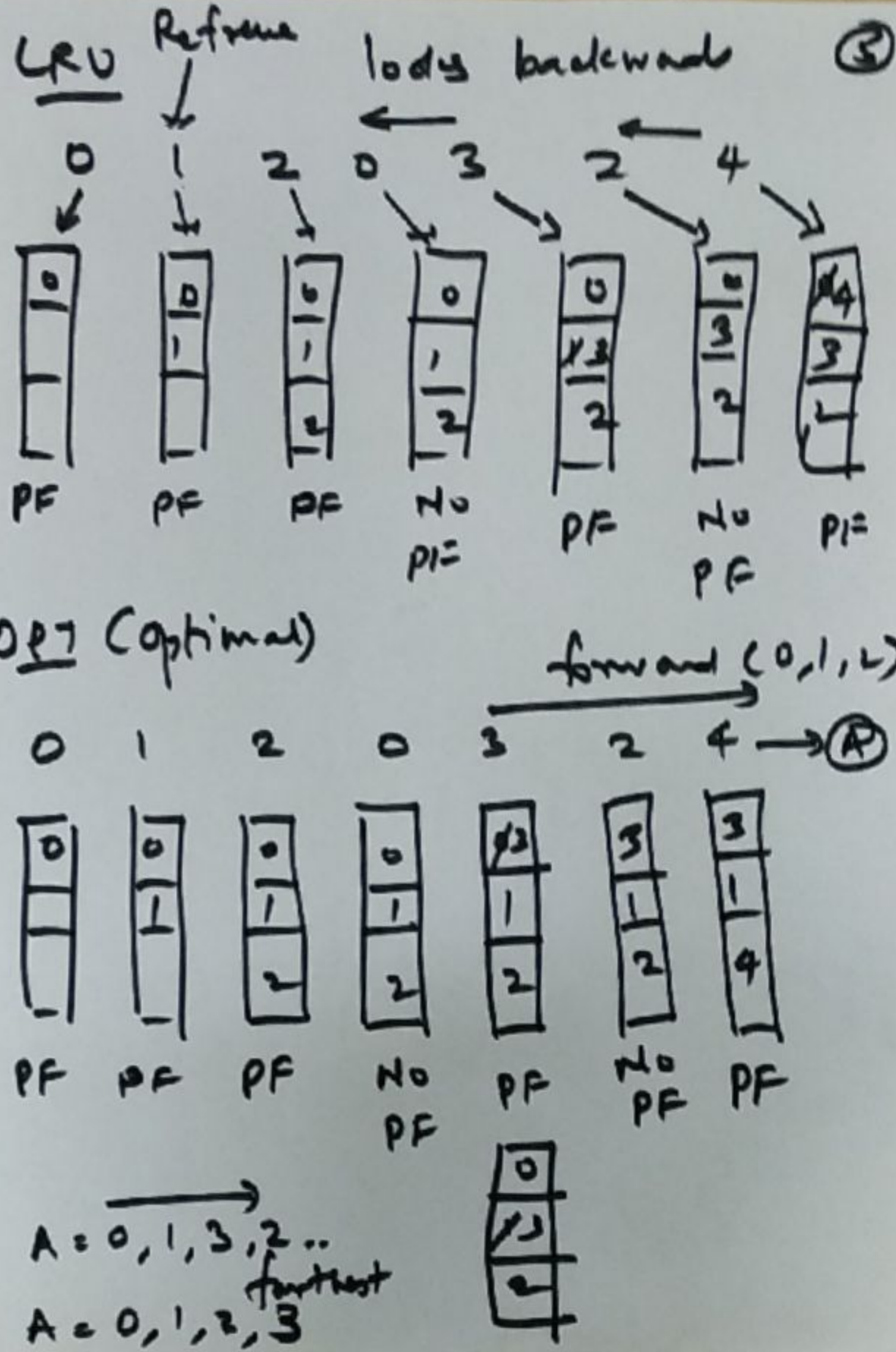
Mem size - 3 page frames

FIFO



# of PF = 5




LRU
Refrence
lody backward
0 1 2 0 3 2 4
PF PF PF No PF PF No PF PF
OPT (Optimal)
forward (0,1,2)
0 1 2 0 3 2 4
PF PF PF No PF PF No PF PF
A = 0, 1, 3, 2 ..
farthest
A = 0, 1, 2, 3