Demand Paging

References

7, 2, 3, 1, 2, 5, 3, 4, 6, 7, 7, 1, 0

fault

FIFO

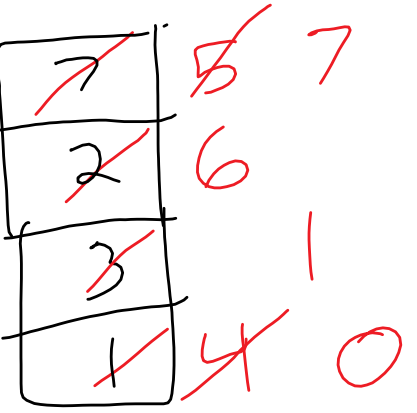| |
|---|
| 7 5 |
| 2 |
| 3 |
| 1 |

1
4 0
6
7

optimal

7
2
3
1

0
5 6
4
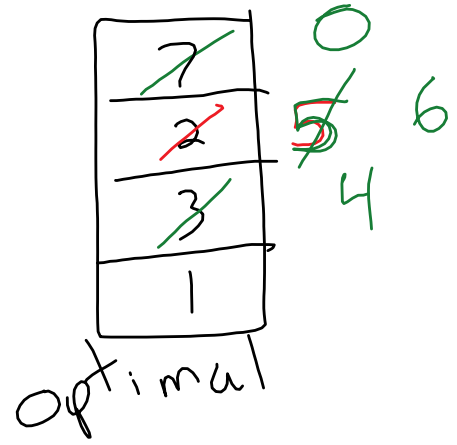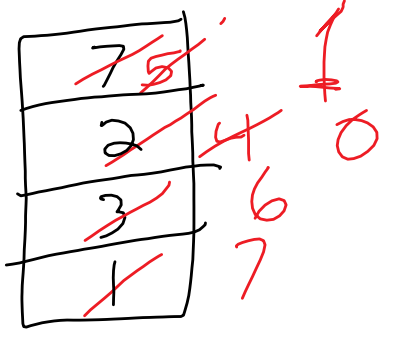
7, 2, 3, 1, 2, 5, 3, 4, 6, 7, 7, 1, 0

Least Recently Used (LRU)

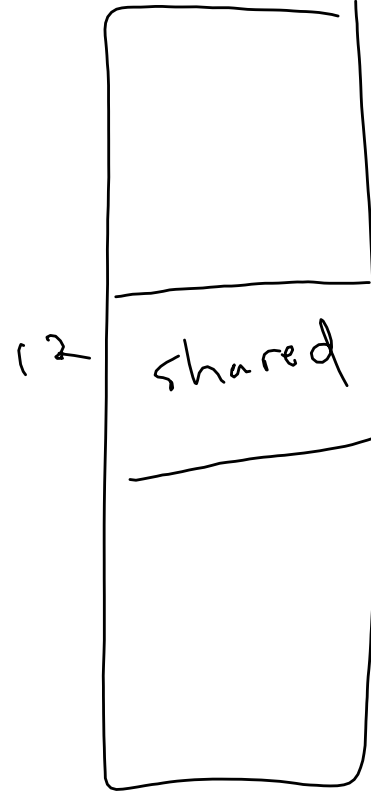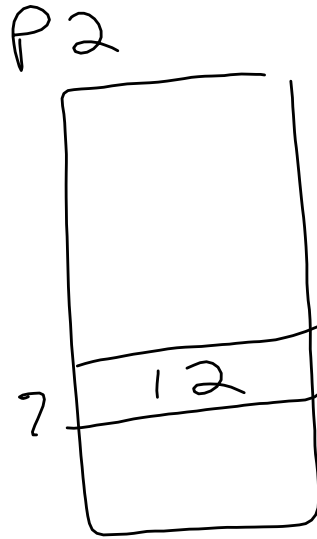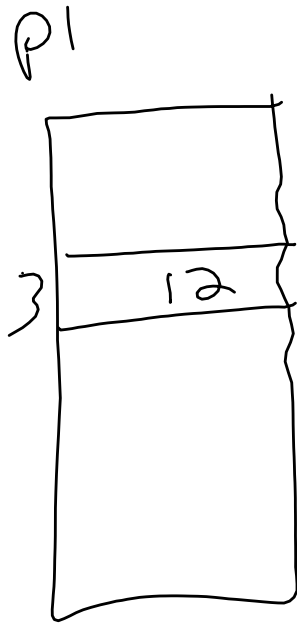| |
|---|
| 7 |
| 2 |
| 3 |
| 1 |

5 7
6
1
4 0

time stamp each page

Thrashing:

repeatedly replacing
a set of pages.

large # of processes paging
from HD.

P1

P2

3 | 12

7 | 12

12 | shared

Child processes

Phys

P1
(parent)

P2
(child)

Copy of C

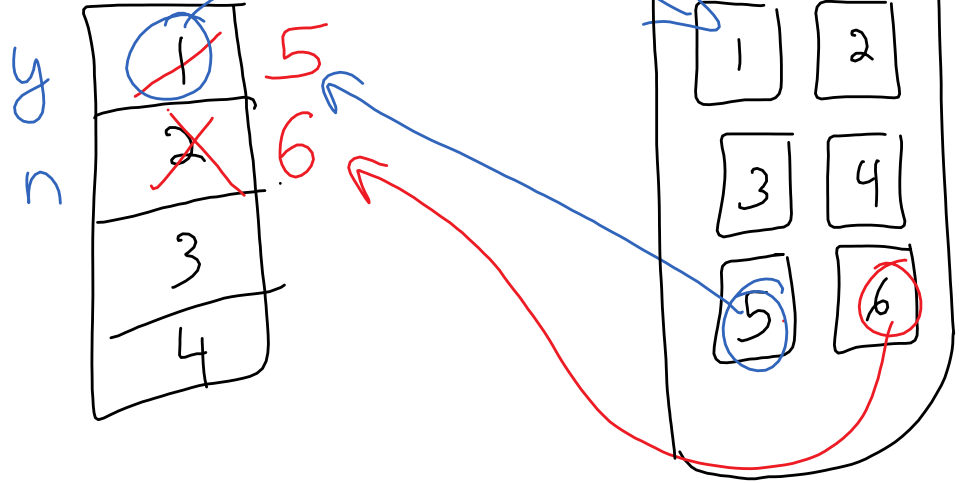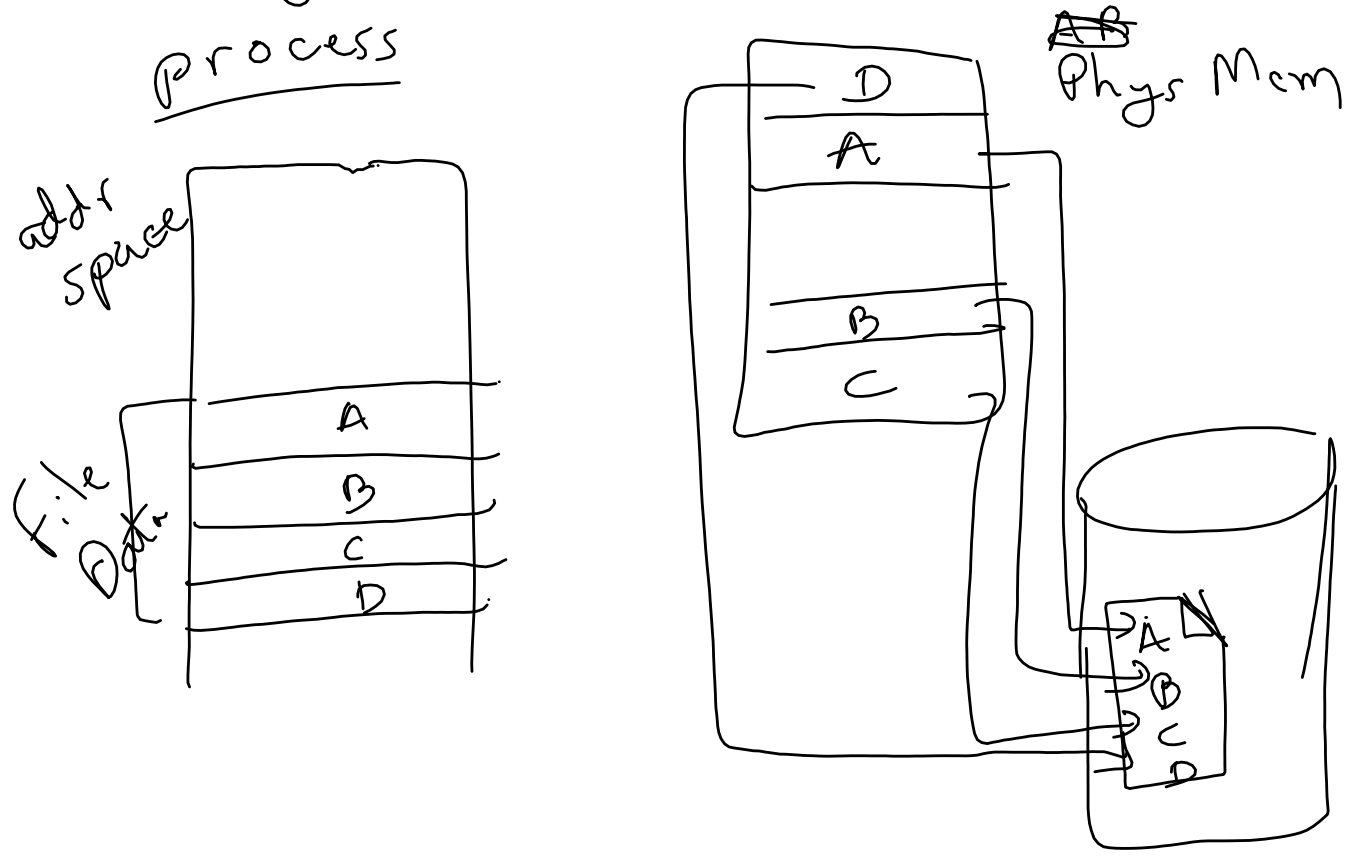| A |
|---|
| B |
| C |
| D |

A
D
C
B
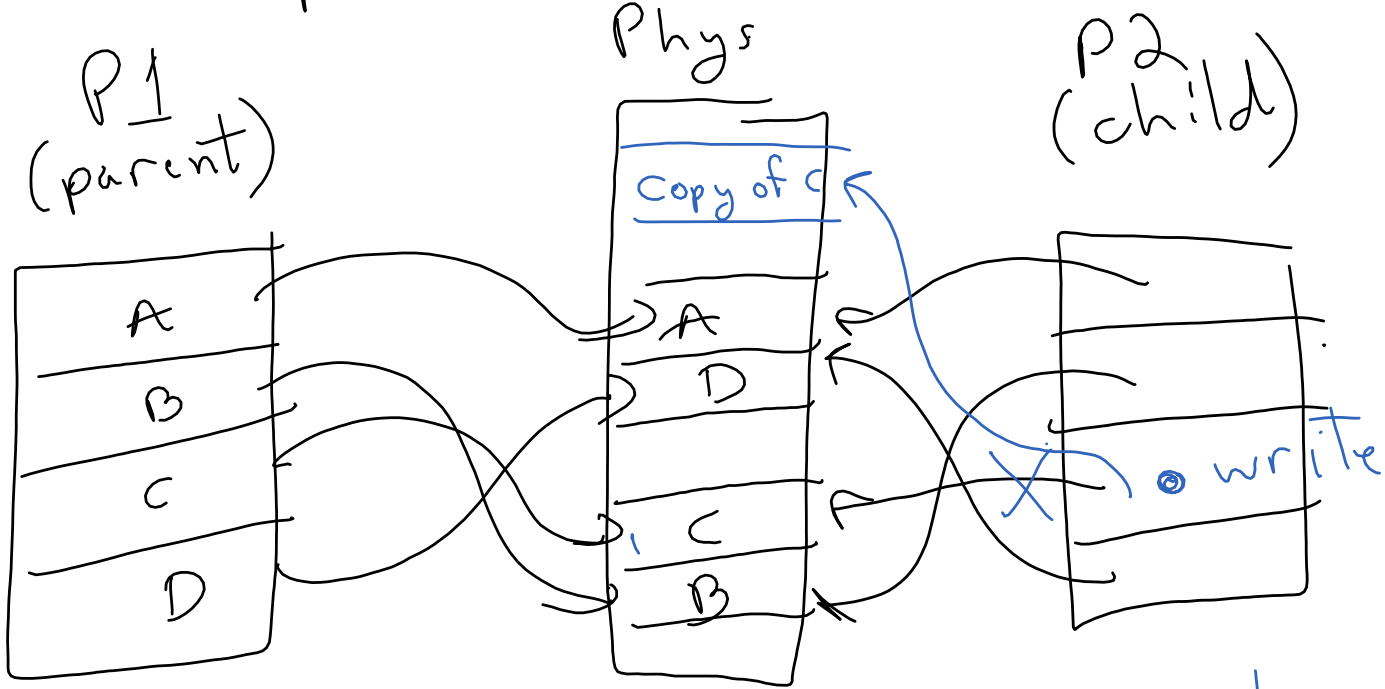
write

Copy-on-write
COW

Writes

modified?

y   n

- consider modified bit, when selecting a victim?

- fix pages in memory (lock in place)

Memory Mapped Files/IO

process

addr space

File Data

A
B
C
D

Phys Mem

D
A
B
C

A
B
C
D

User memory allocation
first fit   worst fit
best fit   next fit

Kernel memory allocation
- contiguous storage (physical)
- speed

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1) Buddy System
   allocate in powers of 2

256 KB

| 128 K | | 128 K |

| 64 K | | 64 K |

| 32 | | 32 |

256 K
"round"
to 32K