Lecture :: 10

Topic of Discussion

1. Chubby Implementation.
2. Benefits of Threads.
   - Program
   - Process
   - Thread.
3. Disadvantages of Threads.
4. Serial Execution
   - Concurrency
   - Parallelism.

① Preemption

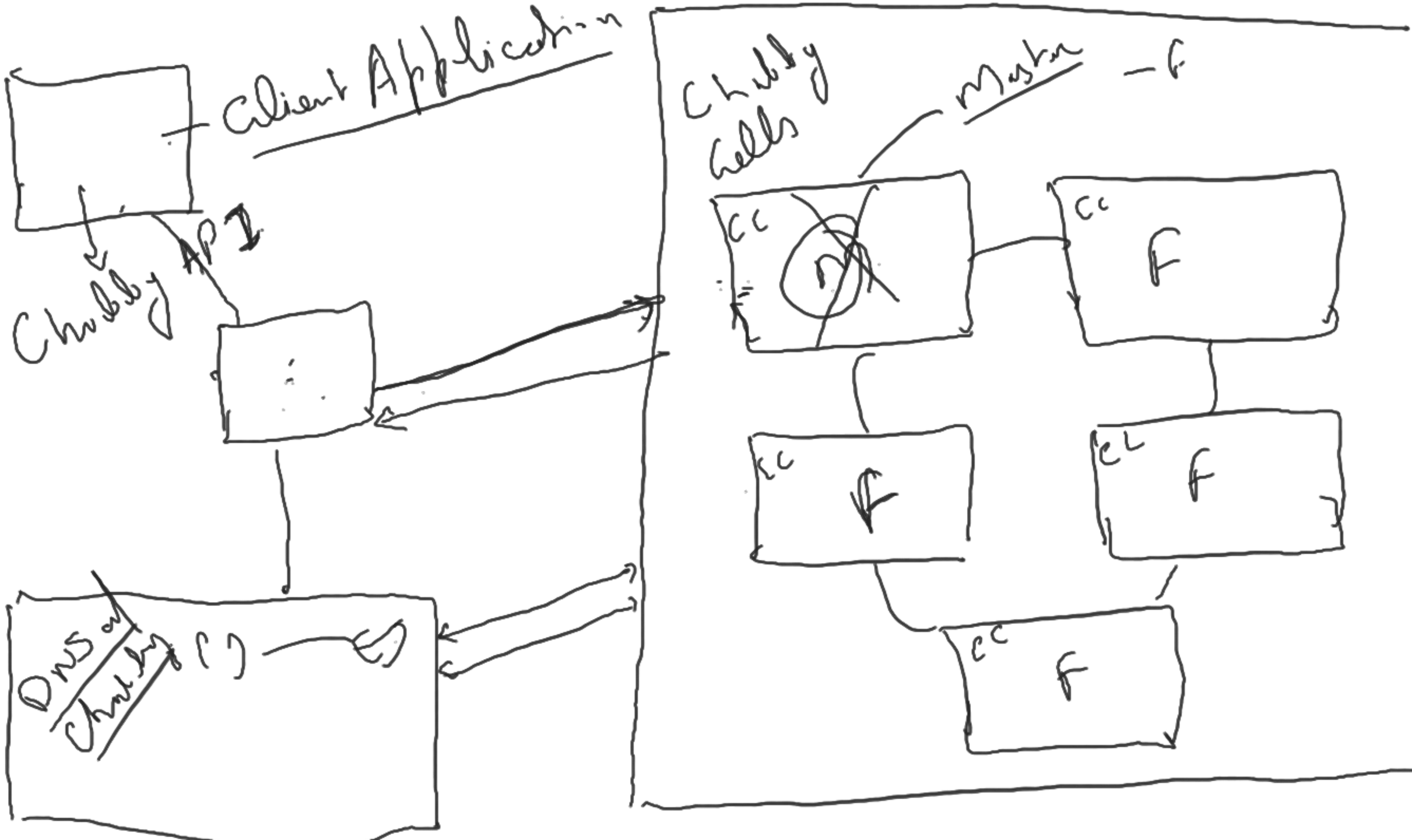
② Deadlock
Starvation

- Race Conditions
Critical Sections

① Mutex
② Semaphores
③ Monitors

Binary
Counting

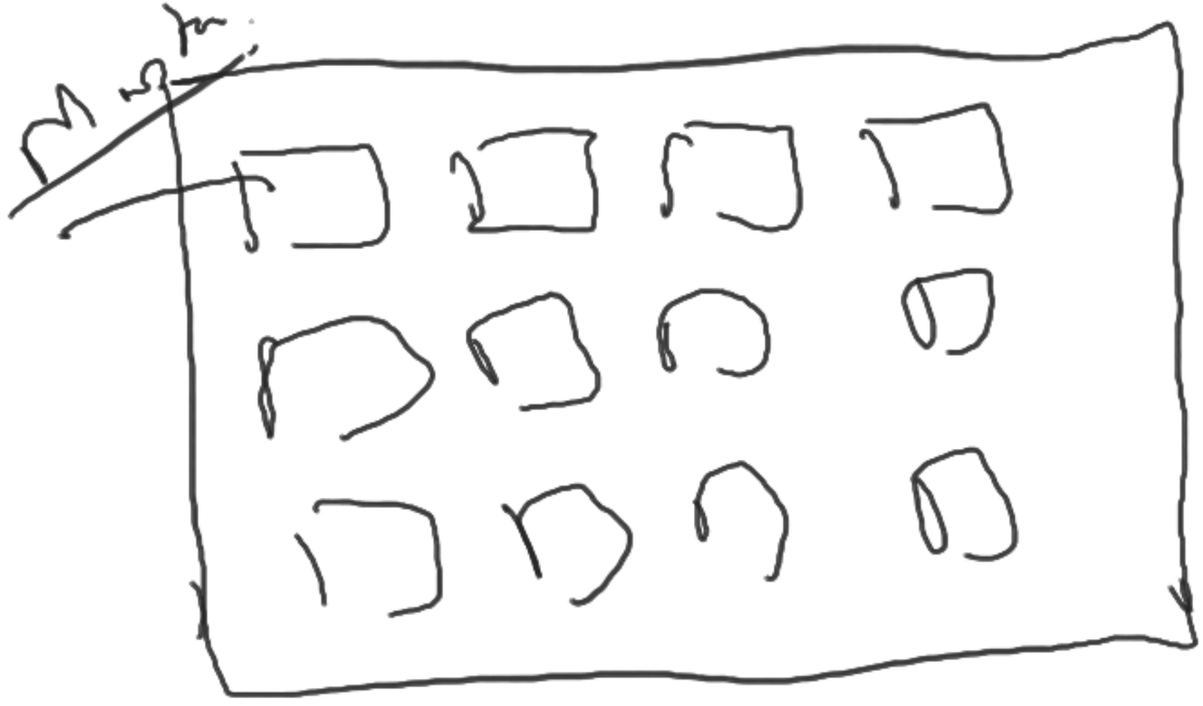
System Design for Threaded

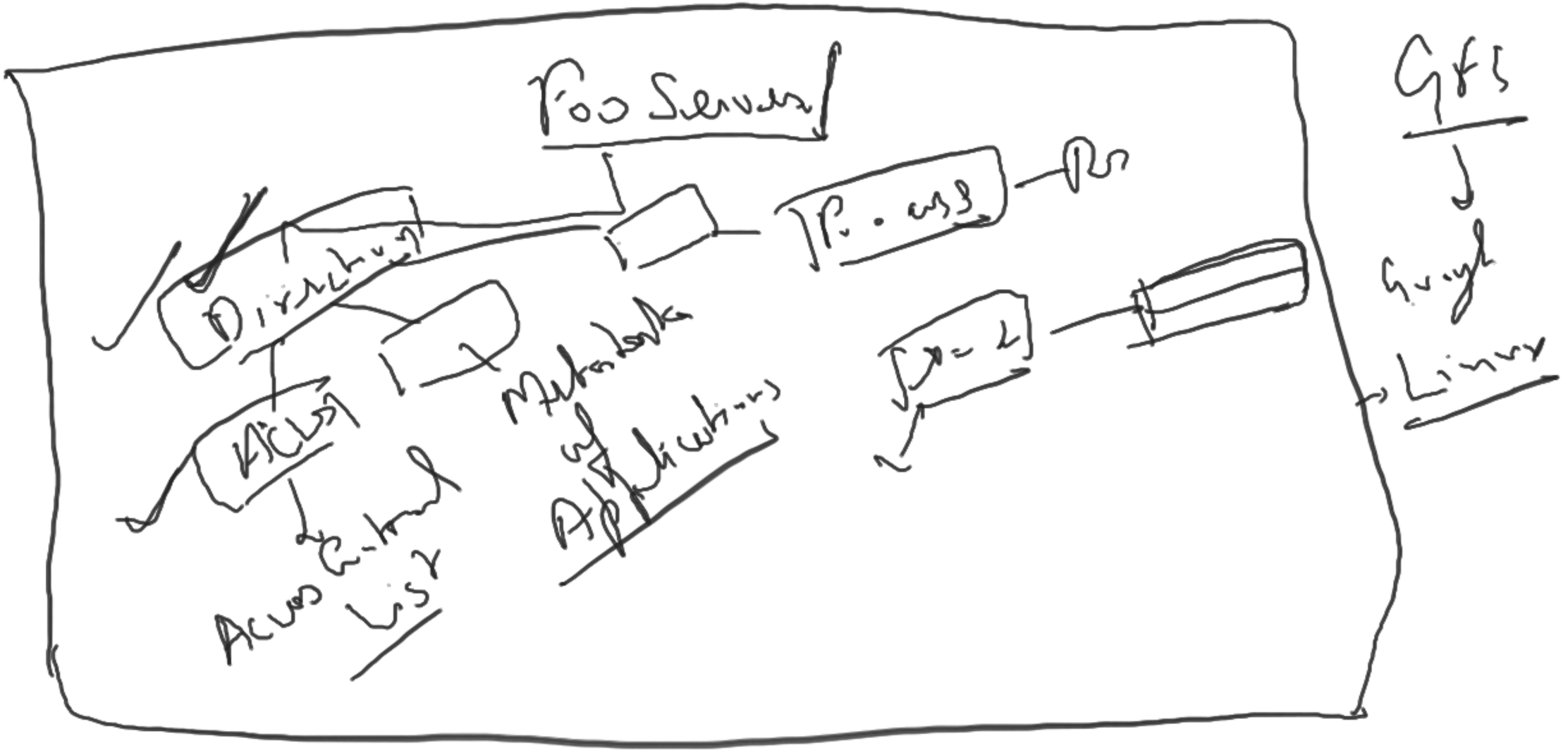

Client Application
Chubby API
Chubby Cells
Master
CC
F
CC
F
CC
F
CC
F
DNS of Chubby

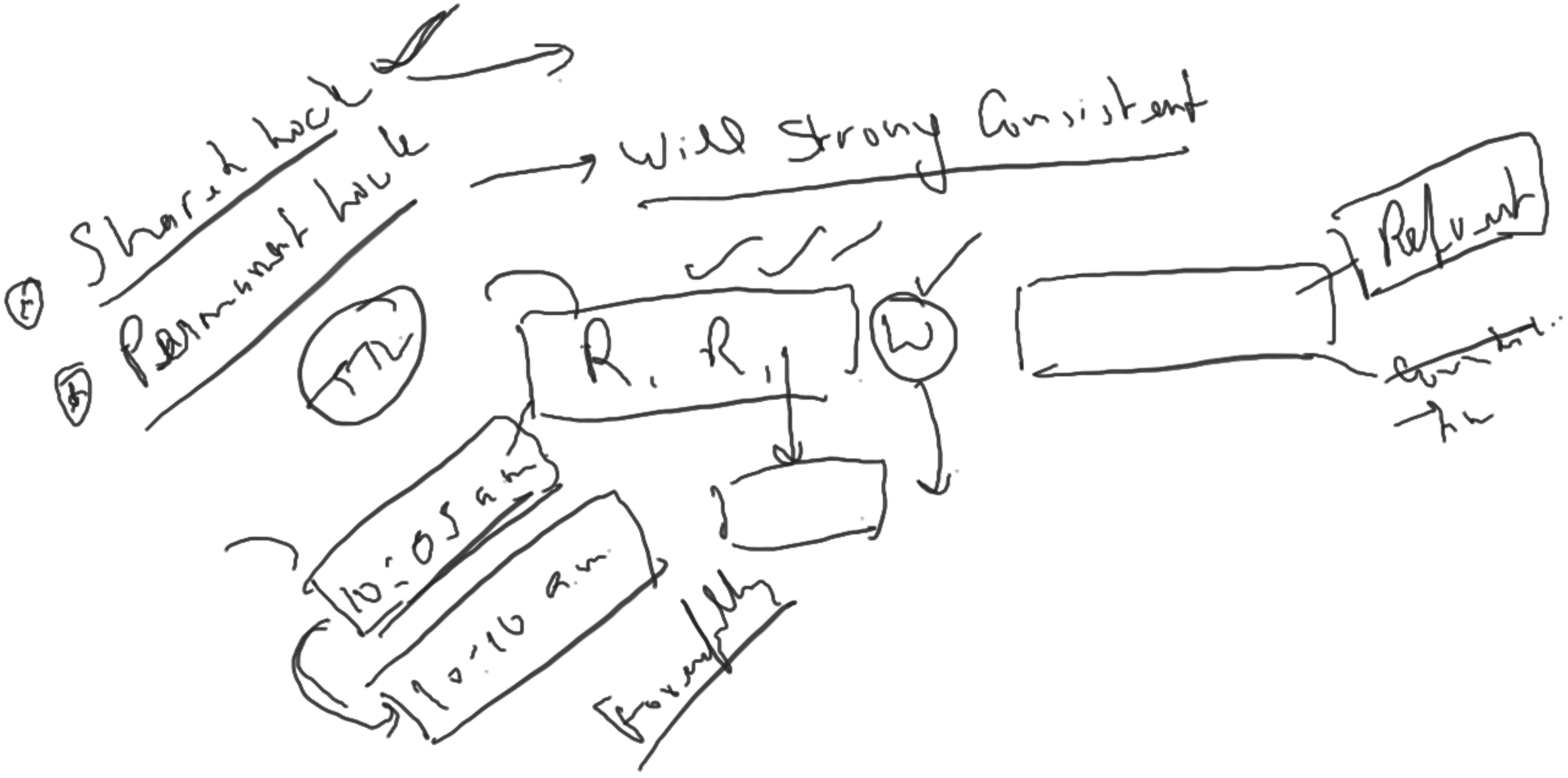
Read/write via Master

① Mult Latency Read/write

② Provide Strong Consistency




Foo Server
GFS
Google
Linux

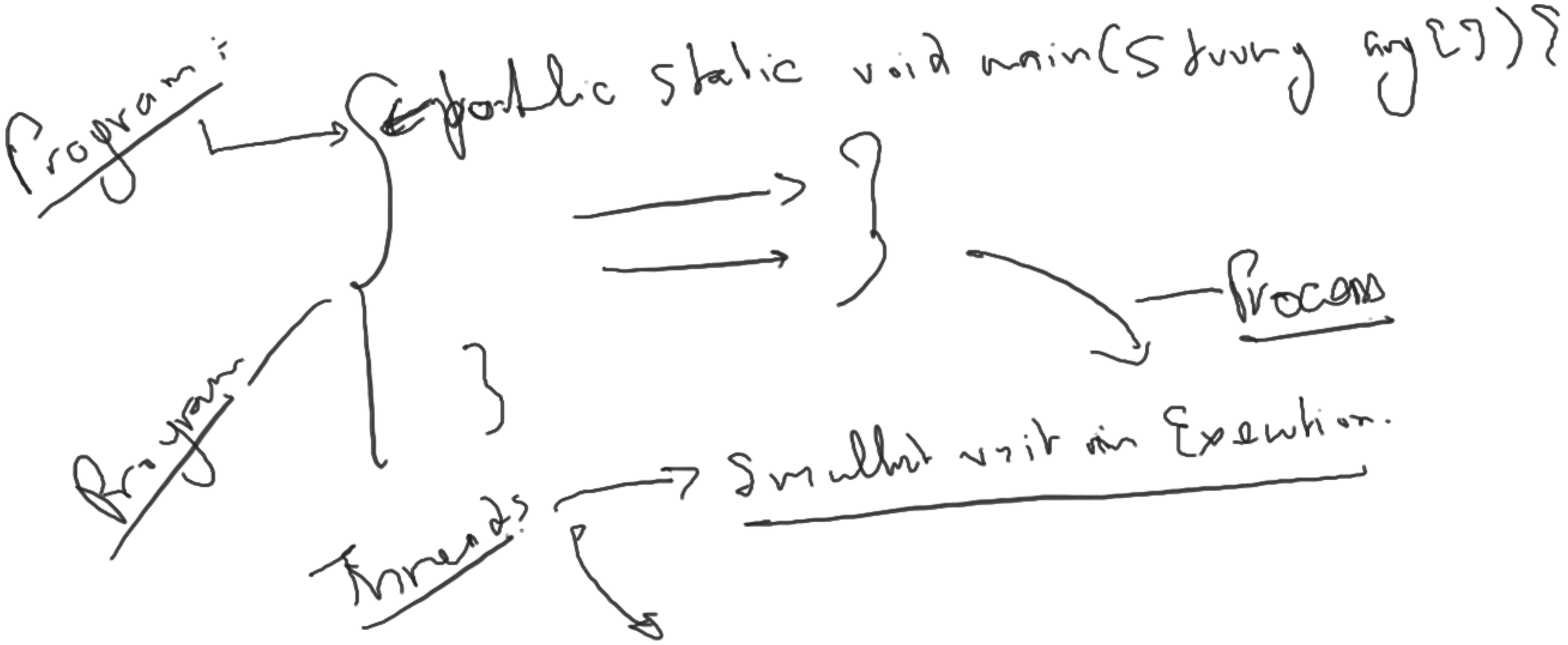

Shared lock
Permanent lock
Will Strong Consistent
R, R,
W
Refrent
10:05 am
10:10 am
Forcefully

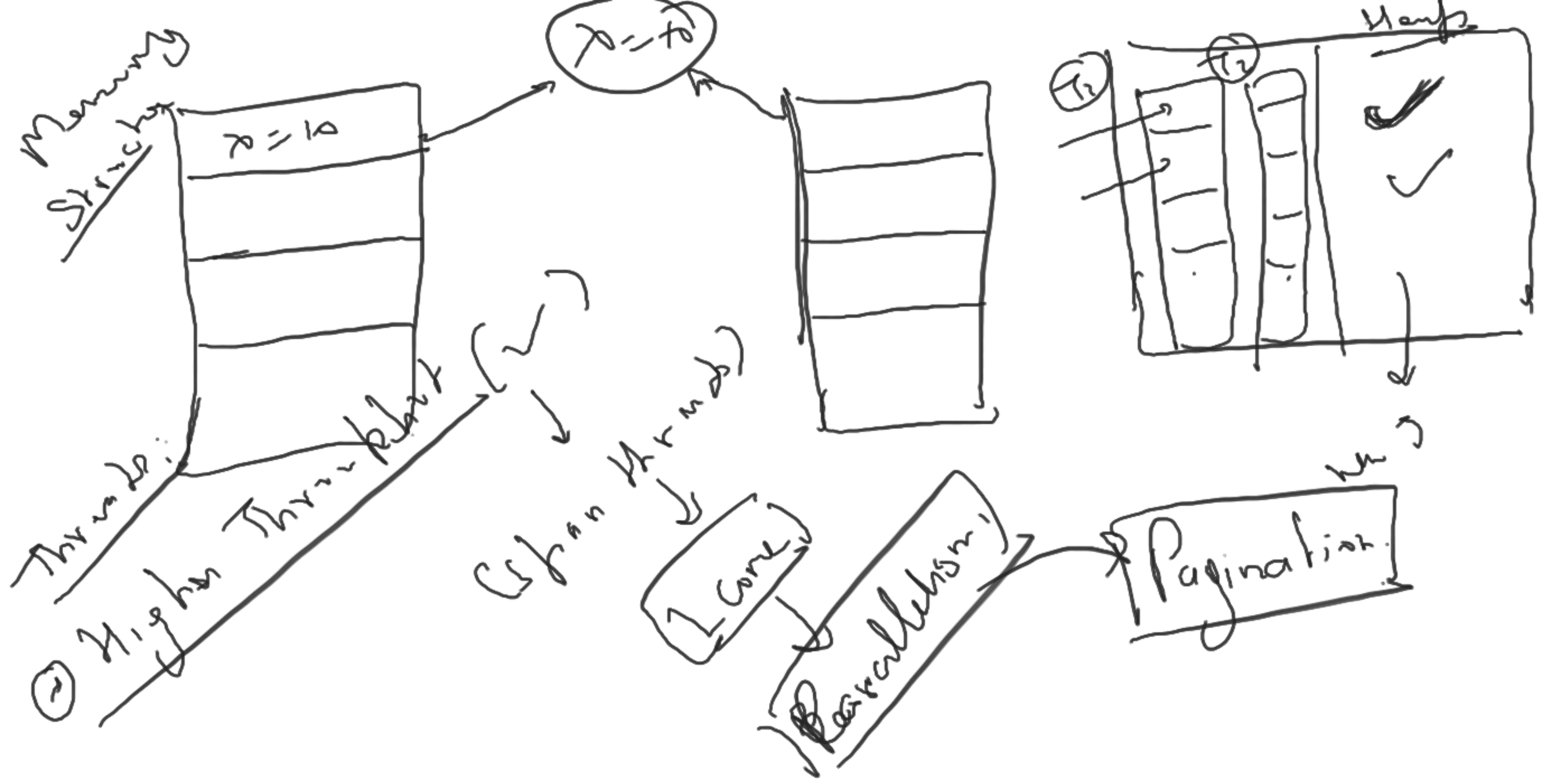
✓ Open()
✓ Close()
Poison() ✓

handle() → Open handle() ✓
Give Lock() ✓

[ ] → unqueID →

✓ Acquire()
- Release()
- Retry Acquire()
✓ Set Acl()
✓

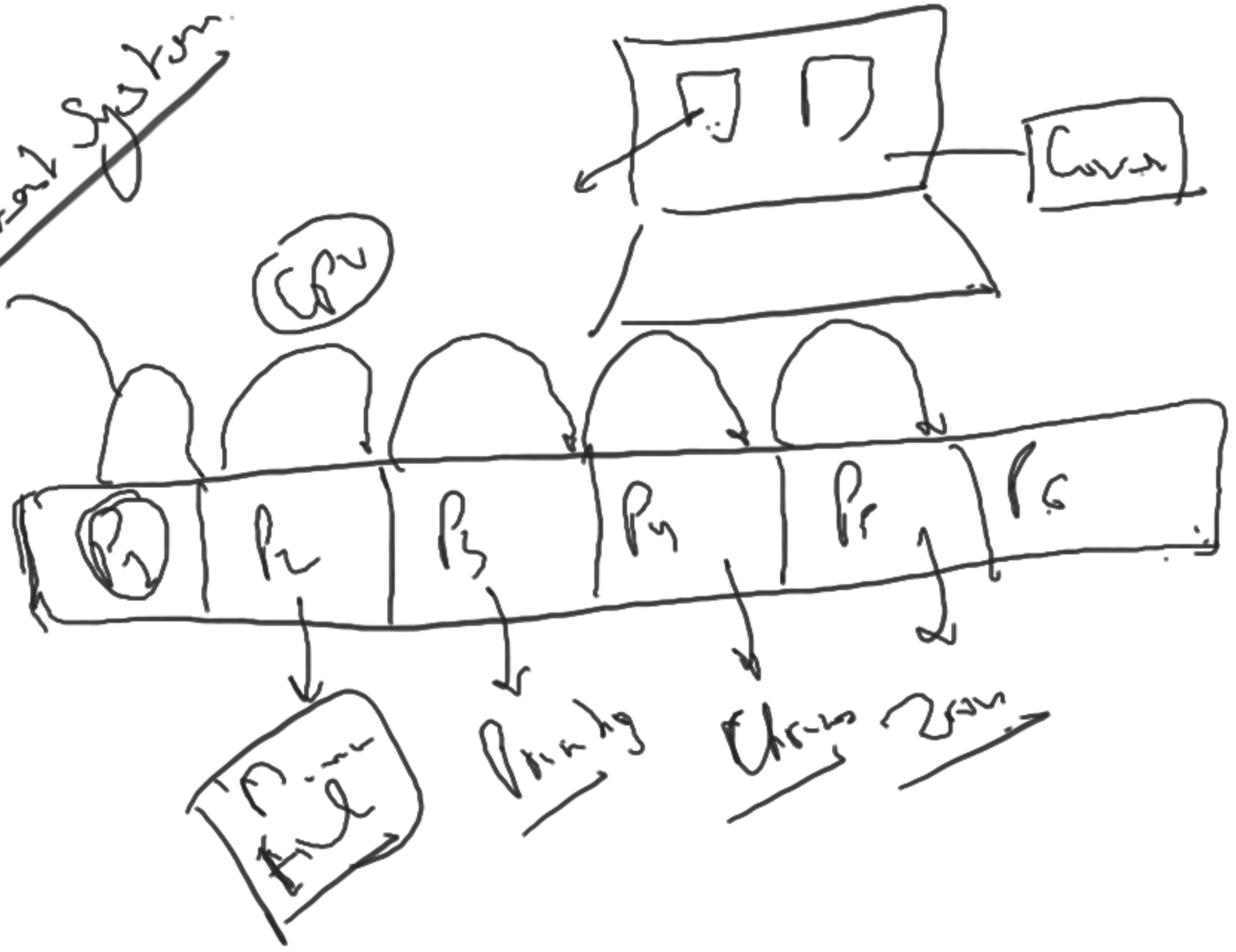

Program :
public static void main(String arg[]){
}
Process
Program
}
Threads
Smallest unit in Execution.

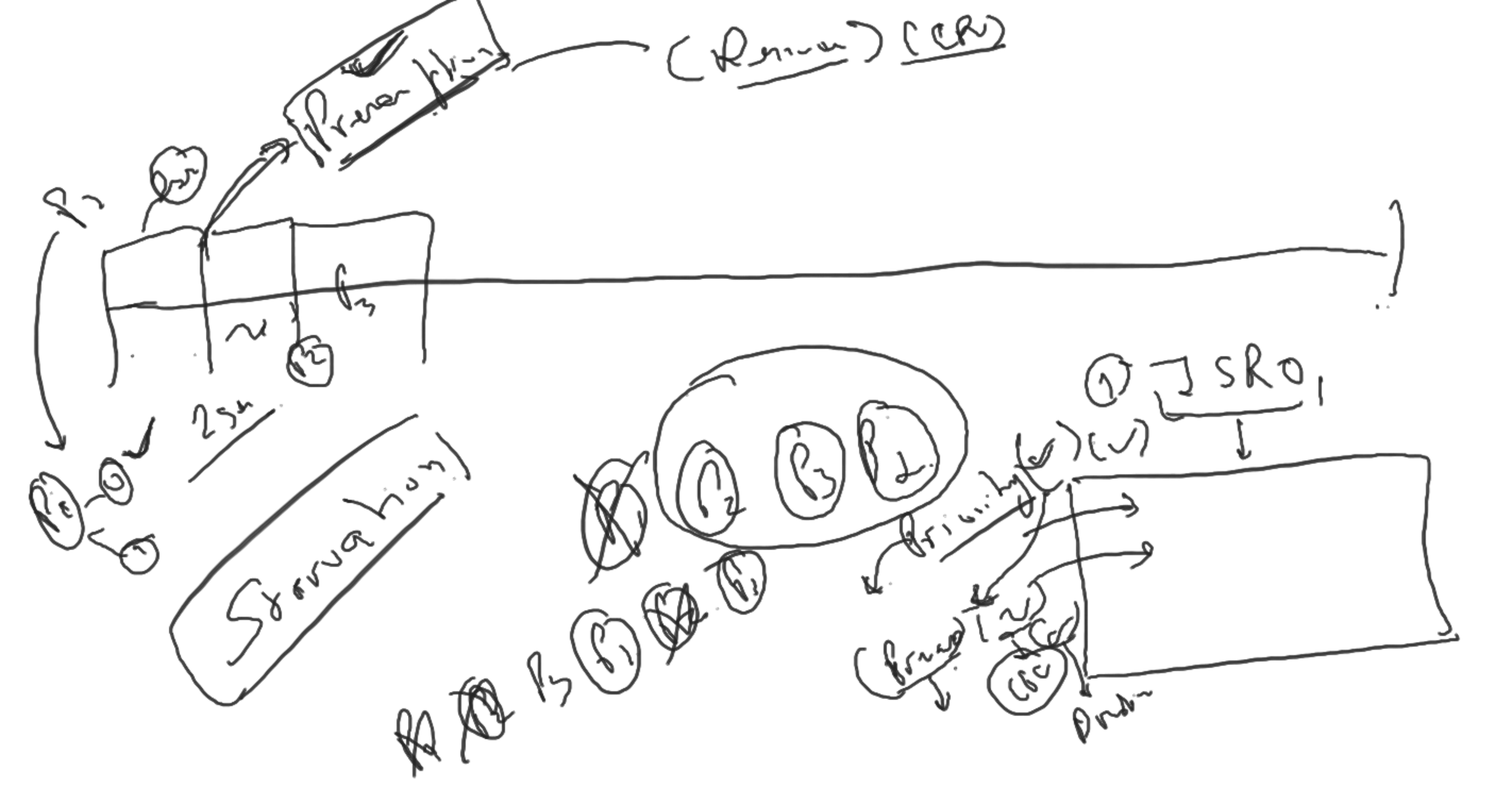

Memory Structure
x = 10
x = 10
Thread:
Higher Throughput (✓)
(Span thread)
1 core
Parallelism
Pagination
Heap
T2
T2

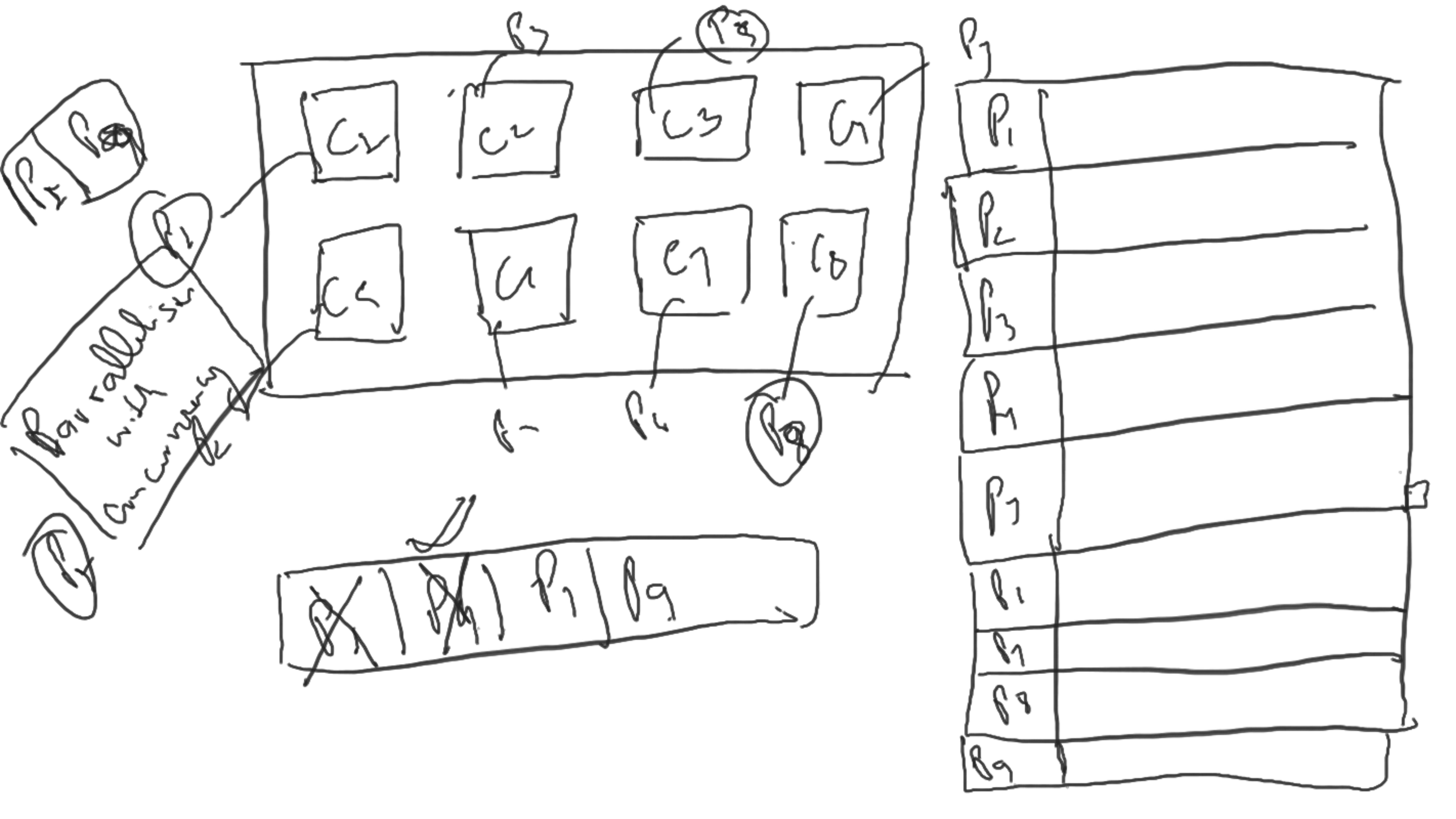
→ Single Core System

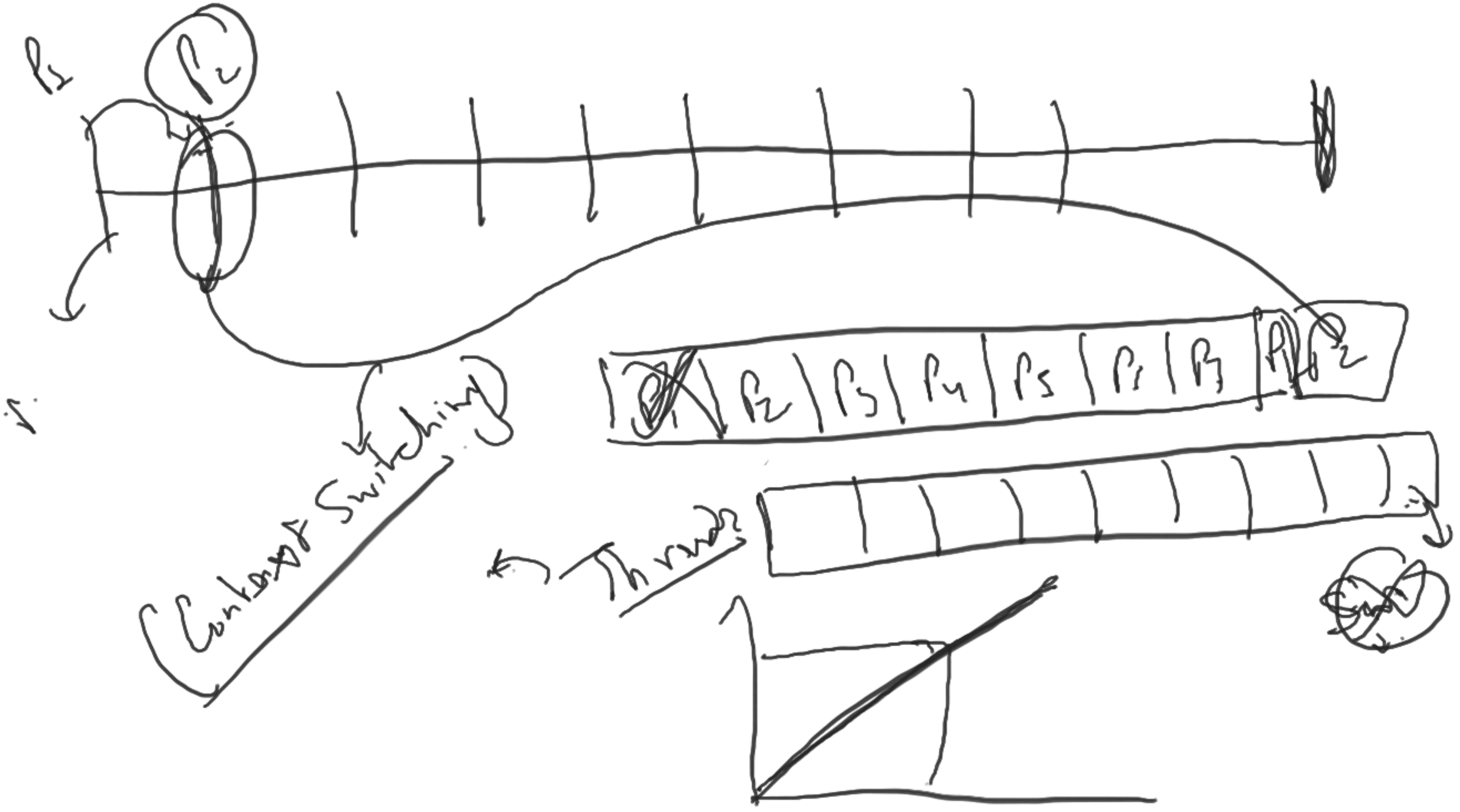
→ Multi Core System

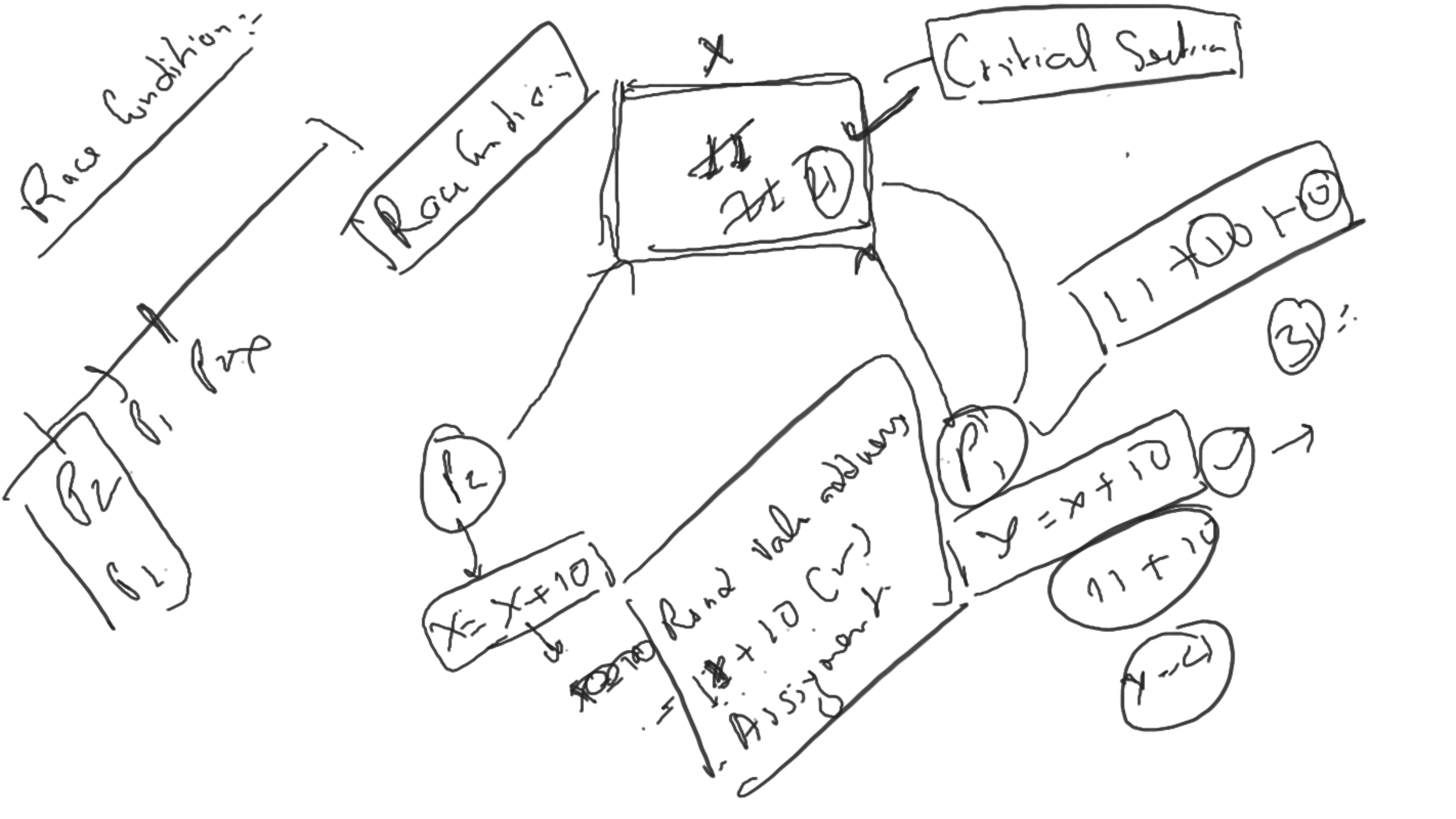
① Concurrent System

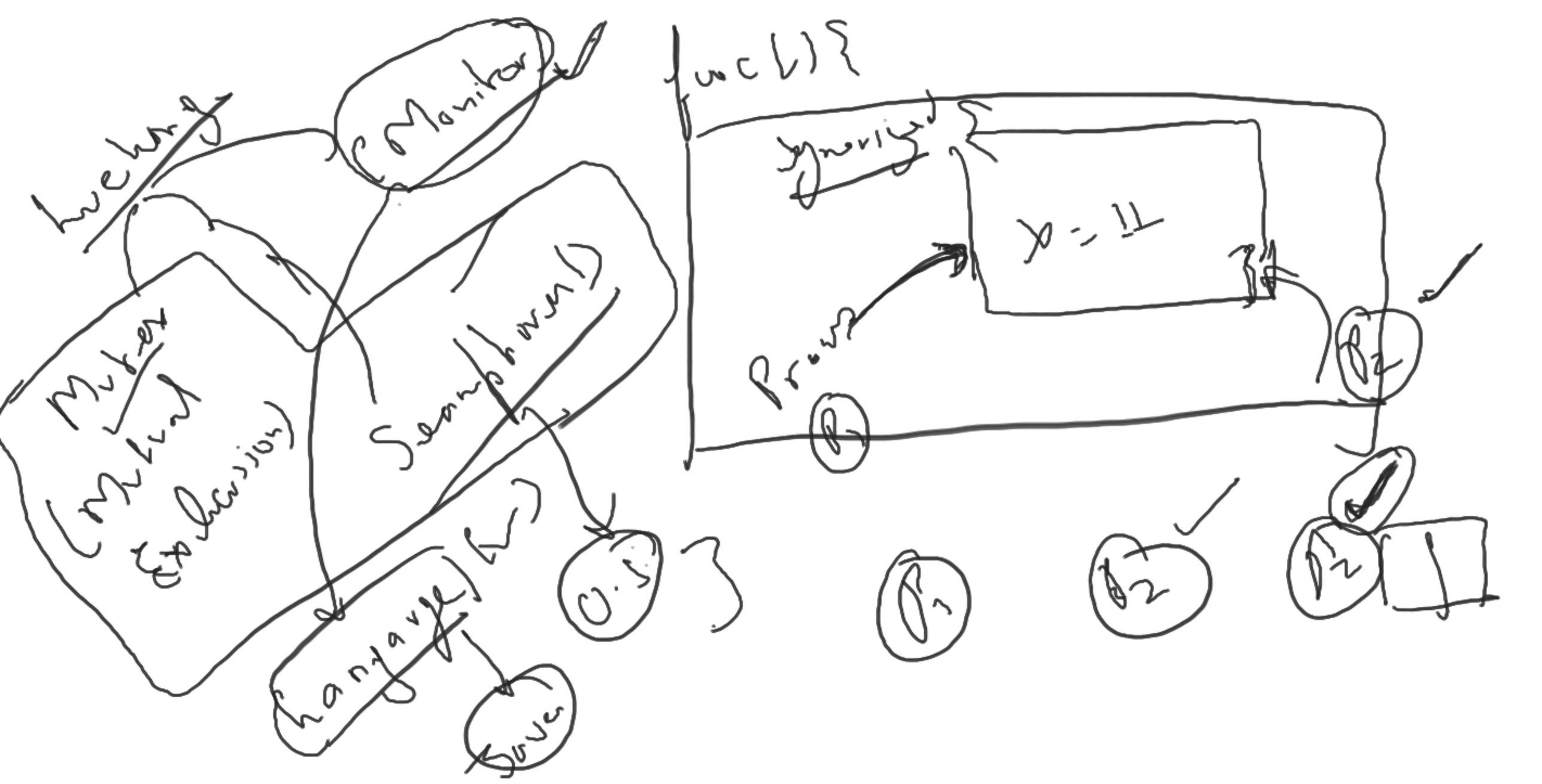


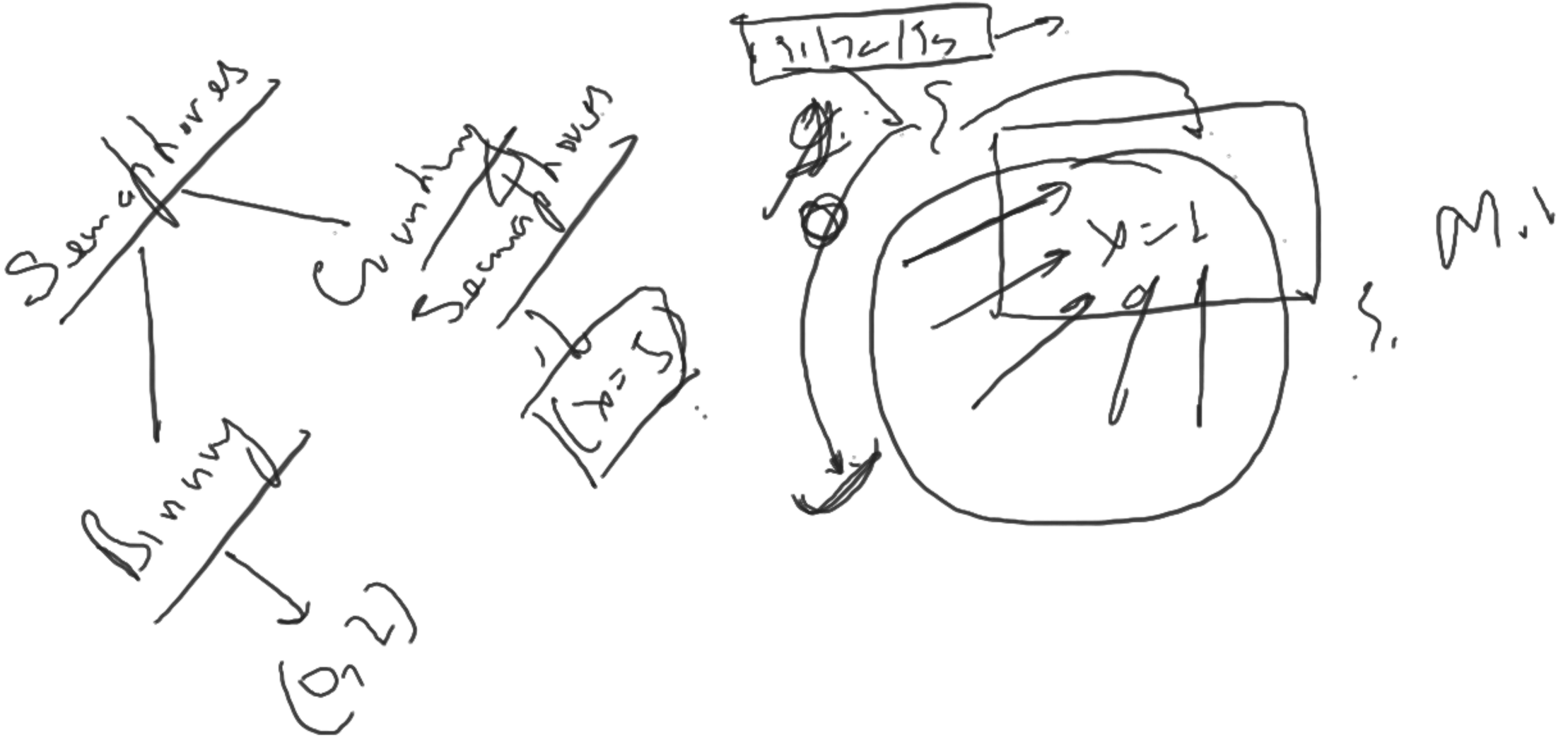


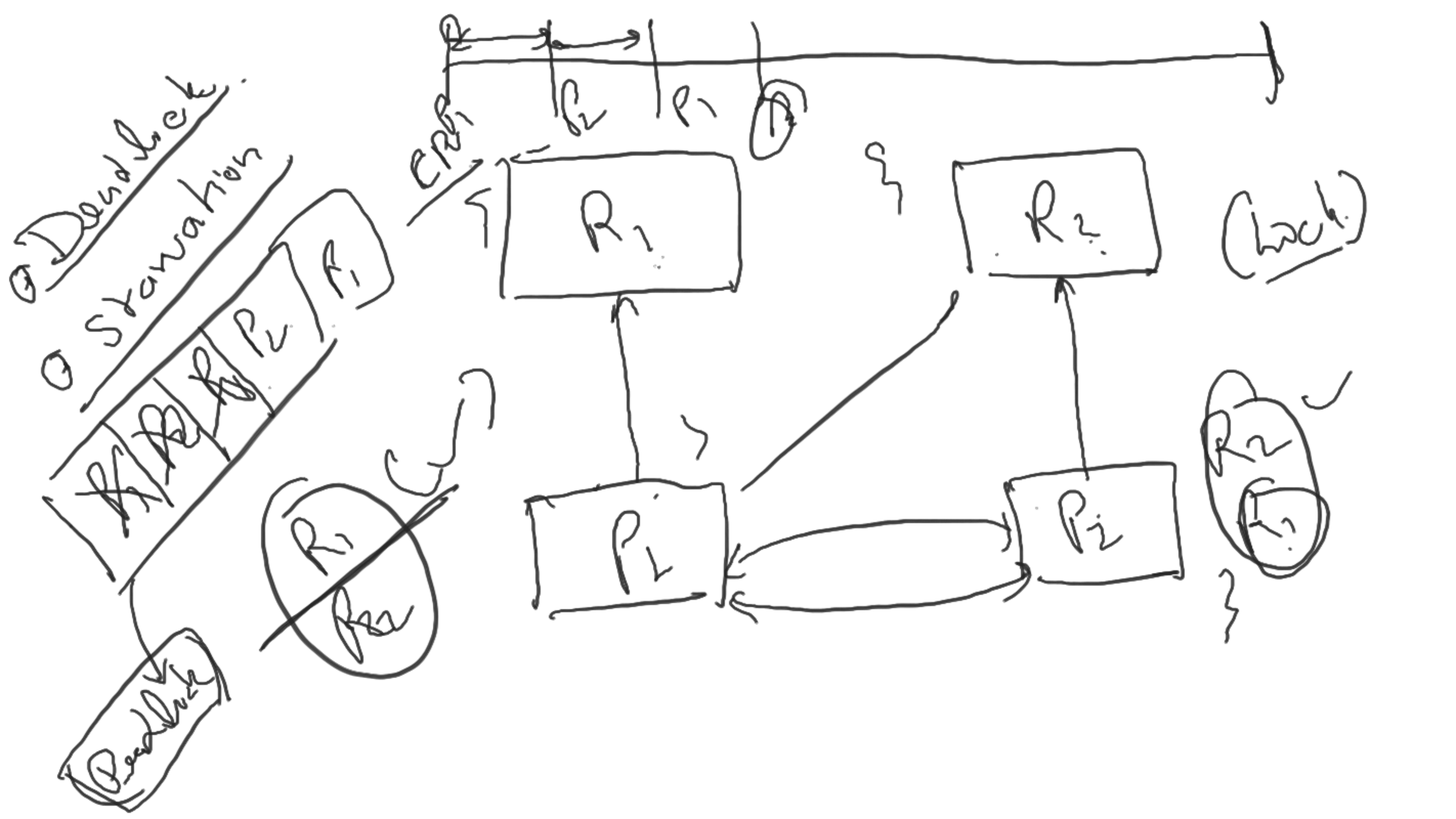



Context Switching
Threads


Race Condition:
Race Condition
Critical Section
x
P2
P1
P2
P1
x = x + 10
Rand Value addressing
= 11 + 10 (✓)
Assignment
11 + 10 + 10
31
y = x + 10
11 + 10
y = 21


Monitor
Mutex
(Mutual Exclusion)
Semaphores
0.5
Language
Sever
func() {
Synchronized {
x = 11
Prove
P1
P2
P1
P2
P2





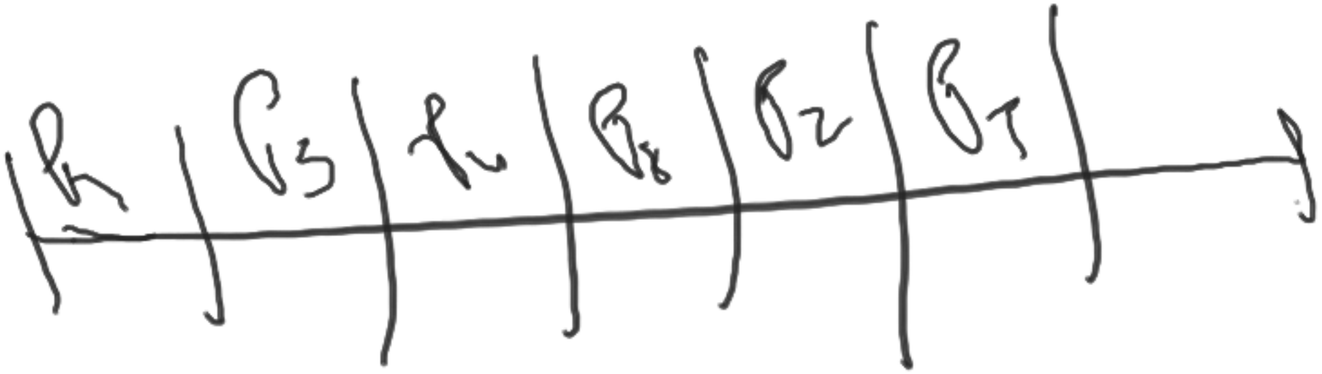
Deadlock
Starvation
R1
R2
P1
P2
(Lock)

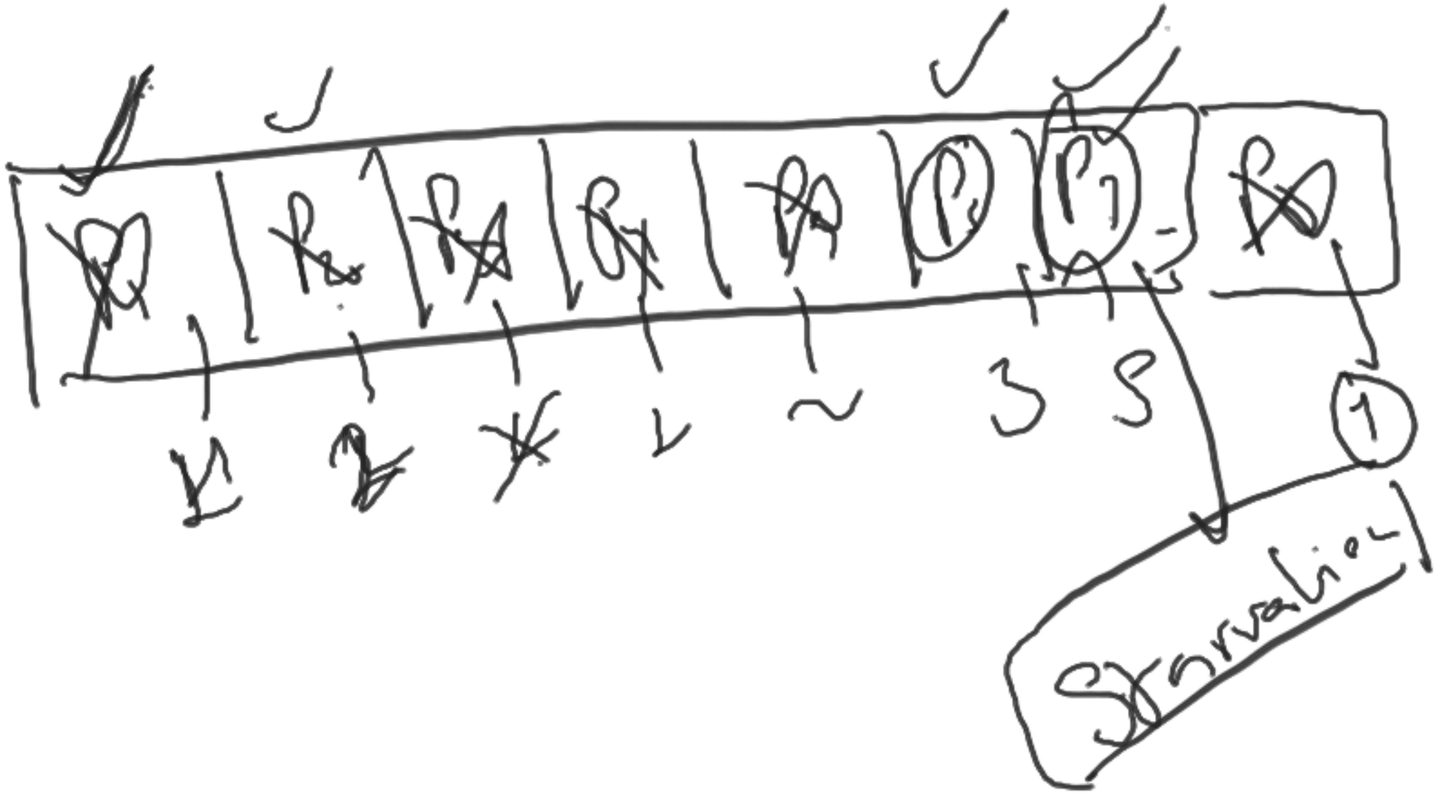
Starvation :-

ISRO

Round Robin

Priority Jazes





Typehead System Design

18:35 p.m. IST

1 → results we are returning

2 → Content which is search a lot own words.

3 → 2 - 3 [illegible]

* Needs to be updated

Non-F.R.

① Minimal Latency.

② Available

③