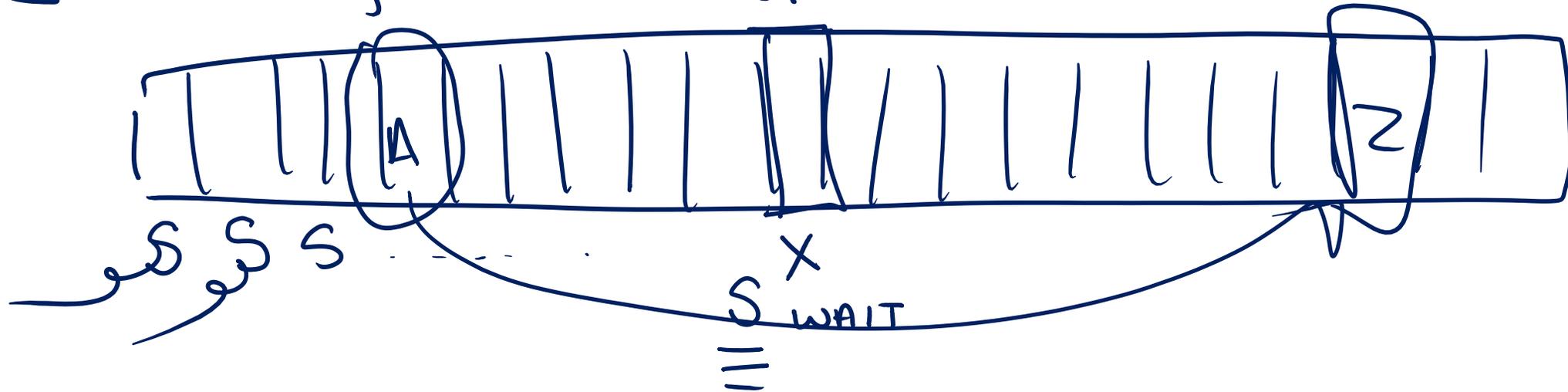


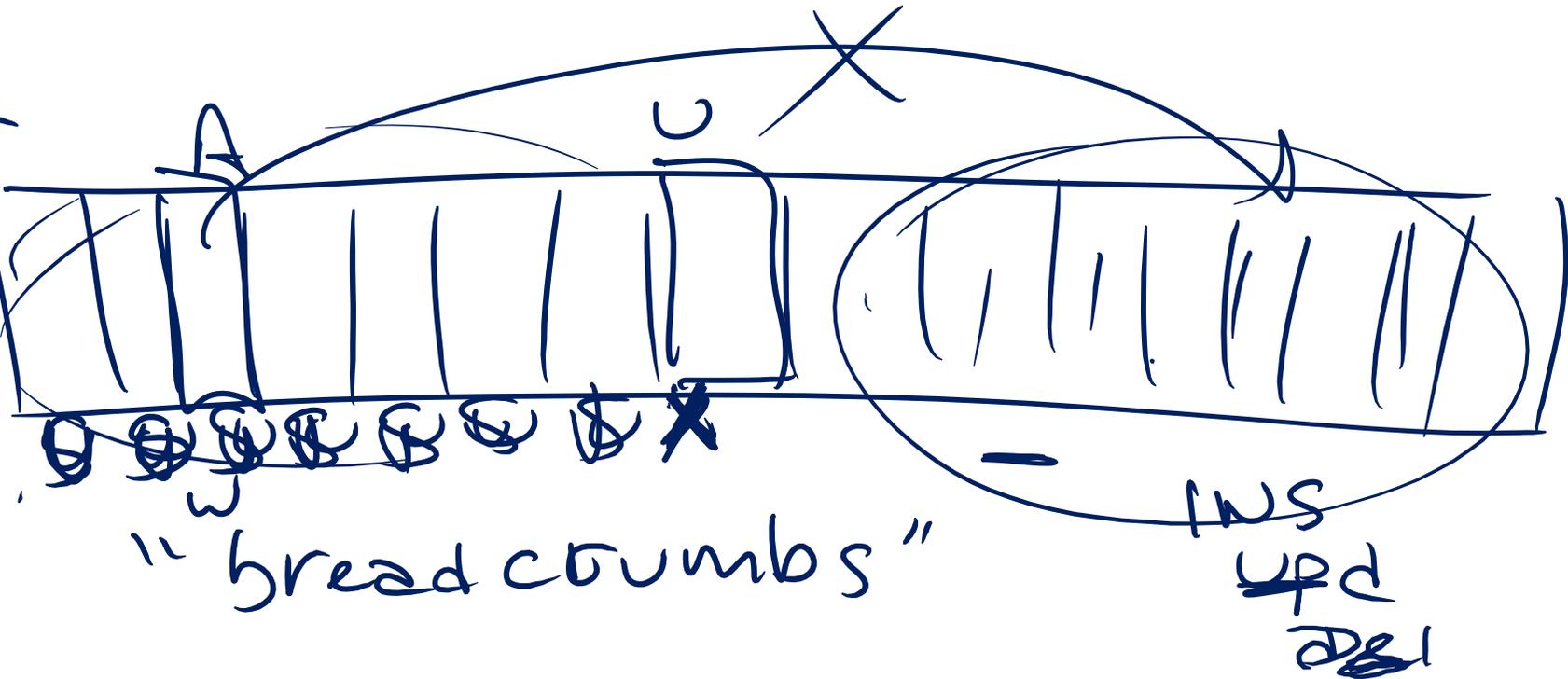
RC w/locking

Update



Repeatable Reads

Count Query



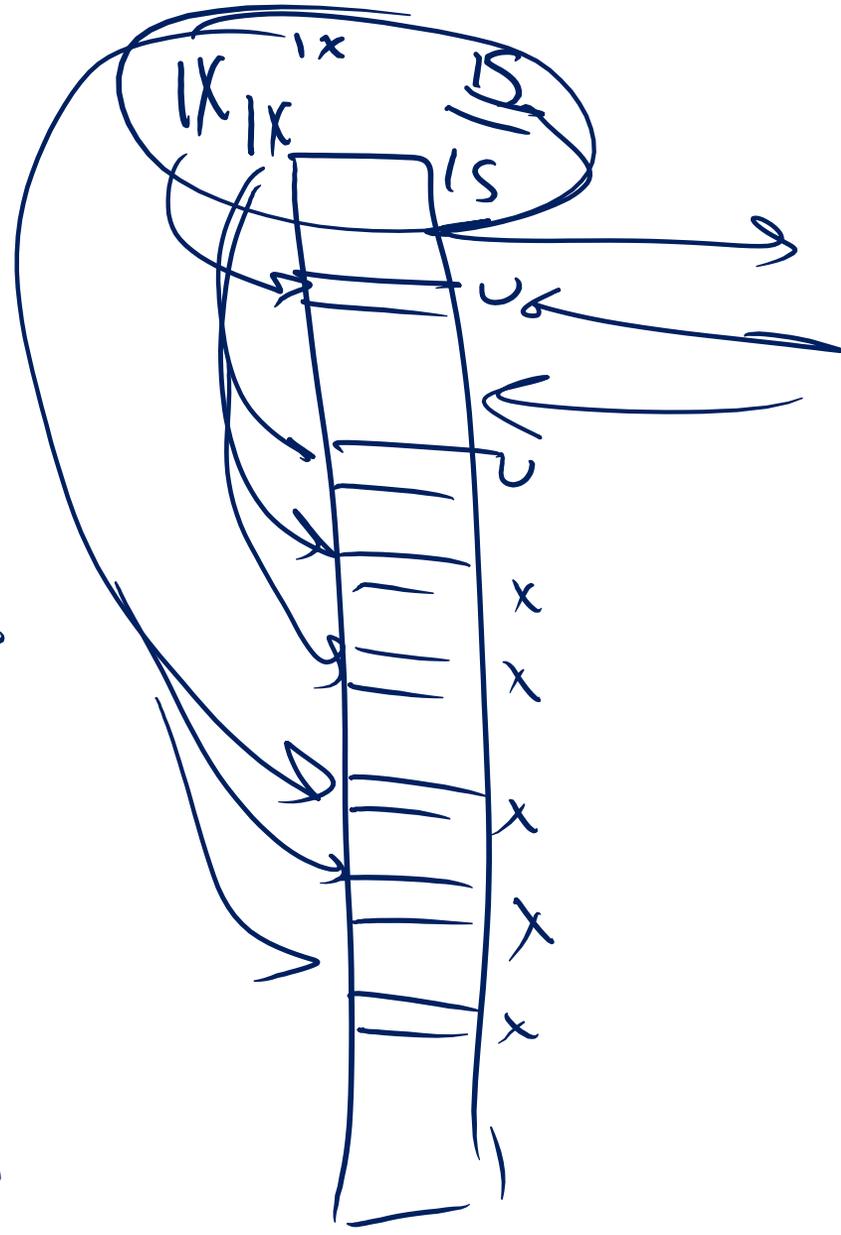
"bread crumbs"

INS  
upd  
del



SP\_recompile  
frame

Over here  
code



DISALLOW ~~ROW~~LOCKS  
PAGE

Allow ~~PAGE~~LOCKS  
Row

IX1

Key  
inc

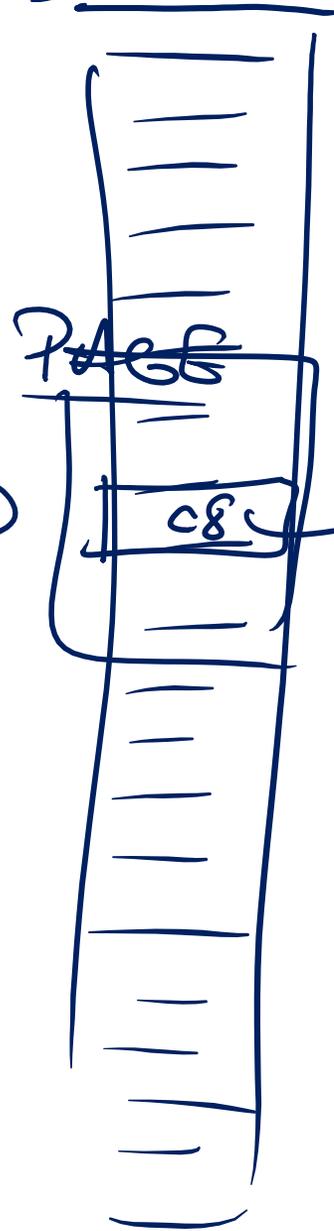
c4

c6

Update

set c6 = ~

where c4 = x



IX2

key c8

inc c6

Update

set c6 = ~

where c8 = y

BT  
update saving  
update check

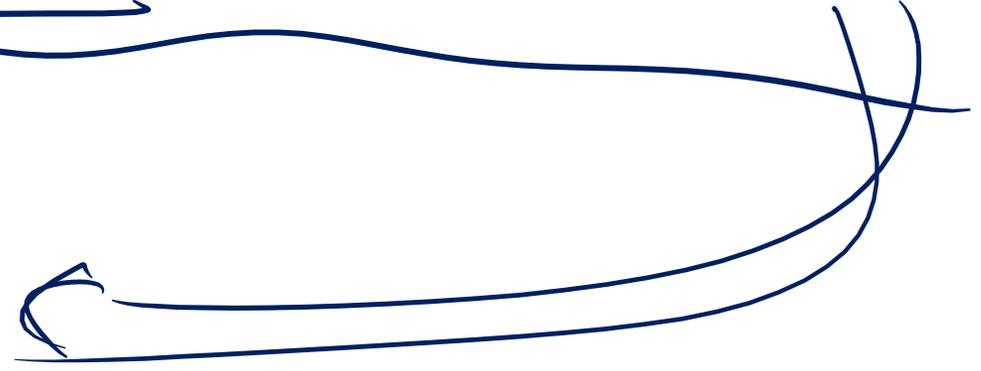
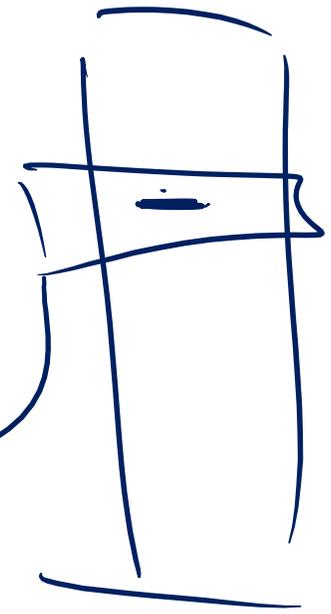
CT

LOGICAL  
ORDER  
+ phy

TRAN

BT  
update check  
update saving  
CT

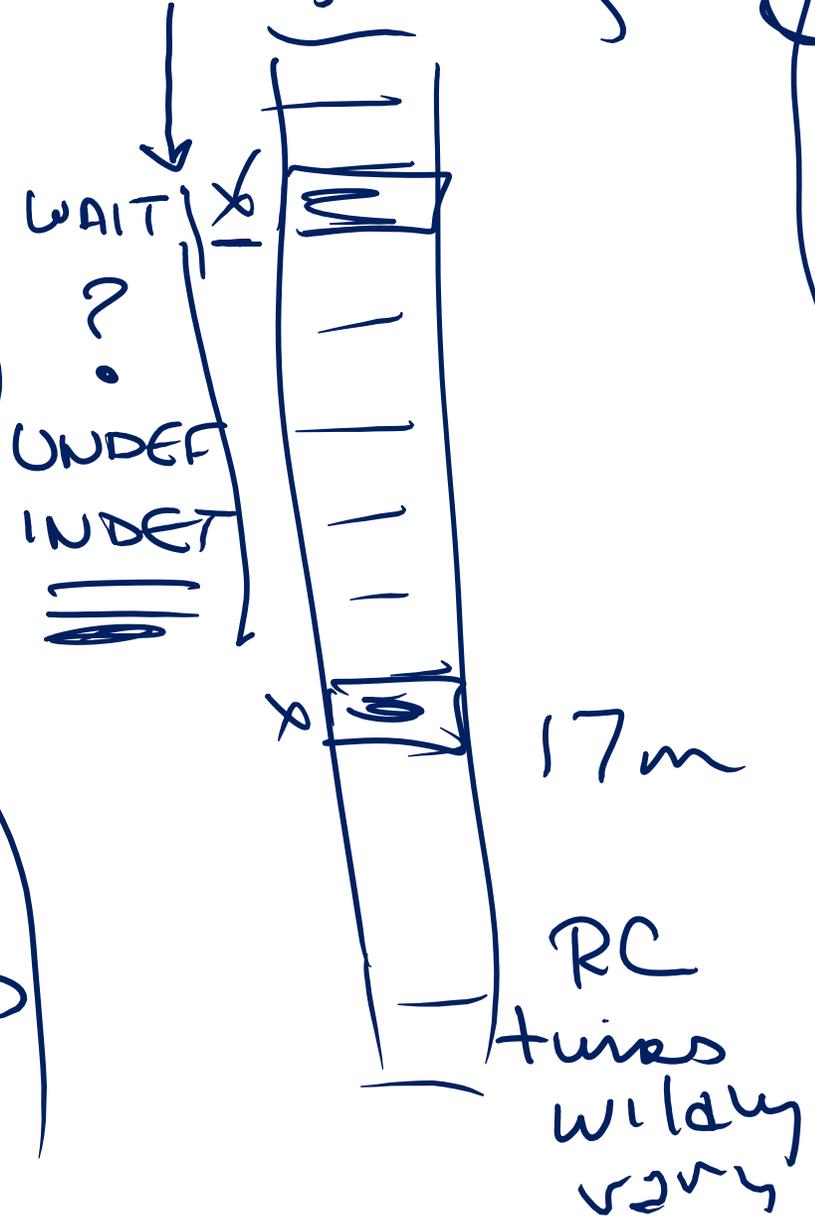
BT  
upd checking  
upd saving  
CT



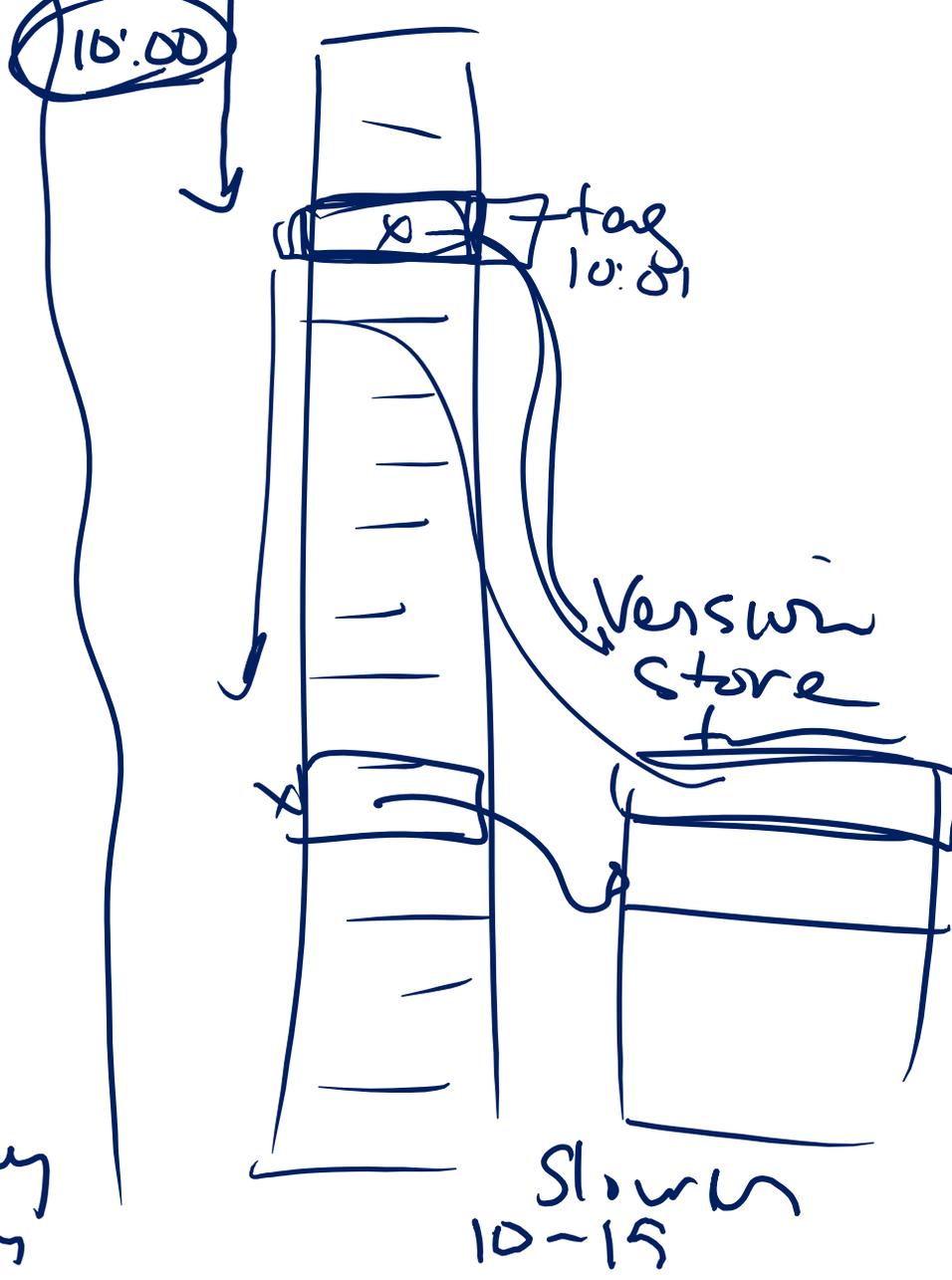
READ UNCOM.



Read Com Using locking



RC w/ version



Cow

PIT

Version

PIT Row

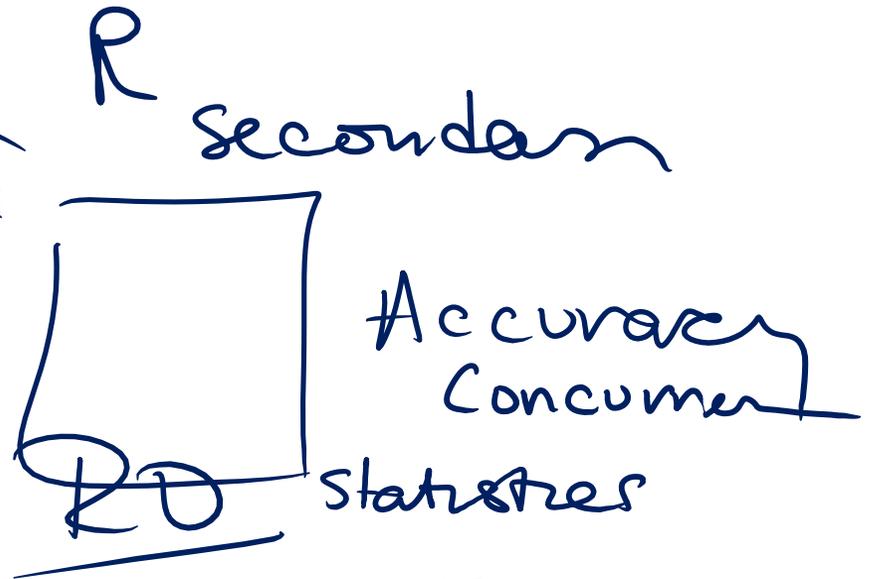
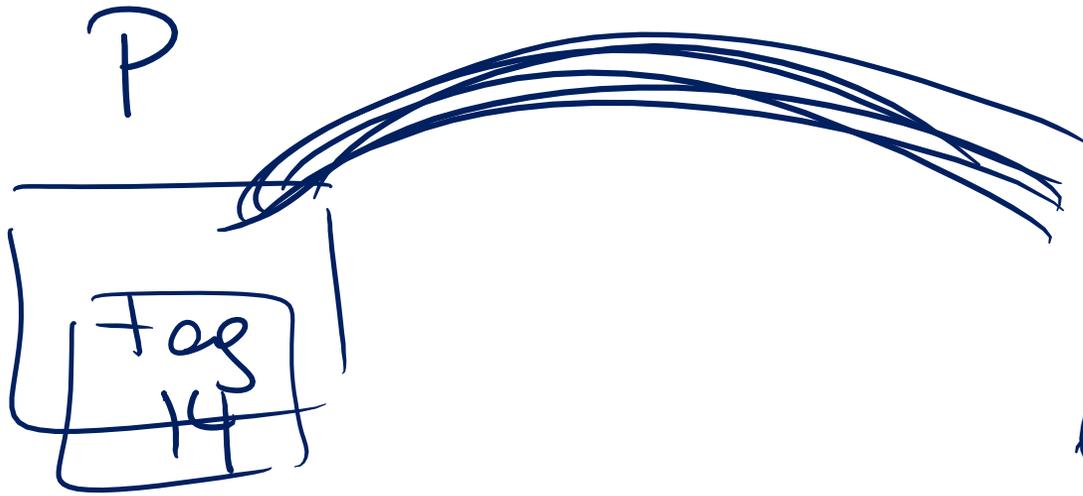
DB sm

PIT DB

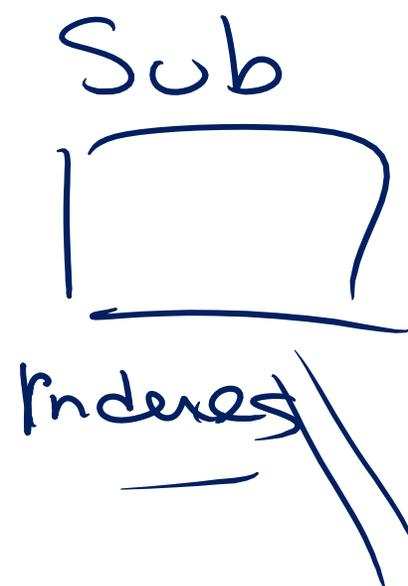
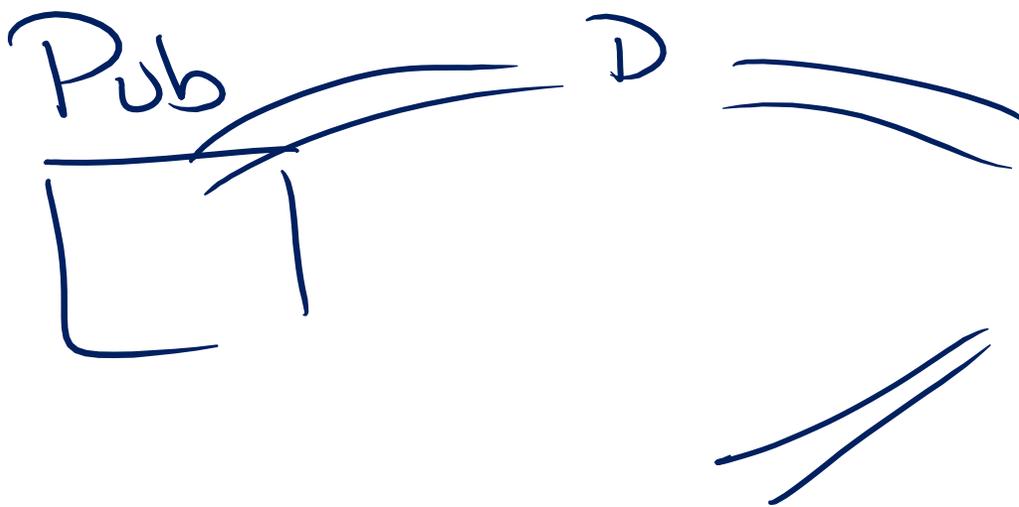
Copy Before Write

Copy On Write

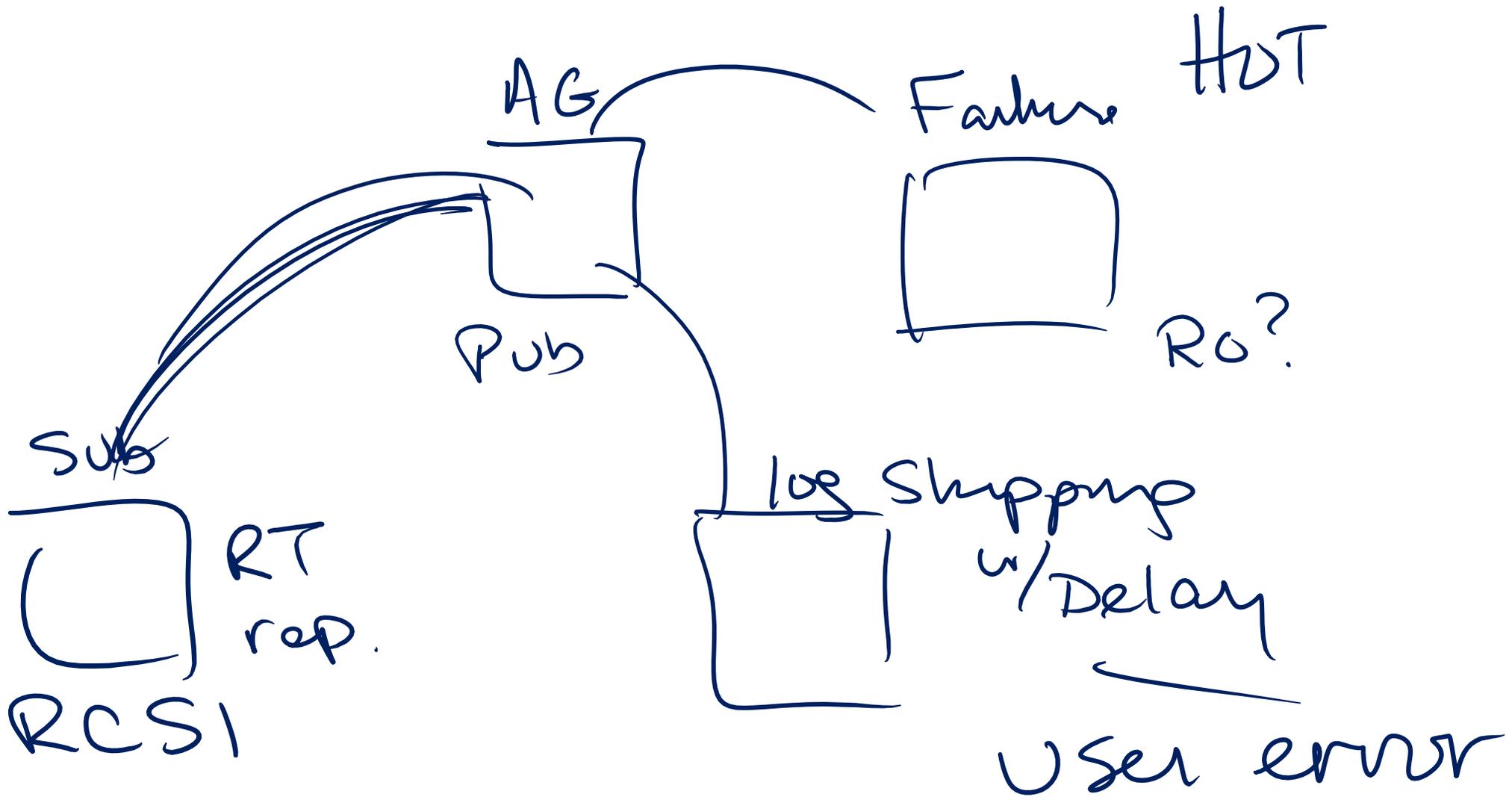
AGS



Rep



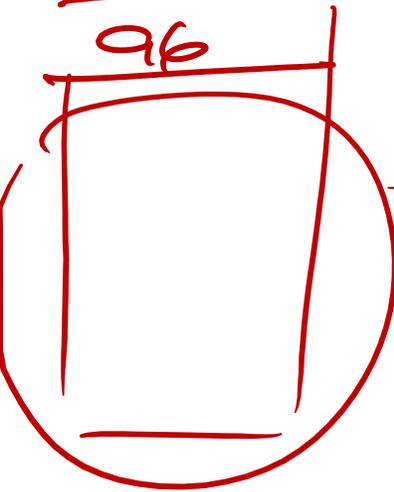
RCSI  
Read-committed  
Snapshot  
Acc  
Conc.



IAM

BITMAP

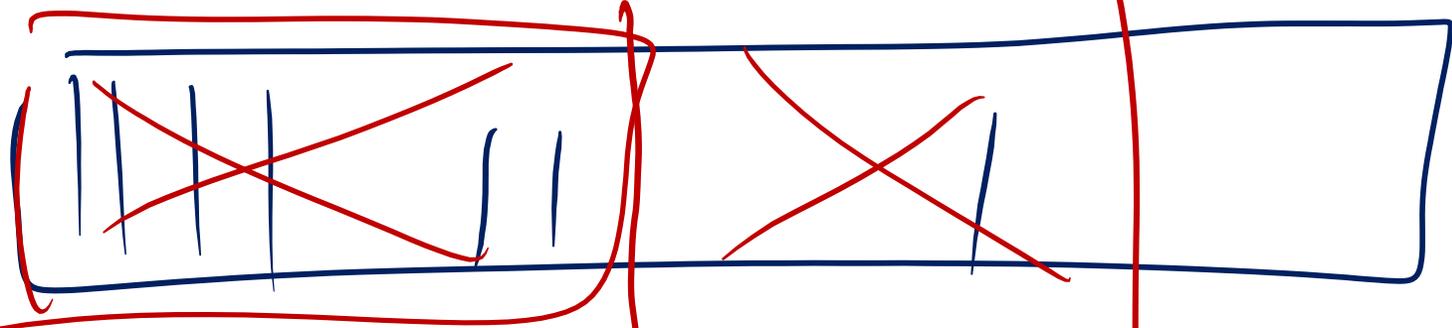
96



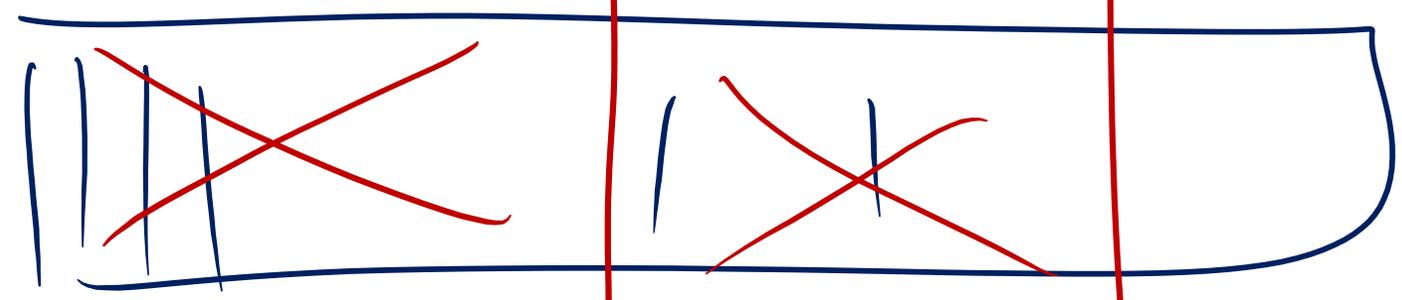
GAM

4GB

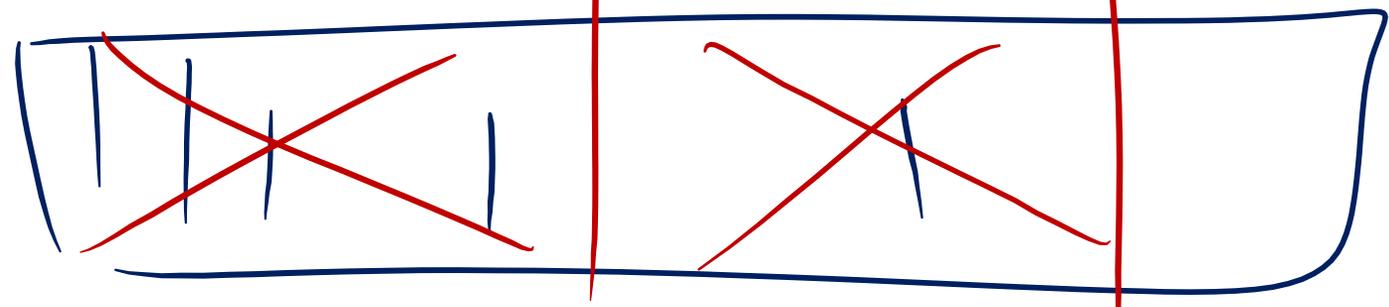
8GB



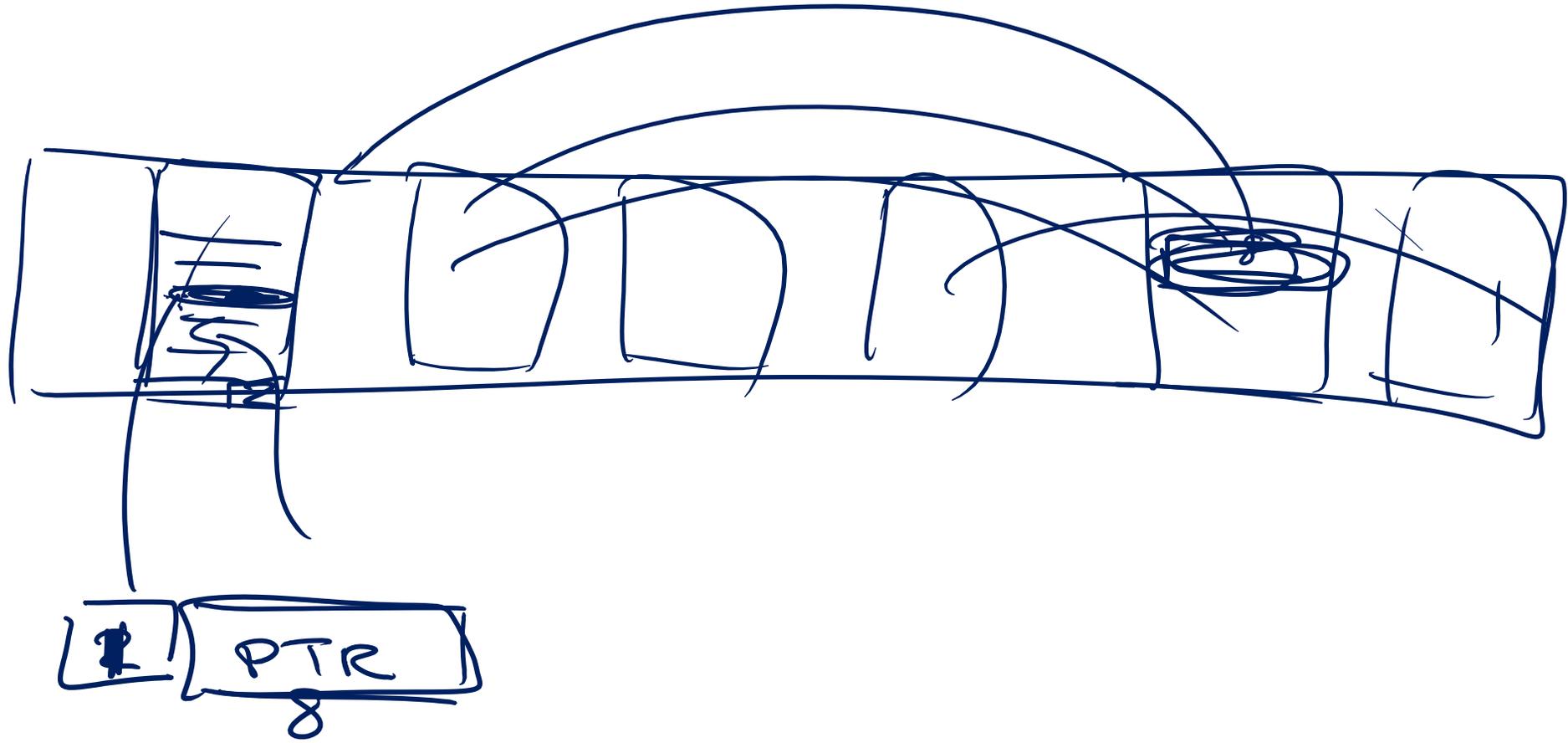
10GB

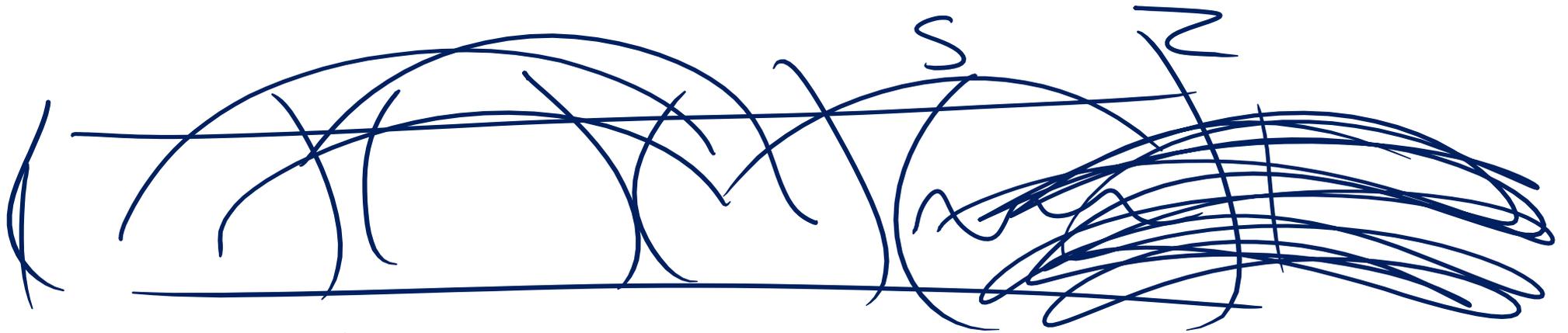


10GB



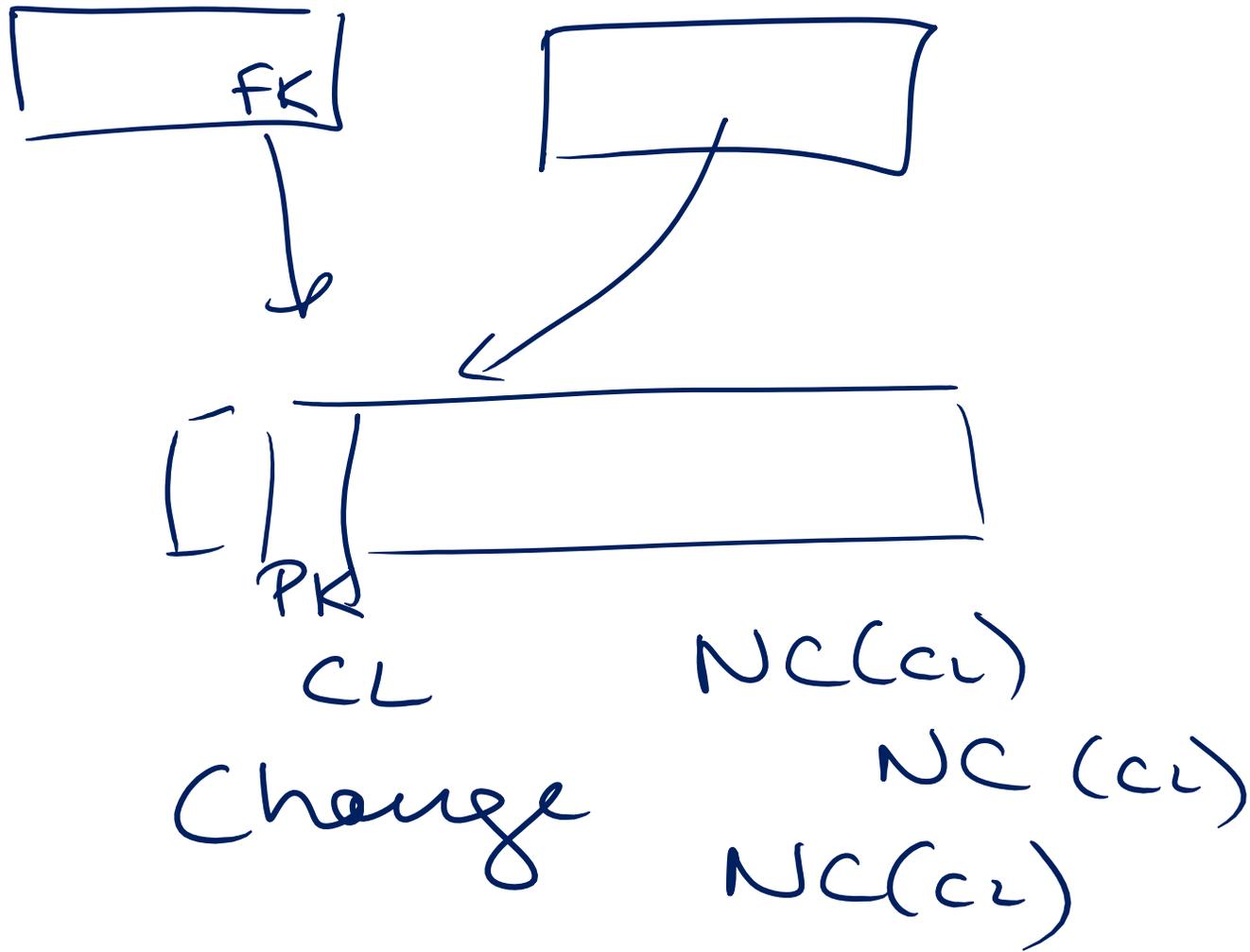
10GB





"CL" LW, FN, MI  
RO FRAG

NC Key  
1-20  
EVERY



OFFLINE

DROP FK

DROP NC

DROP CL

? Add ID

CREATE CL

CREATE PK NC

CREATE NC

CREATE FK

UP View ← selects / Deletes

UA V tables Updates

(2000-2017)  
T

(2018)  
T

(2019)  
T

CS IVs

\*More indexes  
FULLSCAN ✓  
FF 100

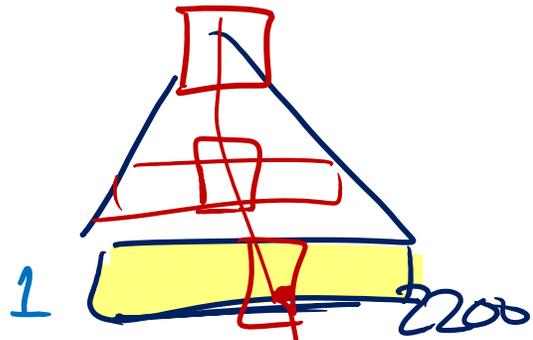
Constraint  
date >= 20190101  
< 20200101

switch in  
PT A

S | Oct 2020

Sales 2020  
DSE

3



NC Col x, Lookup

int

4

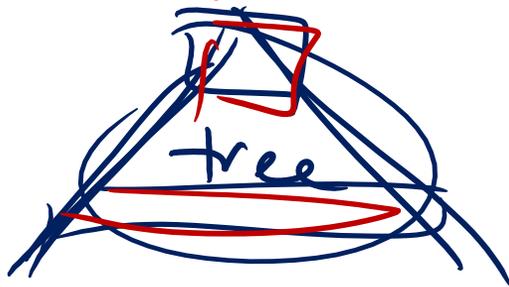
D, int/big

16

Q

1.6M rows

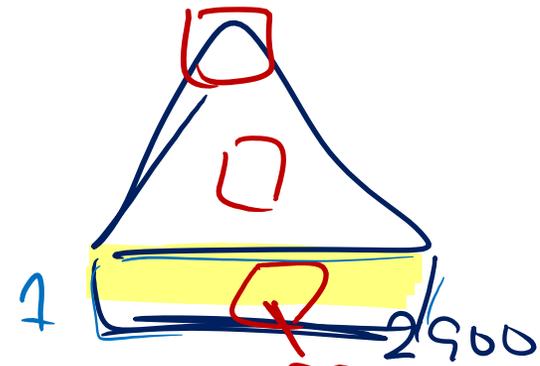
3



10K

6

3



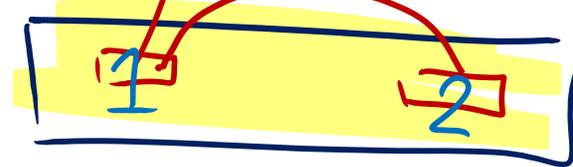
NC Col x, Lookup

"fixed"  
Physical

RID

8

fwd ptr



Heap

10K

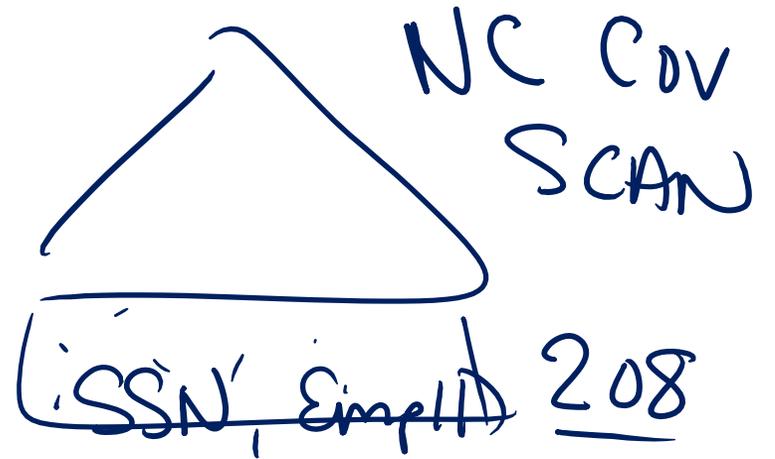
4-5



< 10000

$\frac{1}{8} 4000 = \underline{\underline{500}}$

NC



208 "filter"

$26 \frac{1}{8}$



"E"

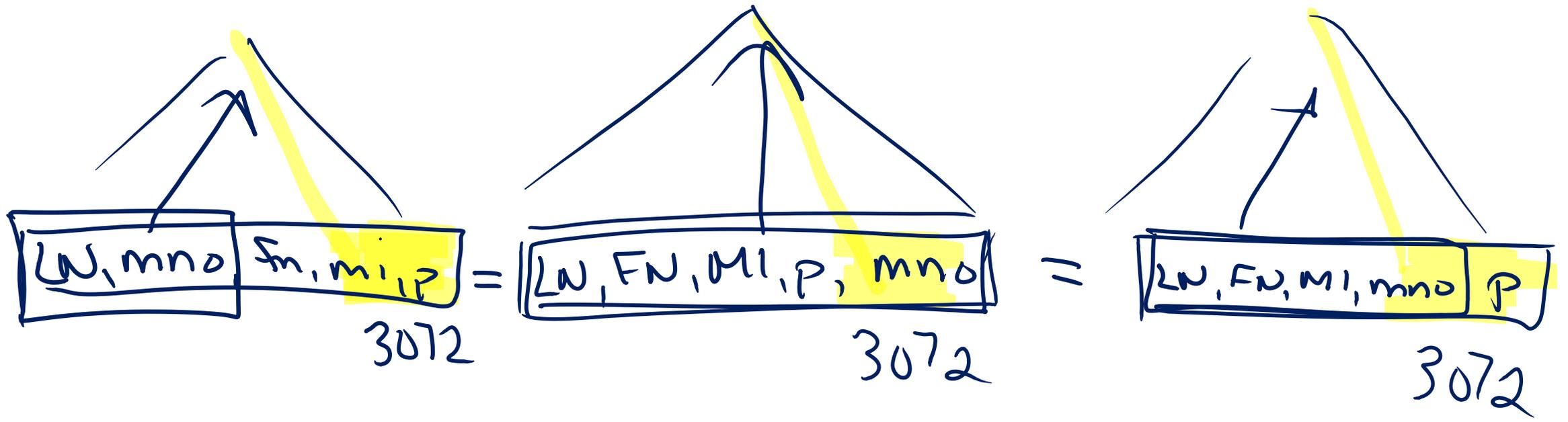
X LN  
INC FN, MI, P

"B"

LN, FN, MI, P

"D"

X LN, FN, MI  
INC P



CL NO MNO

1024

Doc Doc

Type 1

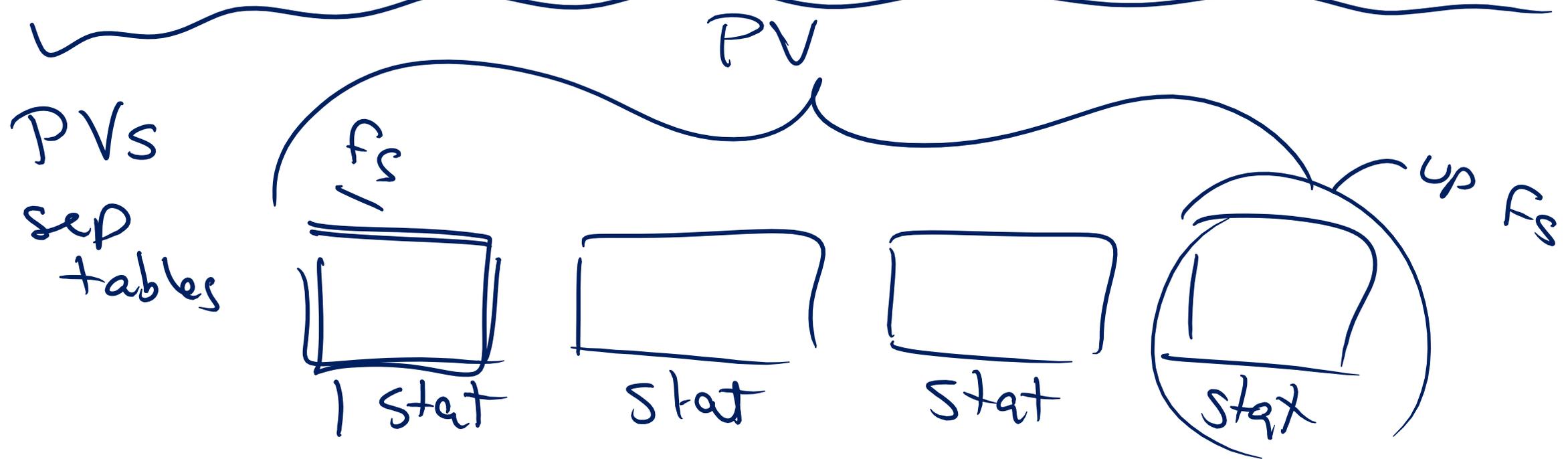
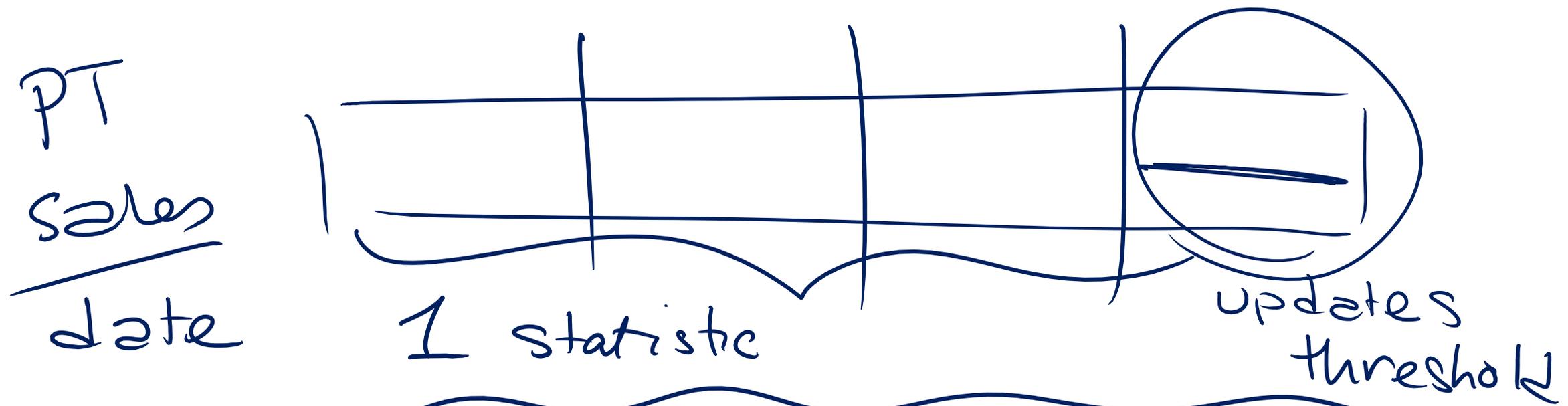
30K

ID	Type	Name	Size															

999

so-so-Pr

col17 where col17 is not null



\*

UPV Select/u/d Where Part key



T  
 |2000-2017|  
 Const.  
 IVs CS

T  
 |2018|  
 const

T  
 |2019|  
 const

OLTP

|PT|  
 2020

|2020|  
 09

|2020|  
 10

RC RW Critical

App DSE

CL (Date, ID)  
 PK

UCD

Unf

Car

Dee

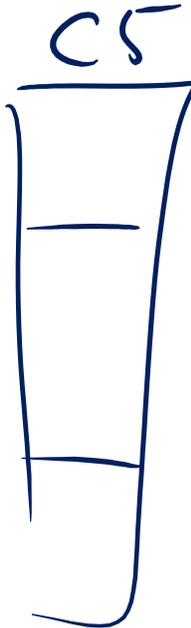
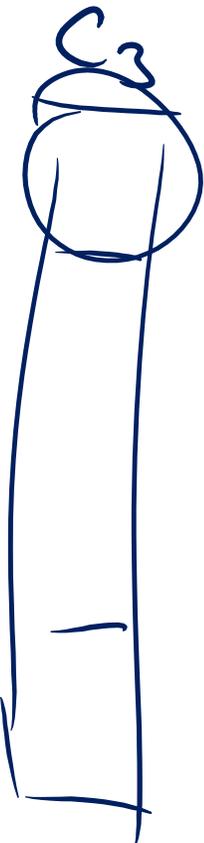
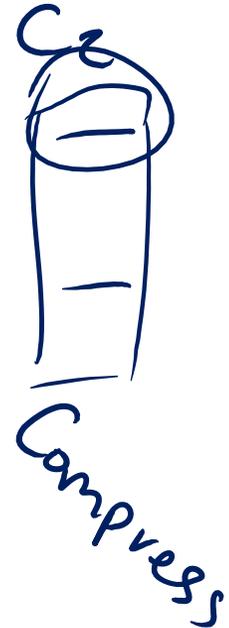
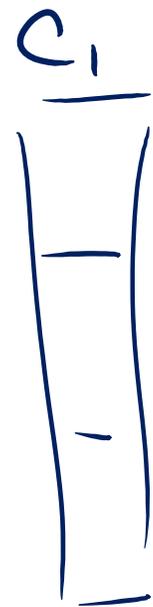
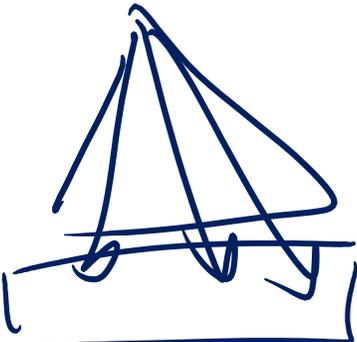


URLT

RS

Key

inc



~ / m  
Segments

CL RS  
 NC RS  
 NC CS  
 IVs