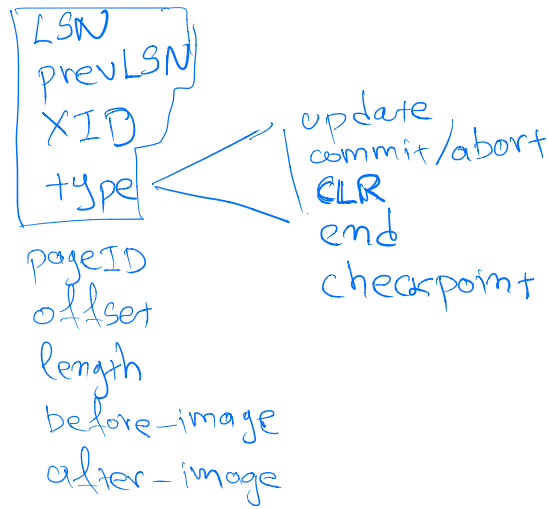
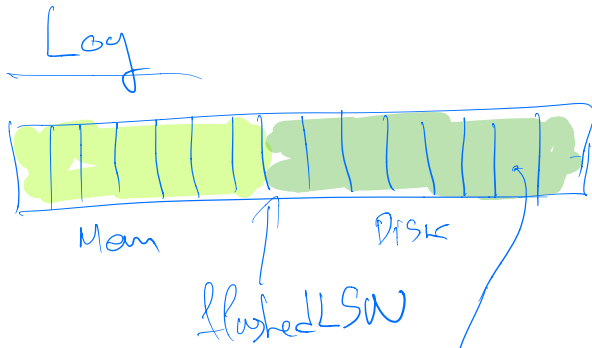


Class 25: Recovery Examples



Data pages
 → pageLSN & page

Master Record
 → LSN of the most checkpoint

Memory

- Active Xact Table

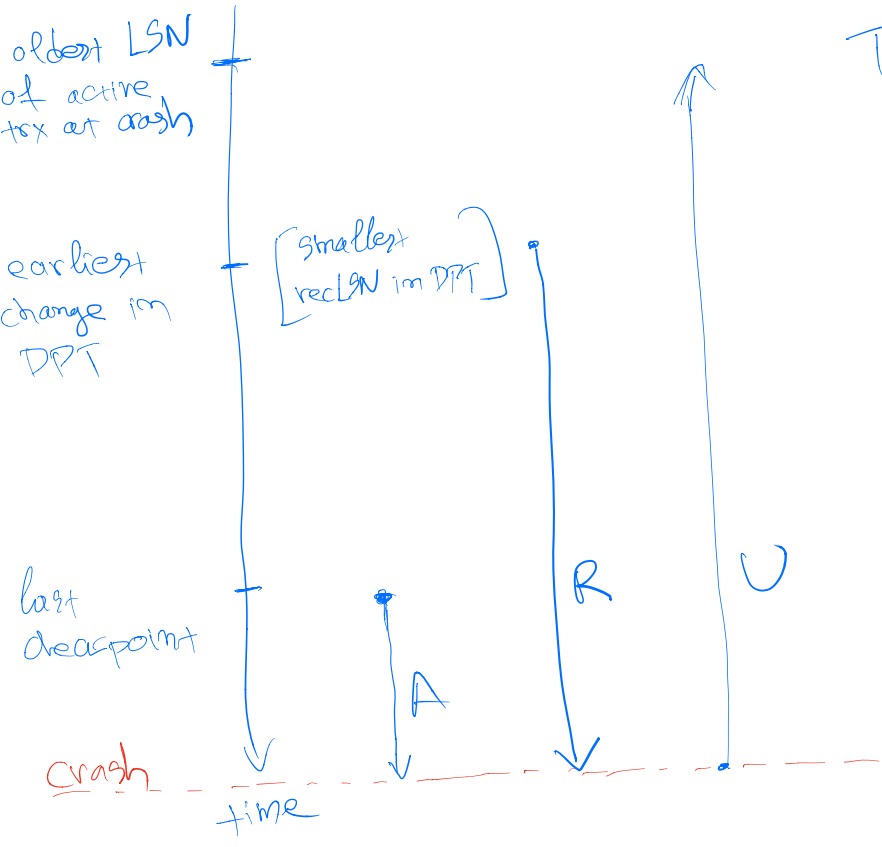
→ XID, lastLSN, status
 ↳ running / committing / aborting

- Dirty Page Table

→ pageID, recLSN

- flushedLSN [flushedLSN ≥ pageLSN_i to write page i to the disk]

To Undo { lost LSN of all active ~~act~~ }



- LSN 00 begin checkpoint
- 05 end checkpoint
- 10 update: T1 on P5
- 20 update: T2 on P3
- 30 T1 abort: 10
- 40 CLR: undo T1 LSN 10, undo next = NULL
- 45 T1 end: 30
- 50 update: T3 on P1
- 60 update: T2 on P5 (20)

AXT	DPT
T1, 10, aborting	P5, 10
T2, 20, running	P3, 20
T3, 50, running	P1, 50

X - crash

- 70 CLR undo T2 LSN 60 (next 20)
- 80 CLR undo T3 LSN 50 (null)
- 85 T3 end

After Analysis → Redo
 starts from earliest recLSN from DPT → 20
 After Redo → Undo
 To Undo { 50, 60 }

X - crash

- 90 CLR undo T2 LSN 20 (null)
- 95 T2 end

After the 2nd crash
 I recreate AXT, DPT
 To Undo { 70 }