Example 1:

Log:

After a crash, we find the following log:

0	BEGIN CHECKPOINT
5	END CHECKPOINT (EMPTY XACT TABLE AND DPT)
10	T1: UPDATE P1 (OLD: YYY NEW: ZZZ)
15	T1: UPDATE P2 (OLD: WWW NEW: XXX)
20	T1: COMMIT

Analysis phase:

Scan forward through the log starting at LSN 0.
LSN 5: Initialize XACT table and DPT to empty.
LSN 10: Add (T1, LSN 10) to XACT table. Add (P1, LSN 10) to DPT.
LSN 15: Set LastLSN=15 for T1 in XACT table. Add (P2, LSN 15) to DPT.
LSN 20: Change T1 status to "Commit" in XACT table

Redo phase:
Scan forward through the log starting at LSN 10.
LSN 10: Read page P1, check PageLSN stored in the page. If PageLSN<10, redo LSN 10 (set value to ZZZ) and set the page's PageLSN=10.
LSN 15: Read page P2, check PageLSN stored in the page. If PageLSN<15, redo LSN 15 (set value to XXX) and set the page's PageLSN=15.

Undo phase:
Do nothing; no transactions to undo.

Example 2:
Log:
After a crash, we find the following log:

0	BEGIN CHECKPOINT
5	END CHECKPOINT (EMPTY XACT TABLE AND DPT)
10	T1: UPDATE P1 (OLD: YYY NEW: ZZZ)
15	T1: UPDATE P2 (OLD: WWW NEW: XXX)
20	T2: UPDATE P3 (OLD: UUU NEW: VVV)
25	T1: COMMIT
30	T2: UPDATE P1 (OLD: ZZZ NEW: TTT)

Analysis phase:
Scan forward through the log starting at LSN 0.
LSN 5: Initialize XACT table and DPT to empty.
LSN 10: Add (T1, LSN 10) to XACT table. Add (P1, LSN 10) to DPT.
LSN 15: Set LastLSN=15 for T1 in XACT table. Add (P2, LSN 15) to DPT.
LSN 20: Add (T2, LSN 20) to XACT table. Add (P3, LSN 20) to DPT.
LSN 25: Change T1 status to "Commit" in XACT table
LSN 30: Set LastLSN=30 for T2 in XACT table.

Redo phase:
Scan forward through the log starting at LSN 10.
LSN 10: Read page P1, check PageLSN stored in the page. If PageLSN<10, redo LSN 10 (set value to ZZZ) and set the page's PageLSN=10.
LSN 15: Read page P2, check PageLSN stored in the page. If PageLSN<15, redo LSN 15 (set value to XXX) and set the page's PageLSN=15.
LSN 20: Read page P3, check PageLSN stored in the page. If PageLSN<20, redo LSN 20 (set value to VVV) and set the page's PageLSN=20.
LSN 30: Read page P1 if it has been flushed, check PageLSN stored in the page. It will be 10. Redo LSN 30 (set value to TTT) and set the page's PageLSN=30.

Undo phase:
T2 must be undone. Put LSN 30 in ToUndo.
Write Abort record to log for T2
LSN 30: Undo LSN 30 - write a CLR for P1 with "set P1=ZZZ" and undonextLSN=20. Write ZZZ into P1. Put LSN 20 in ToUndo.
LSN 20: Undo LSN 20 - write a CLR for P3 with "set P3=UUU" and undonextLSN=NULL. Write UUU into P3.

Example 3:
Log:
After a crash, we find the following log:

10	T1: UPDATE P1 (OLD: YYY NEW: ZZZ)
15	T2: UPDATE P3 (OLD: UUU NEW: VVV)
20	BEGIN CHECKPOINT
25	END CHECKPOINT (XACT TABLE=[[T1,10],[T2,20]]; DPT=[[P1,10],[P2,15]])
30	T1: UPDATE P2 (OLD: WWW NEW: XXX)
35	T1: COMMIT
40	T2: UPDATE P1 (OLD: ZZZ NEW: TTT)
45	T2: ABORT
50	T2: CLR P1(ZZZ), undonextLSN=15

Analysis phase:
Scan forward through the log starting at LSN 20.
LSN 25: Initialize XACT table with T1 (LastLSN 10) and T2 (LastLSN 20). Initialize DPT to P1 (RecLSN 10) and P3 (RecLSN 15).
LSN 30: Add (T1, LSN 30) to XACT table. Add (P2, LSN 30) to DPT.
LSN 35: Change T1 status to "Commit" in XACT table
LSN 40: Set LastLSN=40 for T2 in XACT table.
LSN 45: Change T2 status to "Abort" in XACT table
LSN 50: Set LastLSN=45 for T2 in XACT table.

Redo phase:
Scan forward through the log starting at LSN 10.
LSN 10: Read page P1, check PageLSN stored in the page. If PageLSN<10, redo LSN 10 (set value to ZZZ) and set the page's PageLSN=10.
LSN 15: Read page P3, check PageLSN stored in the page. If PageLSN<15, redo LSN 15 (set value to VVV) and set the page's PageLSN=15.
LSN 30: Read page P2, check PageLSN stored in the page. If PageLSN<30, redo LSN 30 (set value to XXX) and set the page's PageLSN=30.
LSN 40: Read page P1 if it has been flushed, check PageLSN stored in the page. It will be 10. Redo LSN 40 (set value to TTT) and set the page's PageLSN=40.
LSN 50: Read page P1 if it has been flushed, check PageLSN stored in the page. It will be 40. Redo LSN 45 (set value to ZZZ) and set the page's PageLSN=50.

Undo phase:
T2 must be undone. Put LSN 50 in ToUndo.
LSN 50: Put LSN 15 in ToUndo

LSN 15: Undo LSN 15 - write a CLR for P3 with "set P3=UUU" and undonextLSN=NULL. Write UUU into P3.