

Database Technology

Exercise 11: Recovery

11.1 Forward, Backward

Explain why log records for transactions on the undo-list must be processed in reverse order, whereas redo is performed in a forward direction.

11.2. Checkpoint

Explain the purpose of the checkpoint mechanism. How often should checkpoints be performed? How does the frequency of checkpoints affect:

- System performance when no failure occurs?
- The time it takes to recover from a system crash?
- The time it takes to recover from a media (disk) failure?

11.3. Log

Assume the following two transactions:

T1	T2
read(A)	
A:=A-50	
write(A)	
read(B)	
B:=B+50	
write(B)	
	read(C)
	C:=C-100
	write(C)

- Write down the corresponding log and values of the variables (assuming initially A=1000, B=2000, C=700)
- Show which recovery actions and log records are written out if the system crashes at the specified points.