Tutorial 10: Concurrency Control

CS3402 Database Systems

Question 1

- Consider the following arrival order of operations to the scheduler. (a) If the scheduler adopts a serial execution method for concurrency control, define the serial schedule if the arrival order of operations remains the same as those shown in the table. (b) If the scheduler uses strict two-phase locking to schedule the operations, modify the above table to show the new schedule.

T_1	T_2	T_3
	write(x)	
read(y)		
	read(z)	
		read(x)
	write(y)	
write(x)		
	read(x)	
	commit	
		write(z)
commit		
		commit

Question 2

- Consider the following schedule at a single server system.

T_1	T_2
read(a)	
	read(a)
write(a)	
	write(a)

a) Add lock and unlock operations to the schedule if Conservative 2PL is adopted.

b) Add lock and unlock operations to the schedule if Strict 2PL is adopted.

c) Which one (S2PL or C2PL) will you choose for scheduling the two transactions?

Question 3

- The following table shows the schedule for transactions T_1 and T_2 with T_1 having an "older" time-stamp than T_2.

T_1	T_2
read(a)	
	read(b)
write(b)	
	write(a)

a) Strict Two-Phase Locking is used for concurrency control. Define the wait-for-graph.

b) Show the new schedule if the wait-die method is used.

c) Show the new schedule if the wound-wait method is used.