Transaction Pair I

Let’s suppose that a customer checkouts his cart with a product, which means that product quantity should be decreased from the overall available quantity of that product, and at the same time, a customer adds the same product to his cart, which means that again we need to decrease the quantity of that same product after performing some checks on that product quantity.
Now during the checkout, a coupon gets applied to the cart’s total amount, which means that now cart’s total amount would be decreased.

Variable Notations used:-
Q represents the quantity of the Product.
q1 represents the quantity of Product, which the customer checkouts.
q2 represents the quantity of product that the customer adds to his cart.
TA represents the total amount of the cart before applying the coupon.
D represents the coupon discount.
TA’ represents the amount of cart after applying the discount.

Transaction-1 (T-1)	Transaction-2 (T-2)	Transaction-3 (T-3)

Read(q1)
Read(Q)
Q=Q-q1
Write(Q)
Commit
	Read(q2)
	Read(Q)
	Q=Q-q2
	Check(Q)
	Write(Q)
	Commit
		Read(TA)
		Read(D)
		TA’=TA-D
		Write(TA’)
		Commit

A Serial Schedule of the two transactions

Transaction-1 (T-1)	Transaction-2 (T-2)	Transaction-3 (T-3)
Read(q1)		
Read(Q)		
Q=Q-q1		
Write(Q)		
Commit		
		Read(TA)
		Read(D)
		TA’=TA-D
		Write(TA’)
		Commit
	Read(q2)	
	Read(Q)	
	Q=Q-q2	
	Check(Q)	
	Write(Q)	
	Commit	

Here T1 executes first then T3 and after that T2 executes.
And this maintains the database consistency and it is a serial schedule.

Conflict Serializable Schedule

Transaction-1 (T-1)	Transaction-2 (T-2)	Transaction-3 (T-3)
Read(q1)		
		Read(TA)
Read(Q)		
		Read(D)
Q=Q-q1		
Write(Q)		
Commit		
	Read(q2)	
	Read(Q)	
	Q=Q-q2	
	Check(Q)	
		TA’=TA-D
		Write(TA’)
		Commit
	Write(Q)	
	Commit	

This Schedule is conflict serializable as we can easily move down the statements of T-2 (swaps with statements of T-3).
And similarly we can swap the statements of T-3 with T-1 as they are using different data items. Hence statements of T-1 would move upwards.
Hence this results in a serial schedule (T-1 =>T-3 => T-2).