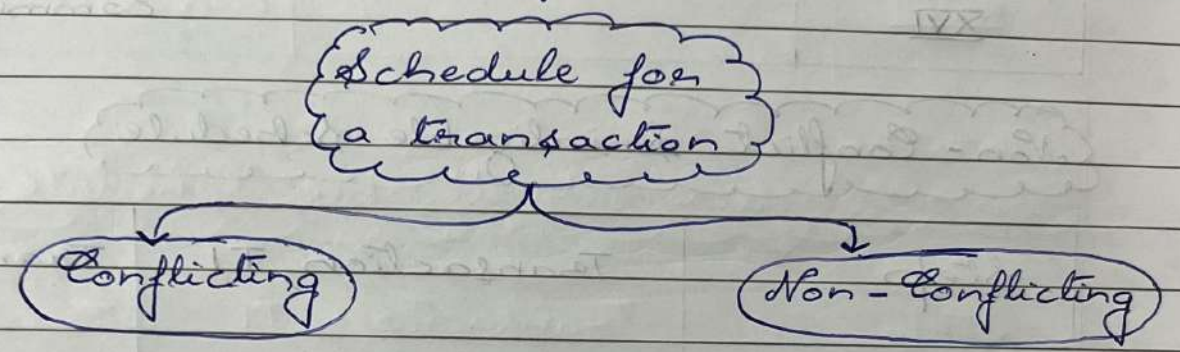
Project Deadline - 6

For this assignment, we are supposed to make atleast two transactions & then make two schedules which are conflict serialigable & non-conflict serialigable, respectively for these transactions.



Query 1:

A seller updating the price of two products & at the same time, the admin is providing a discount on the same two products

Conflict serialigable schedule

Step	Transaction, T1	Transaction, T2
I	read (P_1)	
II	$P_1 := P_1 + 100$	
III	write (P_1)	
IV		read (P_1)
V		$P_1 := P_1 - 0.1 * P_1$
VI		write (P_1)
VII		
VIII		

IX	read (P_2)	
X	$P_2 := P_2 + 200$	
XI	write (P_2)	
XII		read (P_2)
XIII		$P_2 := P_2 - 0.2 * P_2$
XIV		write (P_2)
XV	commit	
XVI		commit

Non-Conflict Serializable Schedule

Step	Transaction, T1	Transaction, T2
I	read (P_1)	
II		read (P_1)
III		
IV	$P_1 := P_1 + 100$	
V	write (P_1)	
VI		$P_1 := P_1 - 0.1 * P_1$
VII		write (P_1)
VIII	read (P_2)	
IX		read (P_2)
X	$P_2 := P_2 + 200$	
XI	write (P_2)	
XII		$P_2 := P_2 - 0.2 * P_2$
XIII		write (P_2)
XIV	commit	
XV		commit

Notation: 'P_1' denotes the price of Product 1
'P_2' denotes the price of Product 2

Query-2:

Conflict Serializable Schedule

Two customers trying to add the same two products in their shopping carts at the same time.

Conflict Serializable Schedule

Step	Transaction, T1	Transaction, T2
I	lock-X(A)	
II	read(A)	
III	if is_greater(A, qtyA1)	
IV	A := A - qtyA1	
V	write(A)	
VI	unlock(A)	
VII		lock-X(A)
VIII		read(A)
IX		if is_greater(A, qtyA2)
X		A := A - qtyA2
XI		write(A)
XII		unlock(A)
XIII	lock-X(B)	
XIV	read(B)	
XV	if is_greater(B, qtyB1)	
XVI	B := B - qtyB1	
XVII	write(B)	
XIX	unlock(B)	
XX		

XXI		lock-X(B)
XXII		read(B)
XXIII		if is-greater(B, qtyB2)
XXIV		B := B - qtyB2
XXV		write(B)
XXVI		unlock(B)
XXVII	commit	
XXVIII		commit

Non-Conflict Serializable Schedule

Step	Transaction, T1	Transaction, T2
I	read(A)	
II		read(A)
III	if is-greater(A, qtyA1)	
IV	A := A - qtyA1	
V	write(A)	
VI		if is-greater(A, qtyA2)
VII		A := A - qtyA2
VIII		write(A)
IX	read(B)	
X	if is-greater(B, qtyB1)	read(B)
XI	B := B -	
XII	if is-greater(B, qtyB1)	
XIII	B := B - qtyB1	
XIV	write(B)	
XV		if is-greater(B, qtyB2)
XVI		B := B - qtyB2
XVII		write(B)
XVIII	commit	
XIX		commit

Notation: 'A' denotes the quantity/stock of Product A
'B' denotes the quantity/stock of Product B
'qty A1' denotes the required quantity (of Product A) by Customer 1
'qty A2' denotes the required quantity of Product A by Customer 2
'qty B1' denotes the required quantity of Product B by Customer 1
'qty B2' denotes the required quantity of Product B by Customer 2
'is_greater' is a function which returns whether the 1st parameter is greater than or equal to the 2nd parameter.