

Transaction Pair-I

Suppose that a customer checks out his cart with a product, which means that product quantity should be decreased from the overall available quantity of that product. 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 product after performing some checks on that product quantity.

Now, during checkout, a coupon is applied to the cart's total amount, which means the cart's total amount will be decreased.

Variable Notations meaning:-

X represents the quantity of the Product.

x1 represents the quantity of product that the customer checks.

x2 represents the quantity of product that the customer adds to his cart.

TotAmt represents the total amount of the cart before applying the coupon.

Dis represents the coupon discount.

TotAmt' represents the amount of cart after applying the discount.

Transaction-1 (T-1)	Transaction-2 (T-2)	Transaction-3 (T-3)
Read(x1) Read(X) $X = X - x1$ Write(X) Commit	Read(x2) Read(X) $X = X - x2$ Check(X) Write(X) Commit	Read(TA) Read(D) $TotAmt' = TotAmt - Dis$ Write(TotAmt') Commit

A Serial Schedule of the two transactions

Transaction-1 (T-1)	Transaction-2 (T-2)	Transaction-3 (T-3)
Read(x1) Read(X) $X = X - x1$ Write(X) Commit	Read(x2) Read(X) $X = X - x2$ Check(X) Write(X) Commit	Read(TotAmt) Read(Dis) $TotAmt' = TotAmt - Dis$ Write(TotAmt') 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(x1) Read(X) X=X-x1 Write(X) Commit	 Read(x2) Read(X) X=X-x2 Check(X) Write(X) Commit	Read(TotAmt) Read(Dis) TotAmt'=TotAmt-Dis Write(TotAmt') Commit

This Schedule is conflict serializable as we can easily move down the statements of T-2 (swaps with statements of T-3).

Similarly, we can swap the statements of T-3 with T-1 as they use different data items. Hence, statements of T-1 would move upwards. Hence, this results in a serial schedule (T-1 => T-3 => T-2).