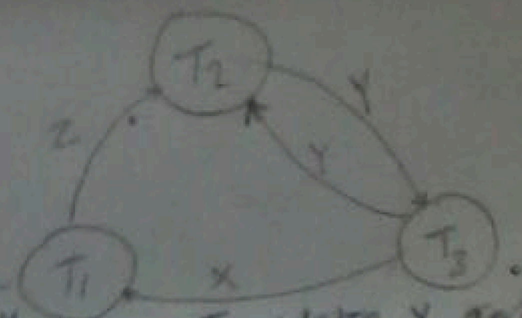
S2: r1(X); r2(Z); r1(Z); r3(X); r3(Y) ...

(a) Draw the serializability (precedence) graphs for S_1 and S_2 and state whether each schedule is serializable or not. If a schedule is serializable, write down the equivalent serial schedule(s).

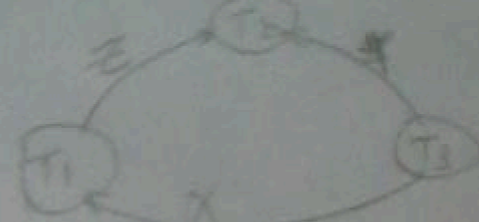
S1: not serializable.



→ non recoverable because T_2 read Y after T_3 write Y and T_2 is commited first

S2: Serializable

and serial schedule



< T3 T1 T2 >

and any cascadeless schedule is also recoverable

Notes
if strict schedule is also cascadeless

(b) Determine whether S_2 is strict, cascadeless, recoverable or nonrecoverable and justify your answer.

recoverable :- عندي T1 و T2) T2 عملت read لـ X اللي T1 كتبتها خلصت و T1 عملتها commit قبل T2 (

non recoverable
لو T2 هي اللي عملت commit الأول

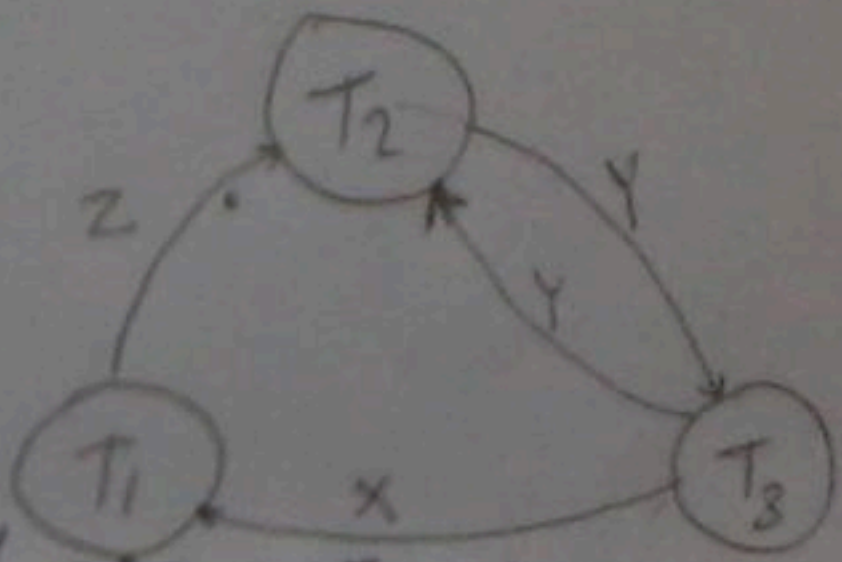
STRICT T1 قرأت X محدش يقدر يقراها أو يكتب فيها لحد ما T1 تعمل commit

cascadeless
انت مثلاً قرأت X في T1 ... قرأت X في T2 وبعدين كتبت T1 يبقى كده عمل

able, write down the equivalent serial schedule(s).

S_1 :

not Serializable.



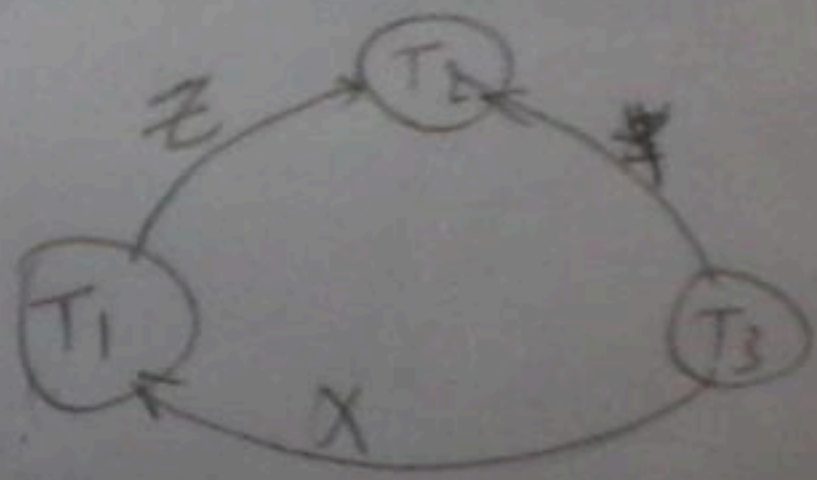
→ Non recoverable because T_2 read Y after T_3 write Y and T_2 is Commited First

S_2:

Serializable

and serial schedule

$T_3\ T_1\ T_2$



and any Cascadeless Schedule is also recoverable

NOTES

- STRICT schedule is also Cascadeless

(b) Determine whether S_2 is strict, cascadeless, recoverable or nonrecov-

T3 T1 T2

and any cascadeless schedule is also recoverable

Notes

!! strict schedule also cascadeless

(b) Determine whether S_2 is strict, cascadeless, recoverable or nonrecoverable and justify your answer.

recoverable :- عندي T_1 و T_2) T_2 عمل read لـ X اللي T_1 كتبتها هي و T_1 عملها commit قبل T_2)

non recoverable

لو T_2 هي اللي عملت commit الأول

strict

T_1 قرأت X ميتفعش حد تقرأها أو يكتب فيها لحد ما T_1 تعمل commit

cascadeless

انت مثلاً قرأت X في T_1 وبعدها 12 تكاز ... وبعديه كتبت T_1 قرأت X في T_2 يبقى كده عمل ... data ...

2. Discuss the system of propagation of privileges and the revokation thereof Slide 17

Propagation: giving Grant of Privilige to other accounts without knowledge of owner account

ex GRANT OPTION

Revokation: is desirable to grant a Privliege to auser temporarily

ex Owner grant Privilge to user for specific task and wants to revoke it after task end he use Revoke Command

3. Consider the relation shown below using mandatory access control.

(a) Fill in the proper values for TC (tuple classification)

(b) How would it appear to a user with classification U?

(c) Suppose a classification U user tries to update the salary of "Ahmed" to 50,000; what would be the result of this action? And why is this necessary?

National ID	Name	Salary	Job Performance	TC
123456789	Ahmed	40,000 C	Fair S	S
234567891	Hassan	60,000 C	Good S	S

(b) When User U read table:

ID	Name	Salary	Job	TC
12---	Ahmed	NULL	NULL	U
234---	Hassan	NULL	NULL	U

(C)

ID	Name	Salary	Job	TC
12---	Ahmed	40,000 C	Fair S	S
	Hassan	50,000	NULL	U
234---	Hassan	NULL	NULL	U

→ invisible & true values

] User U will see that tables only

this is called Polyinsatiation

This an option organization gives to users to update secret values as they need Because there is security on salary