

Mettu University

Faculty of Engineering and Technology

Department of Computer Science

Advanced Database Individual Assignment II for Computer science 2nd Year

Total weight 15% program Weekend Deadline July 14/2019

1. Consider the following schedule S of actions, and answer these questions:

S: r2(A), r3(B), w1(A), r2(C), r2(D), w1(D)

- Is the schedule S view-serializable? If so, provide a view-equivalent serial schedule
- What is the precedence graph associated to S? Is the schedule S conflict-serializable? If so, describe all the conflict-equivalent serial schedules
- Is the schedule S a 2PL schedule (with exclusive locks)?

2. Consider the following two transactions:

T1: r1(x), r1(y), w1(y)

T2: r2(y), r2(x), w2(y), w2(x), r2(z)

Following are the two possible serial schedules for T1 and T2:

Schedule_1 (T1 followed by T2): r1(x), r1(y), w1(y), r2(y), r2(x), w2(y), w2(x), r2(z)

Schedule_2 (T2 followed by T1): r2(y), r2(x), w2(y), w2(x), r2(z), r1(x), r1(y), w1(y)

- Give the conflicting pairs for **schedule_1** and indicate the transaction order of these conflicting pairs.
- Will the outcome of each transaction be different for each of the above two schedules?

3. Consider the following schedule S for T1 and T2:

S: r1(x), r2(y), r1(y), r2(x), w2(y), w2(x), r2(z), w1(y)

- What are the conflicting pairs in the schedule?
- Will this schedule produce the same outcome in the transactions as one of the serial schedules?

4. Consider the following schedule

**S: r1(x), w2(x), r3(x), r1(y), r4(z), w2(y), r1(v), w3(v),
r4(v), w4(y), w5(y), w5(z)**

And tell whether

- it is a view-serializable schedule or not,
- it is a conflict-serializable schedule or not
- it is a 2PL schedule (with shared and exclusive locks)