

# Week 12 Exercises: Transactions

---

**Exercise 12.1.** Consider a database with objects  $X$  and  $Y$  and assume that there are two transactions  $T1$  and  $T2$ . Transaction  $T1$  reads object  $X$ , and then writes objects  $Y$  and  $X$ . Transaction  $T2$  reads object  $X$ , then reads object  $X$  once more, and finally writes objects  $X$  and  $Y$  (i.e.  $T1: R(X), W(Y), W(X), C$ ;  $T2: R(X), R(X), W(X), W(Y), C$ )

1. Give an example schedule with actions of transactions  $T1$  and  $T2$  on objects  $X$  and  $Y$  that results in a write-read conflict.
2. Give an example schedule with actions of transactions  $T1$  and  $T2$  on objects  $X$  and  $Y$  that results in a read-write conflict.
3. Give an example schedule with actions of transactions  $T1$  and  $T2$  on objects  $X$  and  $Y$  that results in a write-write conflict.
4. For each of the three schedules, show that Strict 2PL disallows the schedule.