Tutorial 8 — Transactions and Recovery

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Exercise 8-1

Is the following transaction schedule *recoverable*?

Can we make a conflict-equivalent schedule that is *cascadeless*?

T1	r(x)			r(y)								c
T2			w(y)				r(x)				c	
T3						w(x)			r(x)	c		

Exercise 8-2

What is the weakest isolation guarantee available in SQL?

When would an developer want to use a weaker isolation level in their application?

Exercise 8-3

Some DMBSes use snapshot isolation to implement *serializable*-level isolation. It works most of the time, but has failure cases.

How can snapshot isolation fail to create a serializable schedule, and what should happen when it creates a non-serializable schedule?

Exercise 8-4

Show that 2PL can create schedules that result in deadlock.

What can we do to **prevent** deadlock?

Exercise 8-5

Show that 2PL can create recoverable schedules with cascading rollbacks.

What variant of 2PL creates cascadeless schedules?

Exercise 8-6

Supposing that instead handling deadlock with an avoidance/prevention strategy, we try to detect and recover. How do we recover from a deadlock?