

# Transaction Processing

## Exercise 4

**Assignment 1:** When is a schedule recoverable, will cascading aborts be avoided and is a schedule called strict? When would you use the different concepts?

**Assignment 2:** Test the following schedules for RC, ACA, and strictness.

- $s_1 = r_1(x)w_1(x)r_2(x)r_3(z)w_3(x)r_1(z)c_1c_2c_3$
- $s_2 = w_2(x)w_2(y)r_1(x)r_1(y)w_1(y)c_1r_2(y)c_2$
- $s_3 = r_1(x)w_1(x)r_2(y)w_2(y)r_1(y)c_1r_2(x)c_2$
- $s_4 = w_1(y)w_2(y)r_2(y)r_1(x)w_3(z)c_1c_2c_3$
- $s_5 = r_1(x)w_1(x)c_1r_2(y)r_3(y)w_2(x)c_2w_3(x)c_3$
- $s_6 = w_2(x)w_1(x)w_1(y)w_2(y)c_2w_1(y)c_1w_3(z)c_3$
- $s_7 = w_2(x)w_2(y)r_1(x)r_1(y)w_1(y)w_3(z)c_2c_1c_3$
- $s_8 = w_1(x)r_2(x)w_2(z)r_3(z)w_3(y)c_3w_1(y)c_1c_2$
- $s_9 = w_2(x)r_2(y)r_1(x)r_1(y)w_1(y)c_1r_2(y)c_2$
- $s_{10} = r_1(x)w_1(x)w_2(x)w_3(z)r_3(y)r_3(x)c_1c_2c_3$

**Assignment 3:** Explain the components of a transaction management. Which two types of scheduler exist? When would you use the different types of scheduler?

**Assignment 4:** Consider the following schedules:

$s_1:$	$s_2:$	$s_3:$	$s_4:$																																																									
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Which properties do the above schedules have?

**Assignment 5:** Consider the schedules of the previous assignment. Can you create an equivalent schedule using the following concepts?:

- Lock-model
- Two-Phase-Locking protocol (2PL)
- strict Two-Phase-Locking protocol(S2PL)
- conservative Two-Phase-Locking protocol (C2PL)