

17.03.2025 Week 5 exercises: Distributed Transactions

Exercise 1:

Describe the use of ACKs in 2PC. How does the 2PC with Presumed Aborts handles this situation?

Exercise 2:

Imagine a scenario with N nodes. Explain how many messages does 2PC and 2PC with Presumed Aborts need in the following cases:

- a. A transaction commits normally
- b. One of the subordinates aborts the transactions

Exercise 3:

Briefly describe what would happen in the following cases during the execution of 2PC:

- a. In a configuration with N nodes, $N-1$ reply yes to the prepare message, and 1 replies no.
- b. The coordinator fails after sending the prepare messages.
- c. A subordinate fails before receiving a prepare message.
- d. Assuming 2PC with Presumed Aborts: The coordinator aborts a transaction, but the abort message to a subordinate is lost.