

SERIALIZABILITY IN PRACTICE

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Serializability & Practice

- Isolation levels
 - Read Uncommitted (rare)
 - Read Committed
 - Repeatable Read
 - Serializable (expensive option)
- } (usual default)

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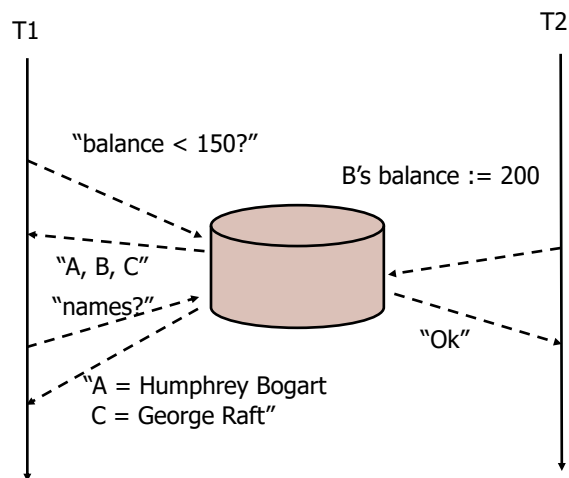
Unrepeatable Read

- Example:
 - T1 reads account id and balance for all accounts with balance less than 150
 - T2 updates an account entity, changing its balance from 100 to 200
 - T1 reads the data again, including detailed information such as account name
 - *An account which appears in the initial summary read, is not present in the second detailed read*
- Only occurs when multiple reads in the same transaction—rare

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Unrepeatable Read



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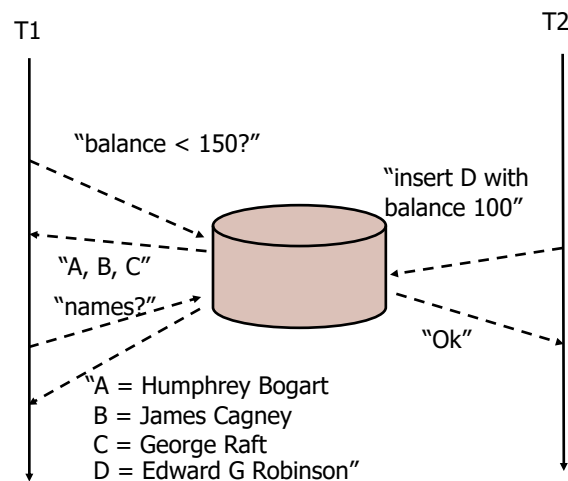
Phantom Read

- Example
 - T1 reads account id and balance for all accounts with balance less than 150
 - T2 adds a new account entity with a balance of 100
 - T1 reads the data again including detailed information such as account name
 - *A new account now appears in the second detailed read which was not present in the initial summary read*
- Similar to unrepeatable read, except that data is inserted rather than updated by the second transaction

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Phantom Read



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Isolation Levels

Isolation Level	Dirty Read	Unrepeatable Read	Phantom Read
Read Uncommitted	YES	YES	YES
Read Committed	NO	YES	YES
Repeatable Read	NO	NO	YES
Serializable	NO	NO	NO

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