Reliability: Transactions in Application Logic

Step	Action	Account A	Account B	Transaction 1
0	A new transaction was created	Amount: 300 Transaction: none	Amount: 100 Transaction: none	From: A To: B Amount: 50 Status: Pending
1	For each Pending transaction, ensure that the data models affected by it refer to it and are in the Ready state (if another transaction is in play, wait for it to complete)	Amount: 300 Transaction: 1 - Ready	Amount: 100 Transaction: 1 – Ready	From: A To: B Amount: 50 Status: Pending
2	For each Pending transaction, when all its affected data model are Ready, update the transaction state to Executing	Amount: 300 Transaction: 1 – Ready	Amount: 100 Transaction: 1 – Ready	From: A To: B Amount: 50 Status: Executing
3	For each Executing transaction, apply the appropriate action to each affected data model *separately*, and updated the data model's state to Completed	Amount: 250 Transaction: 1 - Completed	Amount: 150 Transaction: 1 - Completed	From: A To: B Amount: 50 Status: Executing
4	For each Executing transaction, when all data models affected by it are in the Completed state, change the transaction status to Completing	Amount: 250 Transaction: 1 – Completed	Amount: 150 Transaction: 1 - Completed	From: A To: B Amount: 50 Status: Completing
5	For each Completing transaction, remove references to it from the data models that were affected by it	Amount: 250 Transaction: none	Amount: 150 Transaction: none	From: A To: B Amount: 50 Status: Completing

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Step	Action	Account A	Account B	Transaction 1
6	For each Completing transaction, when no data models reference it, set its state to Completed	Amount: 250 Transaction: none	Amount: 150 Transaction: none	From: A To: B Amount: 50 Status: Completed
	Rollback			
1	For each Executing transaction, if an update failed, set state to Aborting	Amount: 250 Transaction: 1 - Completed	Amount: 100 Transaction: 1 – Failed	From: A To: B Amount: 50 Status: Aborting
2	For each Aborting transaction, if an affected data model is Completed, apply the reverse operation and remove the transaction from the data model. If the data model is not competed, simply remove the transaction from the data model	Amount: 300 Transaction: none	Amount: 100 Transaction: none	From: A To: B Amount: 50 Status: Aborting
3	For each Aborting transaction, when no data model refers to it, set its state to Aborted	Amount: 300 Transaction: none	Amount: 100 Transaction: none	From: A To: B Amount: 50 Status: Aborted