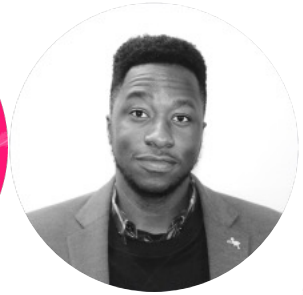
Managing and Optimizing SQL Server Transactions



Dayo Bamikole

Data Architect

@dayo_bamikole | www.dayobam.com

Overview



Understanding transaction state

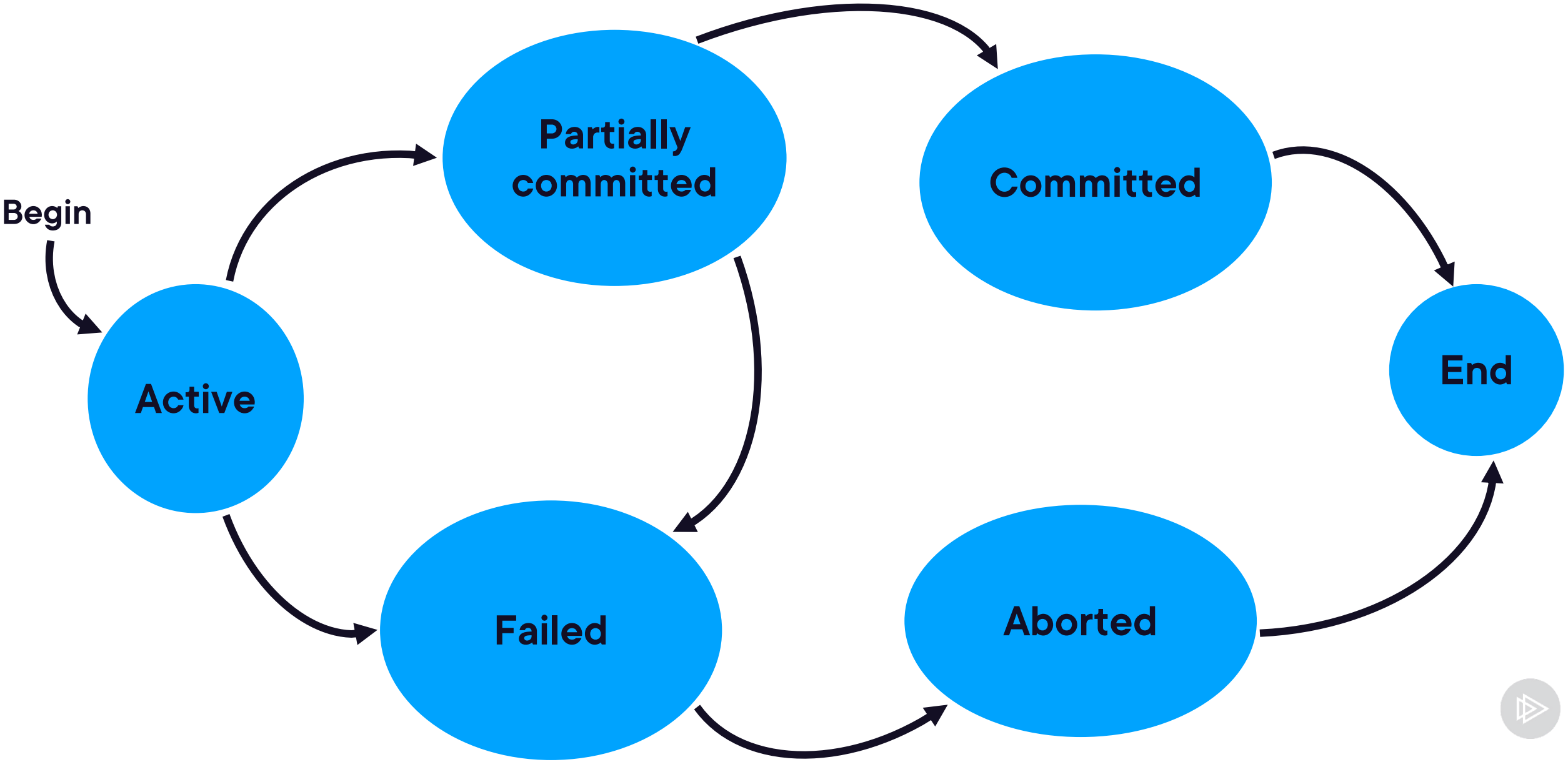
Monitoring active transactions

Rolling back transactions

Error handling in transactions

Transaction State

Transaction State

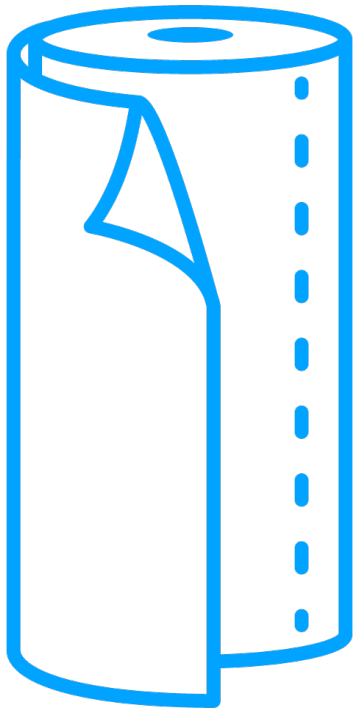


Understanding the ROLLBACK Command

ROLLBACK

Is the command used to cancel all modification in a transaction. This will set the table back to its previous state.

Understanding ROLLBACK



Opposite of COMMIT command

Undo “button” for transactions

Benefits

- Avoids changes made to be in limbo
- Ensures the ACID properties in a transaction

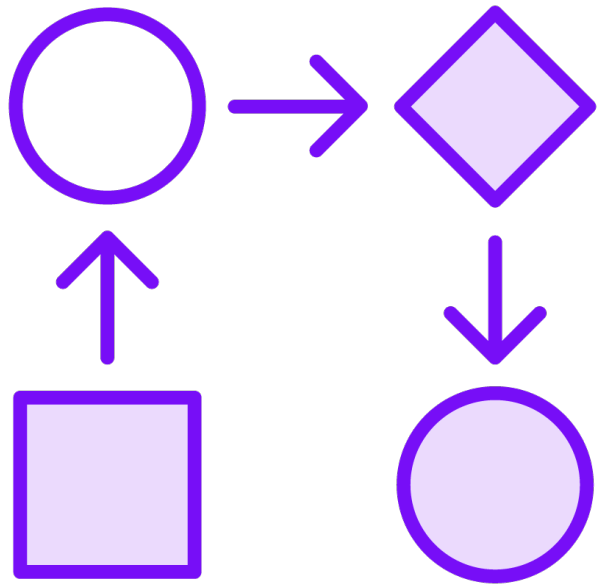
Demo



ROLLBACK example in a SQL Server transaction

Managing Transactions in SQL Server

Managing Transactions in SQL Server



@@TRANCOUNT

Dynamic Management Views (DMVs)

- sys.dm_tran_database_transactions
- sys.dm_exec_sessions
- sys.dm_exec_requests

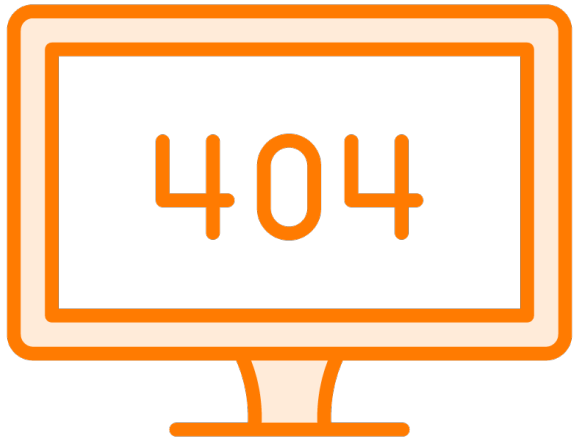
Demo



Managing transactions in SQL Server

Error Handling in SQL Server Transactions

How to Handle Errors in SQL Server Transactions



Use SQL Server error log

Use @@ERROR in transaction

- Used to check if there is an error
- Use within an IF statement
- Check if error is greater than 0

Demo



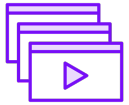
Using @@ERROR in a SQL Server Transaction

Best Practices in SQL Server Transactions

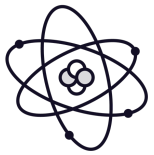
Transaction Best Practices in SQL Server



Use SQL Server error log and @@ERROR for troubleshooting



If you start with BEGIN TRAN make sure you close with COMMIT



Access the least amount of data inside a transaction



Monitor your transactions



Leverage ROLLBACK to avoid unintended changes

Summary



What are transactions in SQL server?

ACID properties: Atomicity, consistency isolation, durability

Types of transaction mode: Auto-commit, implicit, explicit

Transaction Controls: BEGIN TRANSACTION, COMMIT, ROLLBACK

How to switch between transaction modes

Summary



Transaction states in transactions

- Partially committed, committed, failed, aborted

Using the ROLLBACK command

Managing SQL Server transactions with DMVs

Handling errors in SQL Server transactions with @@ERROR and SQL Server error log

Best practices in SQL Server transaction