

Capturing Logic with Stored Procedures in T-SQL

Exploring the Benefits of Stored Procedures



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Introduction



What is a stored procedure?

- When you should use them
- Comparing to views

Benefits of using them

- Maintainability
- Security
- Performance

Common drawbacks

- Overcoming





Meet Carl IT Director

Refactor inline
code into
stored
procedures

Meet Susan SQL Developer



Stored Procedures Defined

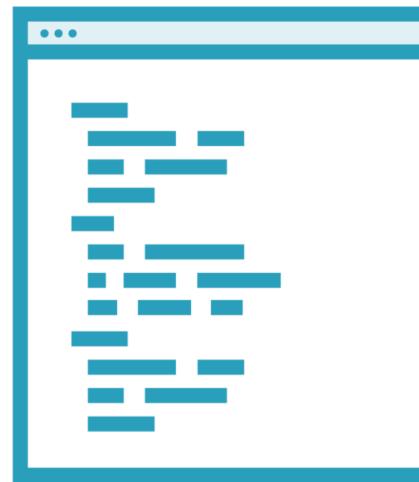


Stored Procedure

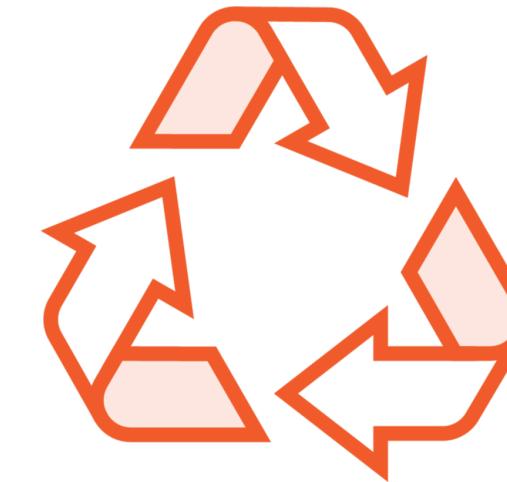
A batch of statements grouped as a logical unit and stored in the database. The stored procedure accepts the parameters and executes the T-SQL statements in the procedure, returns the result set if any.



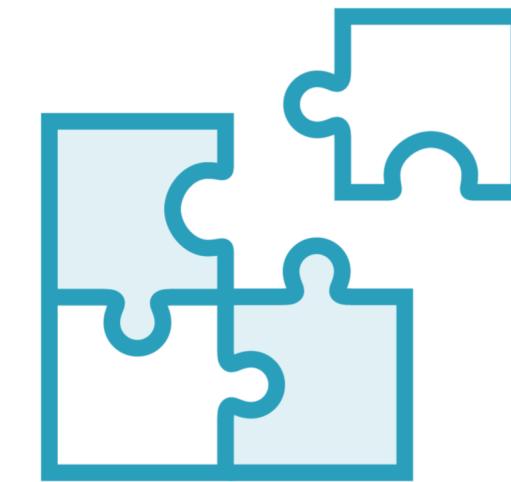
What Is a Stored Procedure?



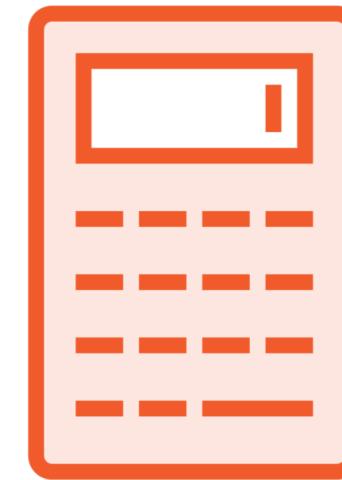
Like a method



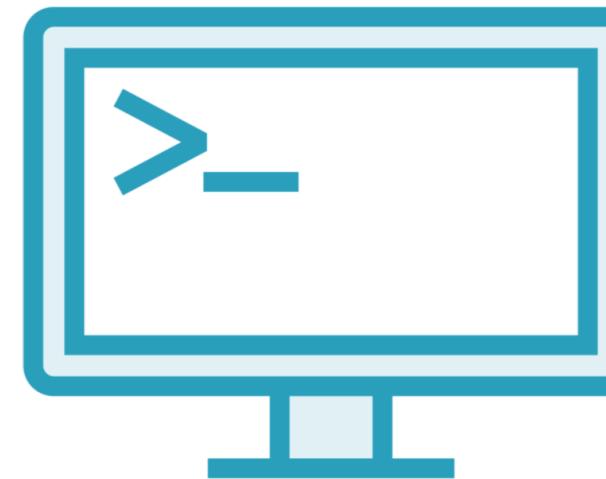
Reuse code



Simple & complex



Perform calculations



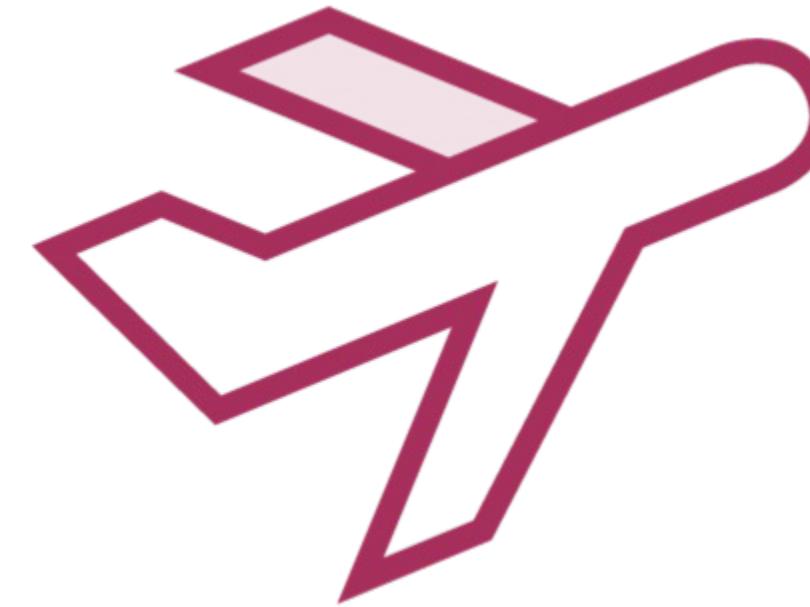
Parameters



Data Fetching Options



Views
Great for returning
results and joining



Stored procedures
Excel at performing
logic



Inline T-SQL
Easy to implement in
any environment



Contrasting Stored Procedures and Views

Stored Procedures

- Accept parameters
- Contain logical statements
- Can use temp tables
- Cannot be referenced in a join
- Results cannot be materialized
- Integration with error handling

Views

- No parameters allowed
- No complex logic
- Cannot use temp tables
- Can be referenced in a join
- Can be materialized
- No direct error handling



Benefits of Stored Procedures



Primary Benefits of Stored Procedures



Maintainability
Code is all in one location

Security
Ensure proper data modifications

Performance
Improved compared to inline





Easy maintenance is key

- Business logic

Code stored in the database

- Data layer changes

Code reuse across applications

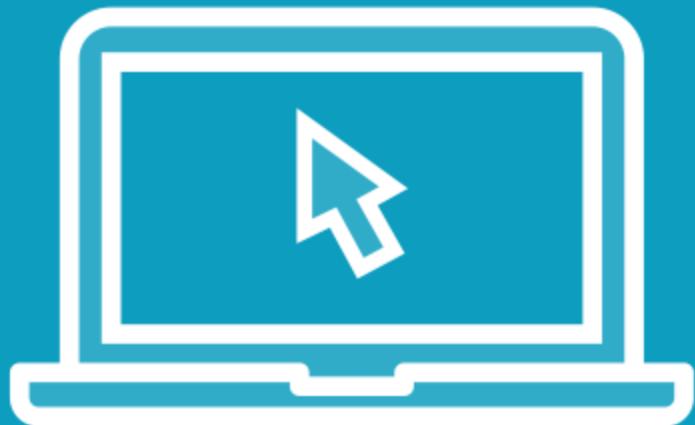
- Avoid copy and paste errors

Easier to isolate issues

- Execution plan access



Demo

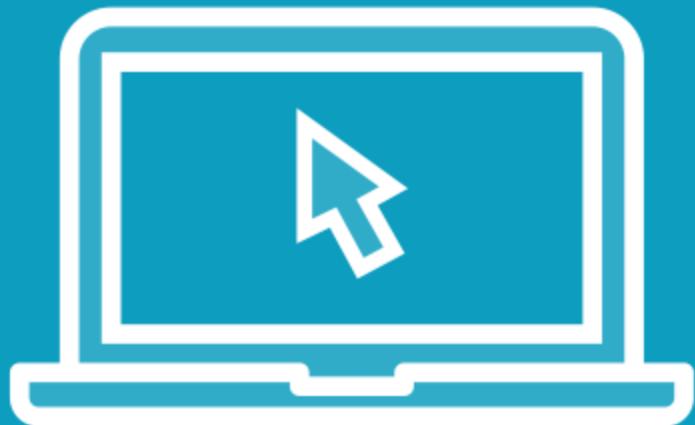


Setting up your test environment

- Creating your dataset
- Enable line numbers



Demo



Maintaining logic in the database

- Same concept for other apps
- Can be easier to deploy





Principle of least privileges

- Execute on the sproc
- Limit damage

Code not exposed to the client

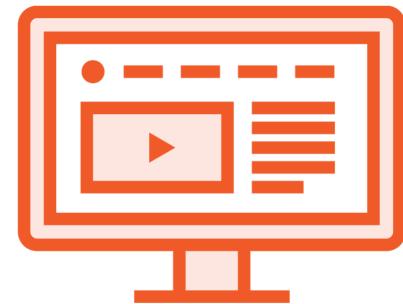
- Less data transmitted

Limit SQL injection versus inline code

Little Bobby Tables

- <https://bit.ly/36wzH09>





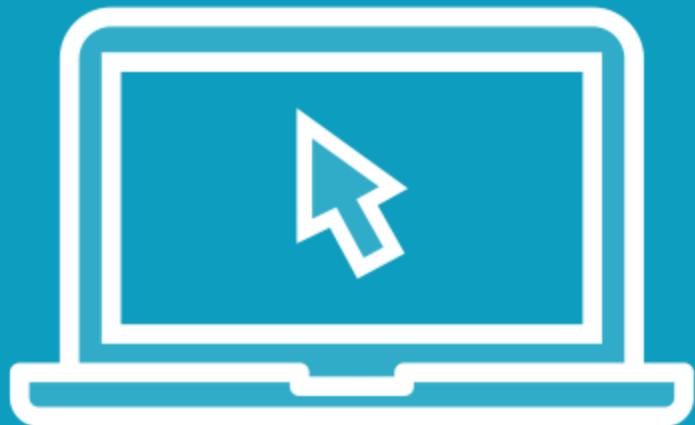
Pluralsight Course

Securing and Maintaining Stored Procedures in T-SQL

Jared Westover



Demo



Limiting user access to tables

- Grant execute on the sproc





Faster is usually better

Plan is cached and reused

- Smaller plan cache

Debate over performance gains

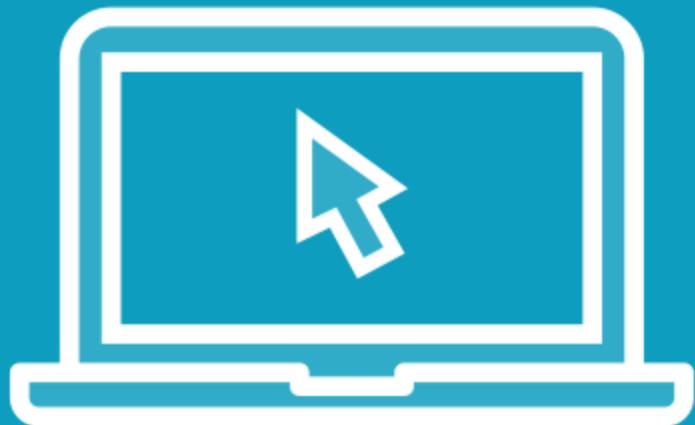
- Parameterized dynamic SQL

Reduce code sent via the network

- Minimal gains



Demo

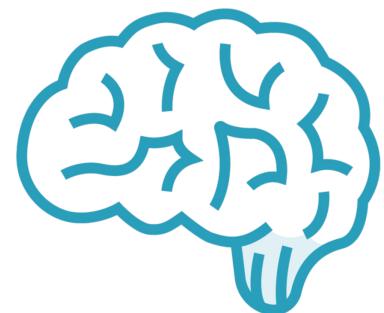


Comparing inline T-SQL to stored procedures

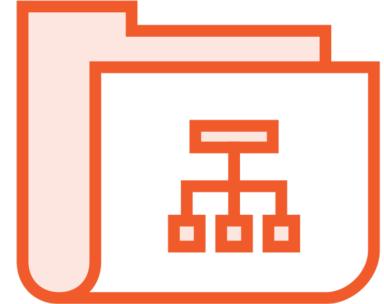
- Execution plan reuse



Disadvantages of Stored Procedures



SQL knowledge: many organizations lack true T-SQL experts



Organization: can be difficult to group with similar code



Time commitment: easier to use an ORM or run inline T-SQL



Embrace a Hybrid Solution



Summary



When to use them

Compared views to stored procedures

Three primary benefits

- Maintainability
- Security
- Performance

Hybrid approach



Up Next:

Creating Your First Stored Procedure

