Capturing Logic with Stored Procedures in T-SQL

EXPLORING THE BENEFITS OF STORED PROCEDURES

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Module Overview

What is a stored procedure

- When to use them
- Comparing to views

Primary benefits of using stored procedures

- Maintainability
- Security
- Performance

Drawbacks to using stored procedures

- SQL expertise
- Grouping
- Looping

What Is a Stored Procedure

Similar to a method in other languages
- Executes one or more statements
- Also called a sproc

Code can be reused

Perform simple or complex logic
- Variables
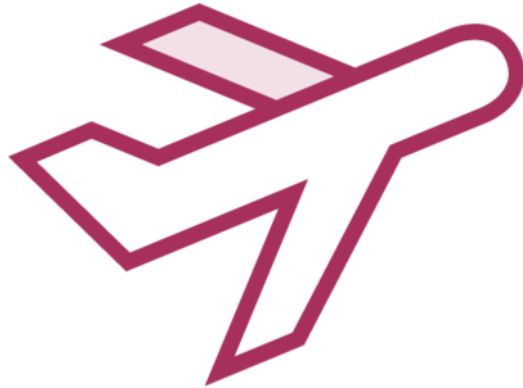
Perform calculations
- Temp tables

Accepts parameters

Comparing Data Fetching Options

Views

Great for returning results and joining

Stored Procedures

Excels at performing set-based logic

Inline T-SQL

Easy to implement in any environment

Contrasting Stored Procedures and Views
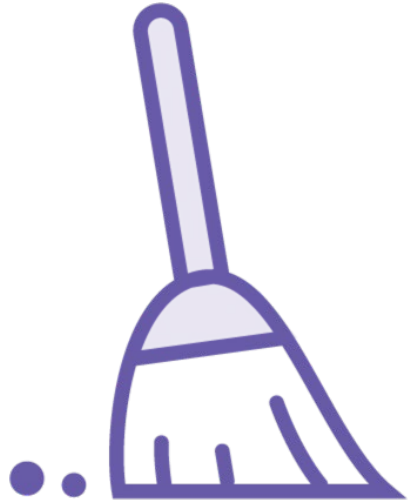
Stored Procedures	**Views**
Accepts parameters	No parameters allowed
Contains logical statements	No complex logic
Can use temp tables	Cannot use temp tables
Cannot be referenced in a join	Can be referenced in a join
Results cannot be materialized	Can be materialized
Integration with error handling	No direct error handling

Primary Benefits of Stored Procedures

Maintainability

Code is all in one location

Security

Ensure data is modified properly

Performance

Improved compared to inline

Implementing Stored Procedures

Carl

IT Director who would like to see majority of T-SQL in stored procedures

Susan

New SQL developer tasked with converting inline T-SQL to stored procedures

Maintainability

Easy maintenance is important

Code is stored in the database
- Generally easier to change data layer

Code can be used across applications

Consistent code is executed each time
- Avoid copy and paste errors

Easier to isolate issues
- Issue with the stored procedure

Demo

Setting up our test environment
- Creating our dataset
- Turning on line numbers

Demo

Maintaining logic in the database
- Same concept for other applications
- Can be easier to deploy

Security

Least amount of access required
- Read and write
- Provide execute on the sproc

Code is not exposed to the client
- Only the sproc call

Limit SQL injection versus inline code
- Parametrization control
- Pluralsight course Ethical Hacking: SQL Injection

Demo

Limiting user access to tables

- Grant execute on the sproc

Performance

Faster is usually better

Plan is cached and reused
- Reduce number of plans in cache

Debate over performance gains
- Parameterized dynamic SQL

Reduce amount of code sent via the network

Demo

Comparing inline T-SQL to stored procedures

- Execution plan reuse

Disadvantages of Stored Procedures

SQL Knowledge
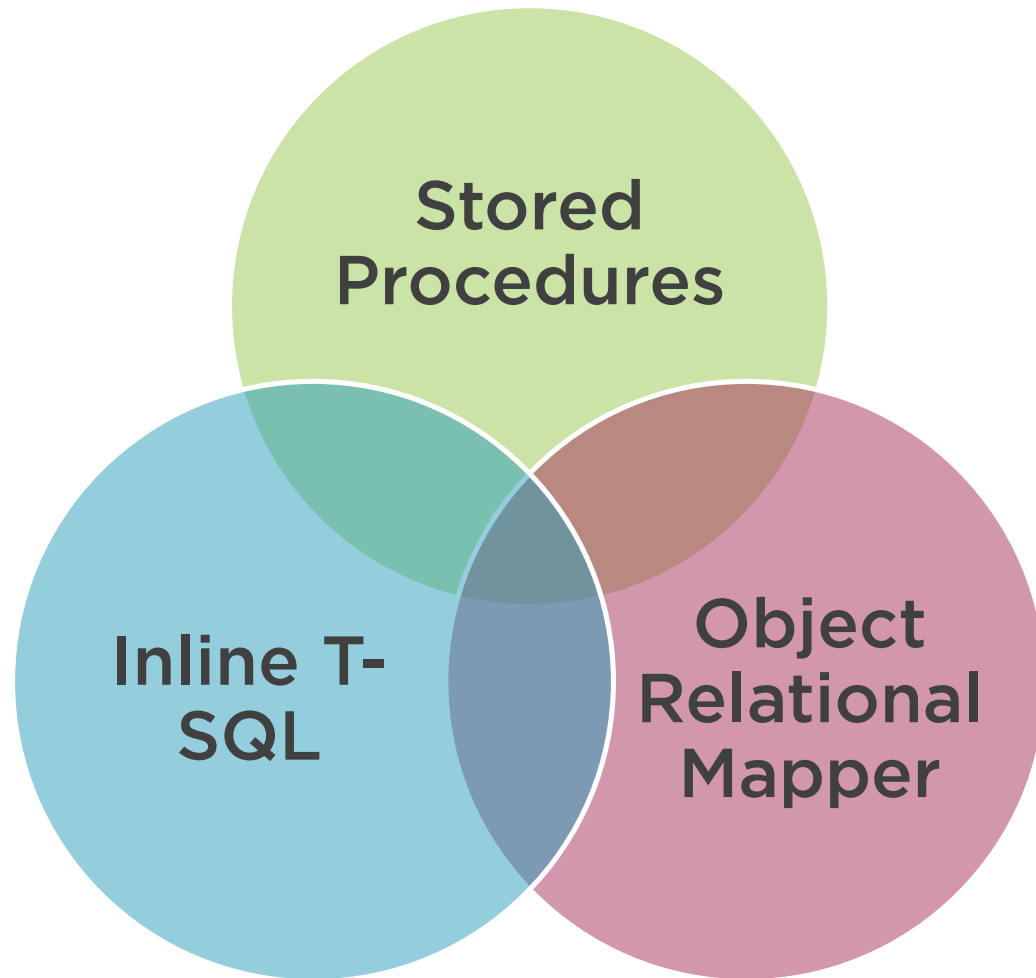
Many organizations lack true SQL experts

Looping

SQL lacks optimization for iterations

Organization

Can be difficult to group with similar code

Embrace a Hybrid Solution

Stored Procedures

Inline T-SQL

Object Relational Mapper

What We Covered

What is a stored procedure

- A group of one or more statements
- Compared to views

Three benefits of using stored procedures

- Maintainability
- Security
- Performance

Disadvantages of using stored procedures

- Hybrid approach

Next Module: Creating Our First Stored Procedure