

# Setting up Queries in Stored Procedures

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## Introduction



## Adding queries to stored procedures

- Temporary objects

## Working with table-valued parameters

- Table type
- Common limitations

## Using SP\_EXECUTESQL

- Dynamic SQL

## Debug flag

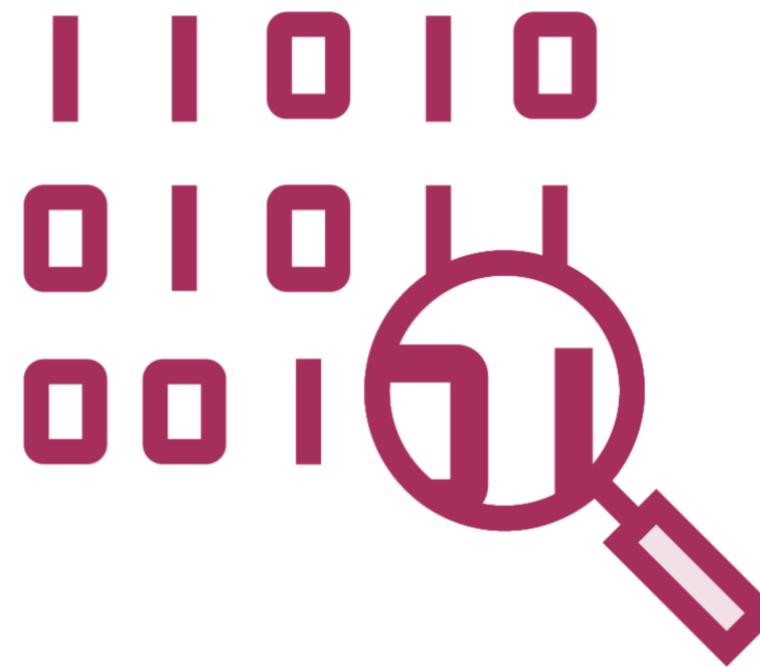


# Working with Queries

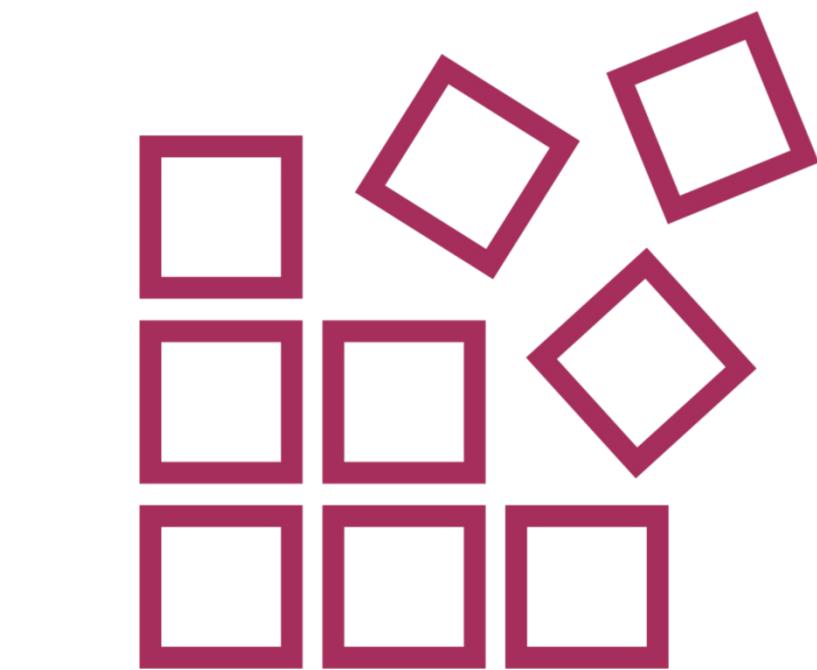
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# Queries in Stored Procedures



**Query data**  
Return results back to  
the client



**Modify data**  
Perform inserts,  
updates, and deletes



**Lower complexity**  
Transform in multiple  
steps





## Temporary tables

- Hold a subset of data
- Add indexes
- Creating and dropping

## Table variables

- Avoid for large data sets
- No statistics
- Deferred compilation

## Downside of temp objects

- Recreated each time
- Proper configuration



```
DROP TABLE IF EXISTS #SalesOrderTemp;
```

```
GO
```

```
CREATE TABLE #SalesOrderTemp
```

```
(SalesAmount decimal(36,2), Id int);
```

```
GO
```

## Creating Temporary Tables

**Try matching the data type of the underlining table**

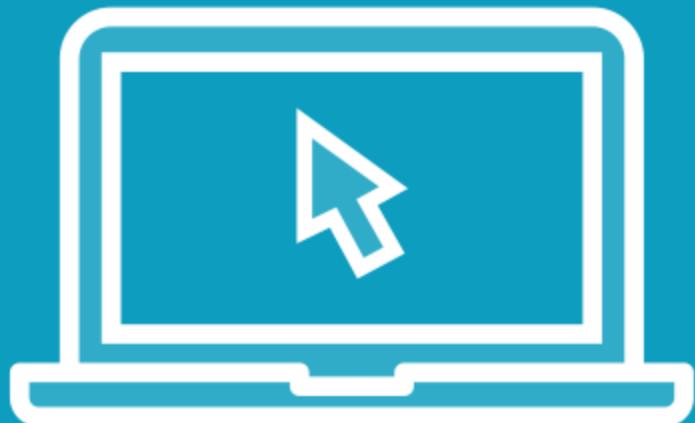
```
DELcare @SalesOrderVar AS TABLE  
    (SalesAmount decimal(36,2), Id int);  
GO
```

## Creating Table Variables

**No need to drop since they are removed after the batch**

**Unable to modify once created**

Demo

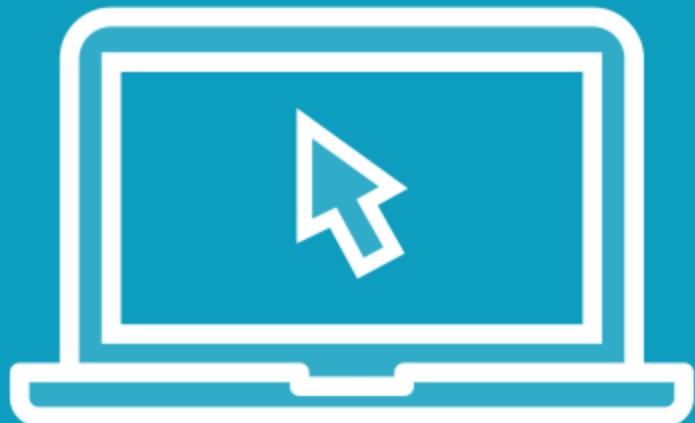


## Create a sproc from an existing script

- Insert salespeople



## Demo



### **Creating temp tables and table variables**

- Using a temp table in a sproc**



# Table-valued Parameters

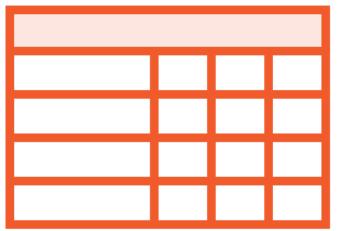
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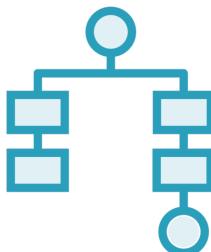
# Table-valued Parameters



**Pass multiple values to a stored procedure**



**Table type is required for table-valued parameters**



**Define the structure and insert data**



**Marked as read-only and cannot be modified**



**SQL doesn't create statistics on table-valued parameters**

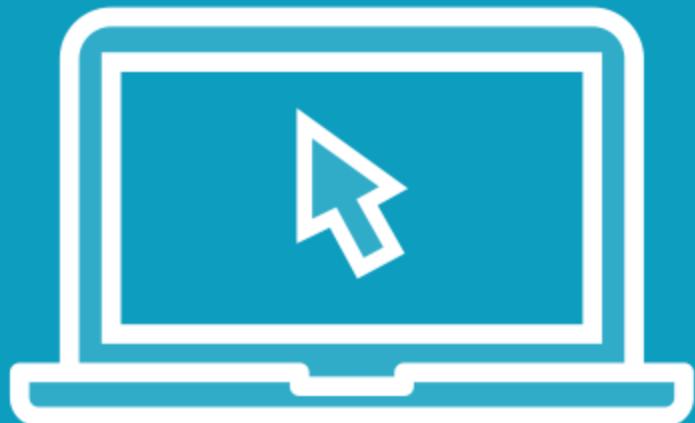


```
CREATE TYPE SalesTableType  
AS TABLE (SalesPersonEmail nvarchar(500));  
GO  
CREATE OR ALTER PROCEDURE Sales.SalesPersonReport  
@SalesPersonEmail SalesTableType READONLY
```

## Creating Table Types

**They cannot be altered once created**

## Demo



**Create a table type and define the data structure**

**Pass values into a stored procedure with a table-valued parameter**



# Executing Dynamic T-SQL

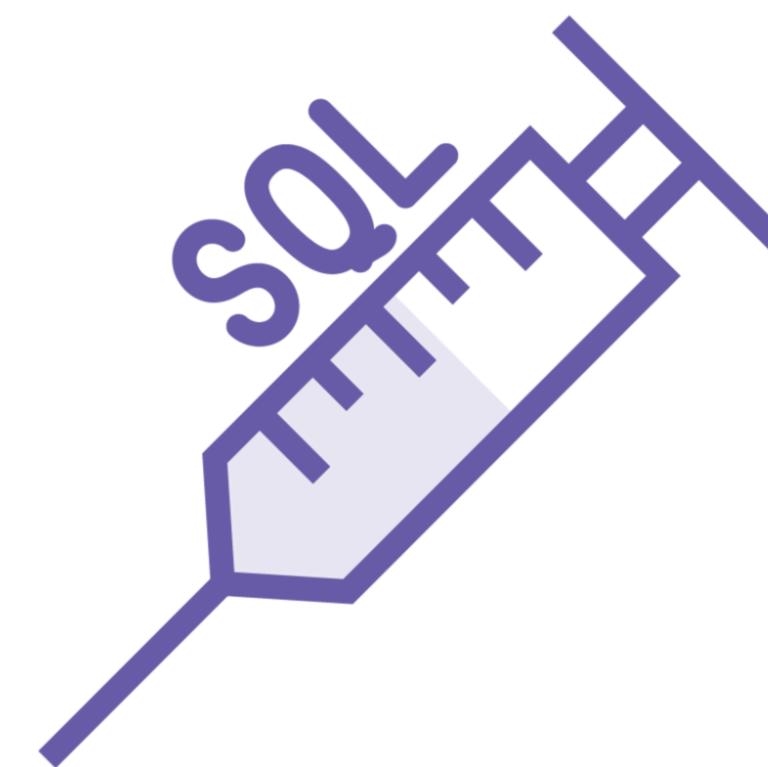
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# Dynamic SQL Reactions



**Unlimited power**  
**Build any statement**  
**you can imagine**



**Injection fears**  
**The security team is**  
**on the way**



**Weighing cost**  
**The real world is**  
**rarely black and white**





**SP\_EXECUTESQL is a stored procedure**

- Difficult to troubleshoot

**Why use dynamic SQL?**

- Create a dynamic query

**Execution plan reuse**

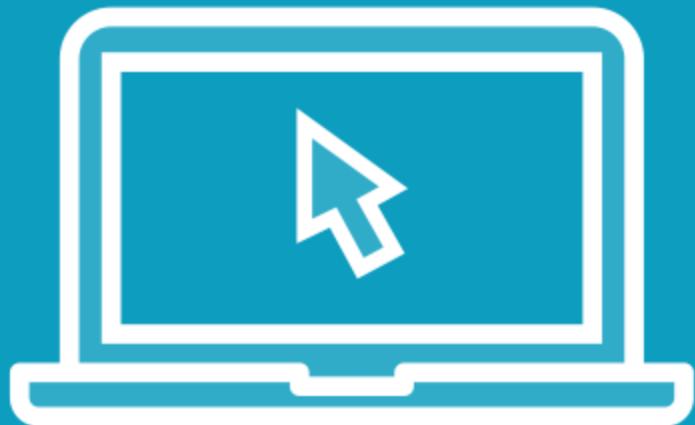
**Compared to EXEC**

- Tighter security
- Accepts parameters

**Use SP\_EXECUTESQL over EXEC**



# Demo



## Creating a dynamic query

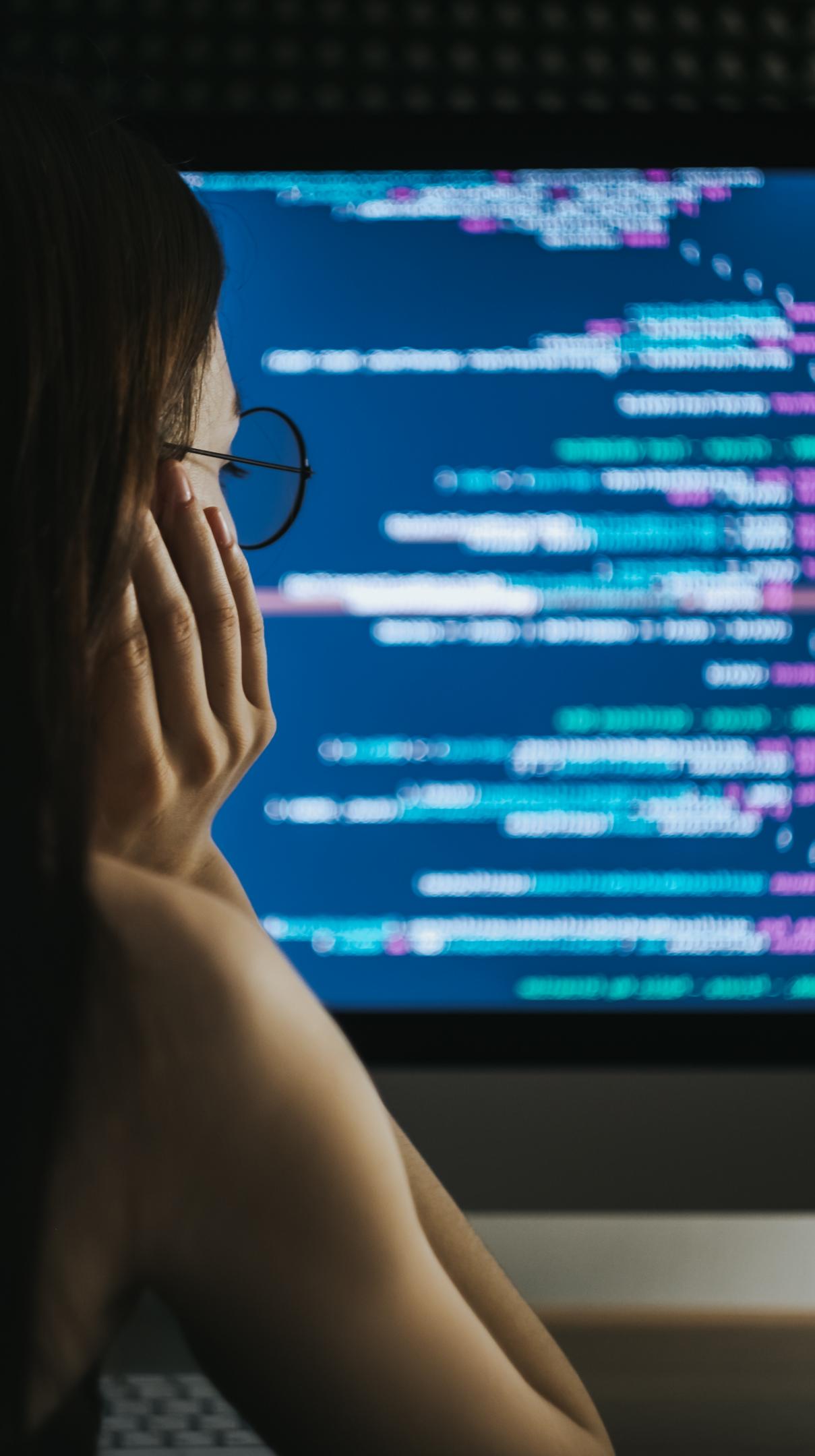
- Execute with SP\_EXECUTESQL
- Execute with EXEC



# Implementing a Debug Flag

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**Microsoft removed debugger**

**Intermediate result sets**

- Temp tables

**Also called debug parameter**

- Multiple ways to implement

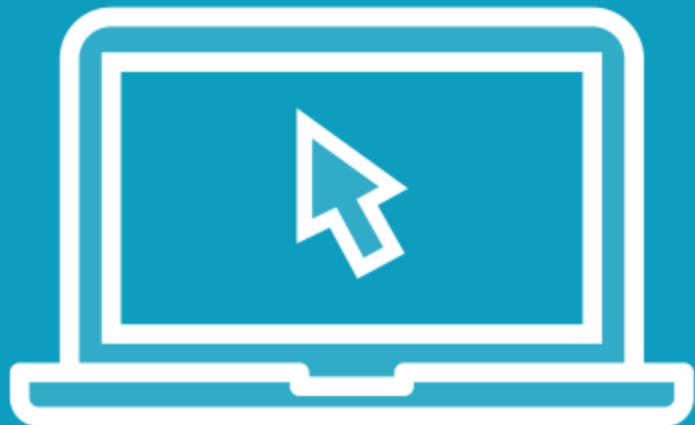
**Production usage**

**Setup time**

- Unnecessary for every sproc



Demo



**Adding a debug flag after each statement**  
**Executing your sproc with debug enabled**



## Summary



**Added queries to your sprocs**

**Temporary objects**

**Table-valued parameters**

- Multiple values

**Used SP\_EXECUTESQL**

- Compared to EXEC

**Implemented a debug flag**



Up Next:  
Optimizing Stored Procedure Performance

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