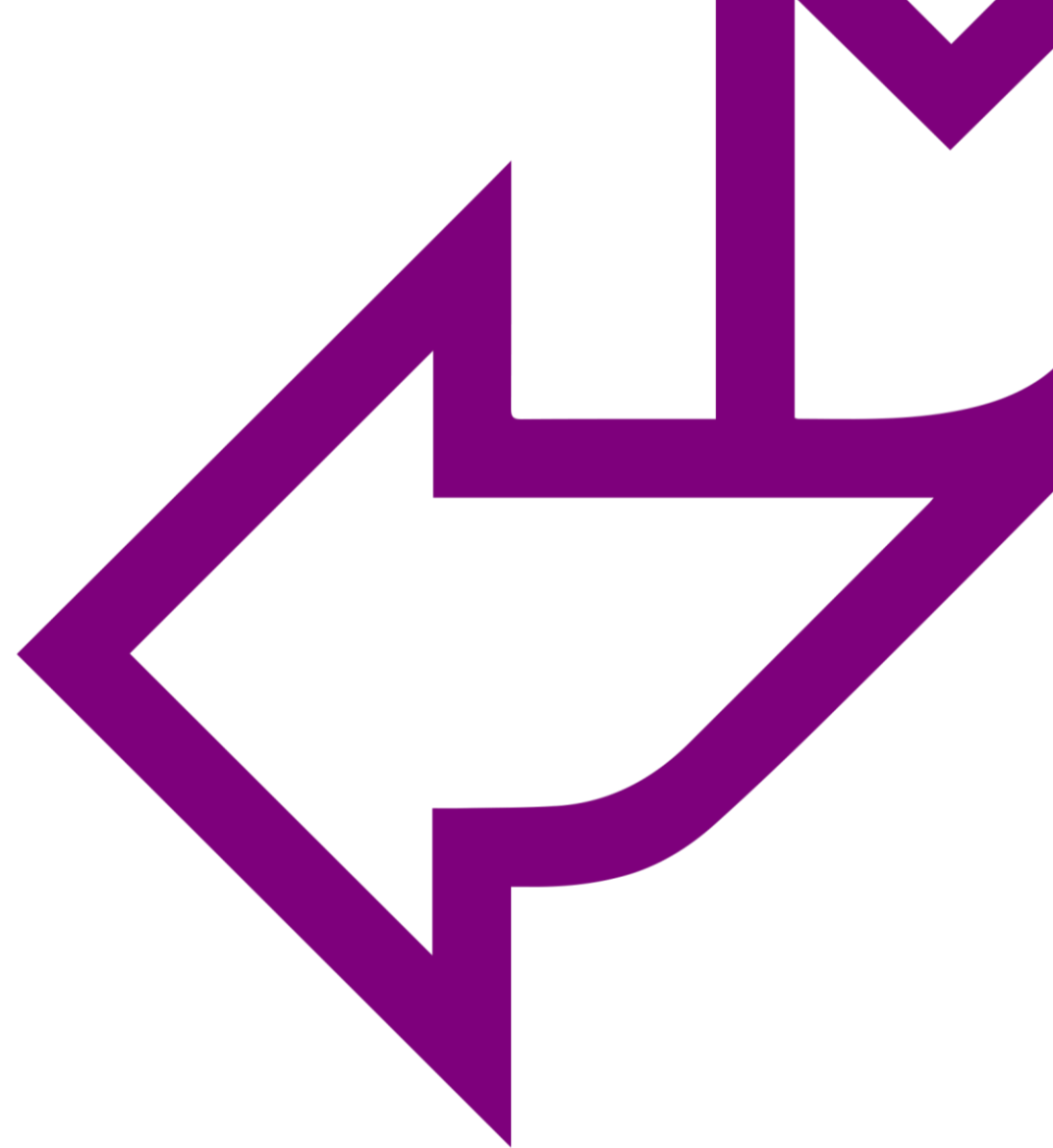




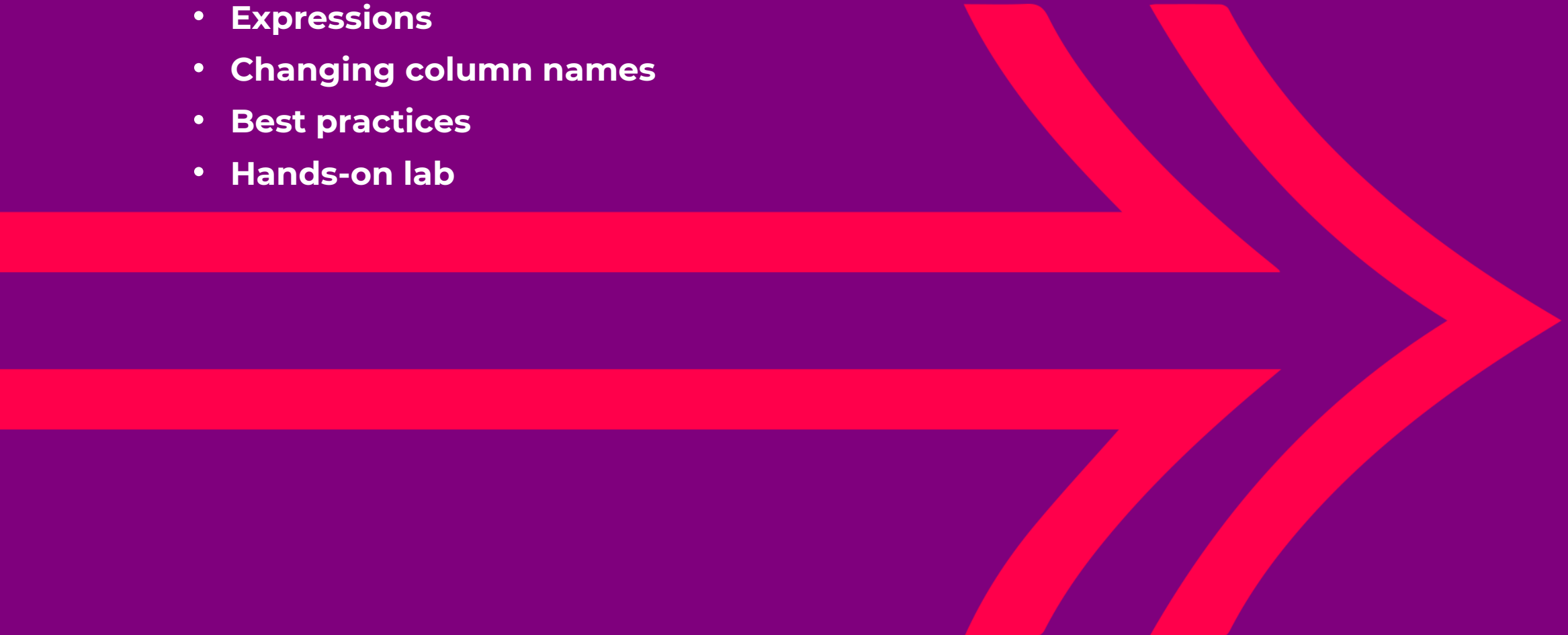
# Retrieving Data





# Overview

- **SELECT statement**
- **Select lists**
- **Expressions**
- **Changing column names**
- **Best practices**
- **Hands-on lab**

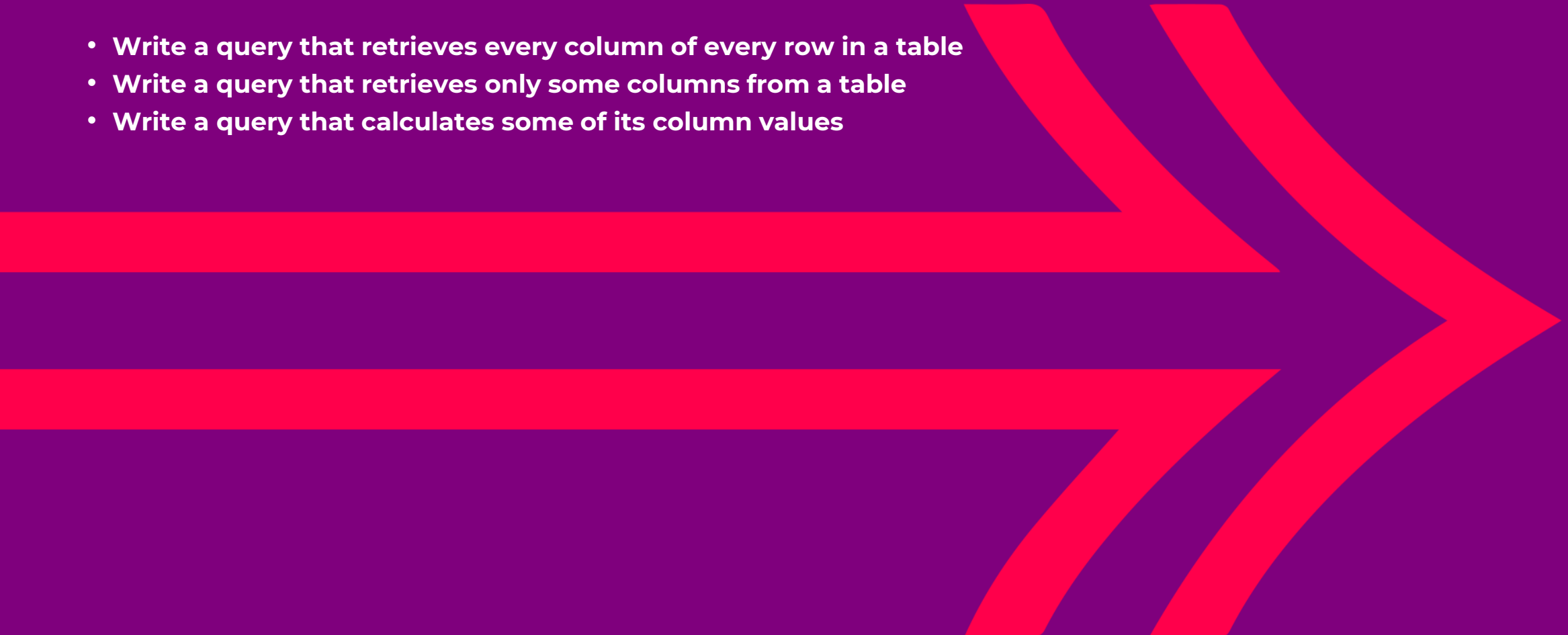




# Objectives

**At the end of this module you will be able to:**

- Write a query that retrieves every column of every row in a table
- Write a query that retrieves only some columns from a table
- Write a query that calculates some of its column values





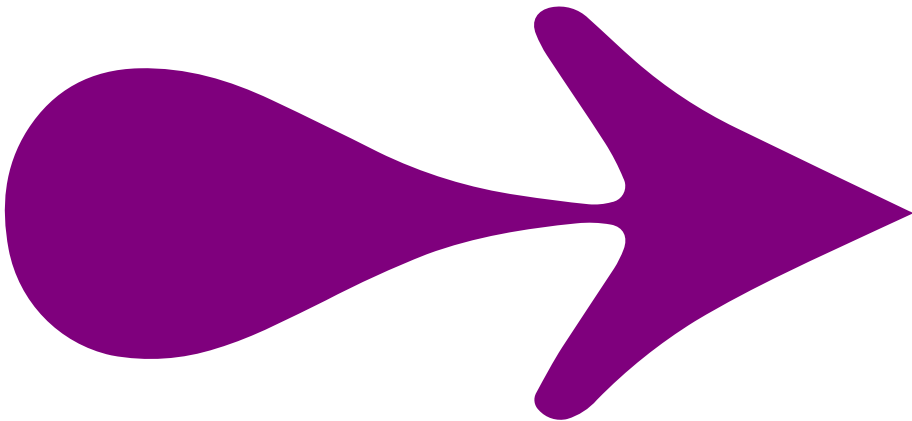
# **SELECT statement**





# **SELECT statement**

- **SELECT** <<field(s)>>
- **FROM** <<table(s)>>
- WHERE <<condition(s)>>
- GROUP BY <<field(s)>>
- HAVING <<condition(s)>>
- ORDER BY <<field(s)>>



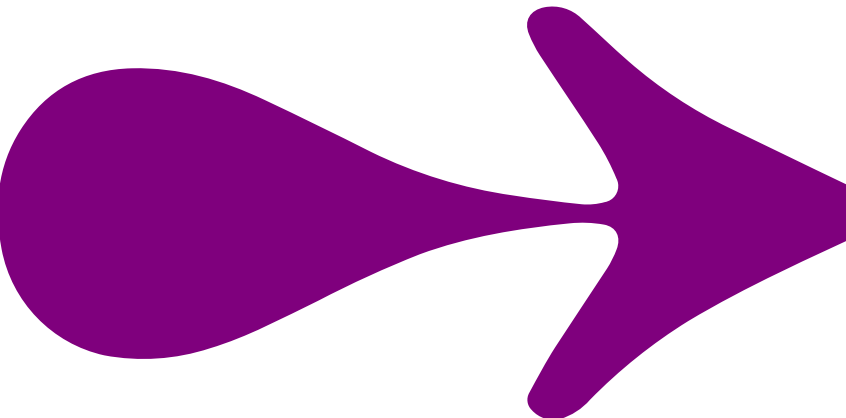


# SELECT \*

**SELECT \* FROM** *tablename*

Example:

**SELECT \* FROM** Categories



A large, thick purple arrow originates from the left side of the slide and points directly towards the table, highlighting the result of the SQL query.

Results		Messages		
	CategoryID	CategoryName	Description	Picture
1	1	Beverages	Soft drinks, coffees, teas, beers, and ales	0x151C2F00020000000D000E0014002100F
2	2	Condiments	Sweet and savory sauces, relishes, spreads, and ...	0x151C2F00020000000D000E0014002100F
3	3	Confections	Desserts, candies, and sweet breads	0x151C2F00020000000D000E0014002100F
4	4	Dairy Products	Cheeses	0x151C2F00020000000D000E0014002100F
5	5	Grains/Cereals	Breads, crackers, pasta, and cereal	0x151C2F00020000000D000E0014002100F
6	6	Meat/Poultry	Prepared meats	0x151C2F00020000000D000E0014002100F
7	7	Produce	Dried fruit and bean curd	0x151C2F00020000000D000E0014002100F
8	8	Seafood	Seaweed and fish	0x151C2F00020000000D000E0014002100F

Query executed successfully. QATSQL\SQL2008R2 (10.50 RTM) QATSQL\Student (51) Northwind 00:00:01 8 rows



# Select lists



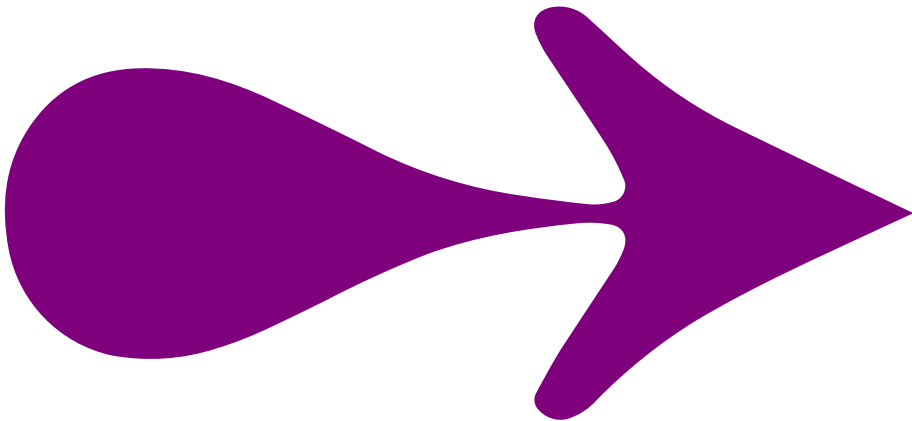


# Select lists

**SELECT** col1, ..., coln FROM *tablename*

Example:

```
SELECT CategoryName, Description
FROM Categories
```



Results		Messages
	CategoryName	Description
1	Beverages	Soft drinks, coffees, teas, beers, and ales
2	Condiments	Sweet and savory sauces, relishes, spreads, and ...
3	Confections	Desserts, candies, and sweet breads
4	Dairy Products	Cheeses
5	Grains/Cereals	Breads, crackers, pasta, and cereal
6	Meat/Poultry	Prepared meats
7	Produce	Dried fruit and bean curd
8	Seafood	Seaweed and fish

QATSQL\SQL2012 (11.0 CTP) | QATSQL\Student (52) | Northwind | 00:00:00 | 8 rows





# Expressions

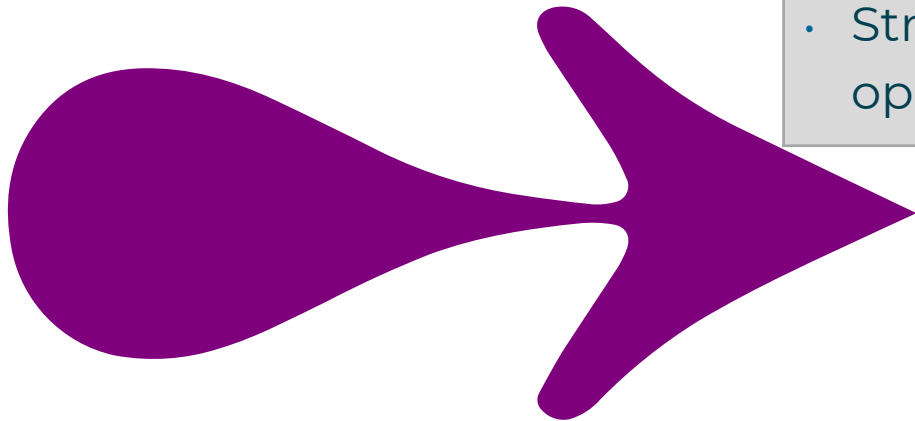




# Expressions in select lists

- 'Calculated' values
- Expression types:

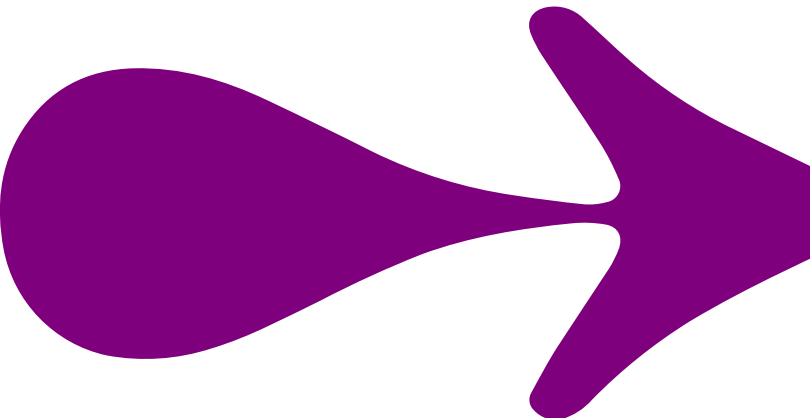
Type	Operators
• Arithmetic operators	+   -   *   /   % e.g., <i>UnitsInStock + UnitsOnOrder</i>
• String concatenation operator	+ e.g., <i>FirstName + ' ' + LastName</i>





# Expressions examples (1)

```
SELECT ProductID, ProductName,  
       UnitsInStock, UnitsOnOrder,  
       UnitsInStock + UnitsOnOrder  
FROM Products
```



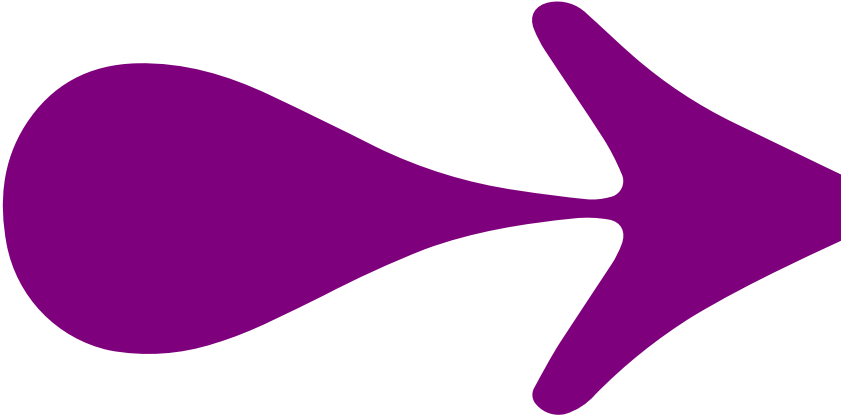
	ProductID	ProductName	UnitsInStock	UnitsOnOrder	(No column name)
1	1	Chai	39	0	39
2	2	Chang	17	40	57
3	3	Aniseed Syrup	13	70	83
4	4	Chef Anton's Cajun Seasoning	53	0	53
5	5	Chef Anton's Gumbo Mix	0	0	0
6	6	Grandma's Boysenberry Spread	120	0	120
7	7	Uncle Bob's Organic Dried Pears	15	0	15
8	8	Northwoods Cranberry Sauce	6	0	6
9	9	Mishi Kobe Niku	29	0	29

Query e... | QATSQL\SQL2008R2 (10.50 RTM) | QATSQL\Student (53) | Northwind | 00:00:00 | 77 rows



# Expressions examples (2)

```
SELECT FirstName, LastName,  
       FirstName + ' ' + LastName  
FROM Employees
```



A large, thick purple arrow points from the left side of the slide towards the table, highlighting the result set.

	FirstName	LastName	(No column name)
1	Nancy	Davolio	Nancy Davolio
2	Andrew	Fuller	Andrew Fuller
3	Janet	Leverling	Janet Leverling
4	Margaret	Peacock	Margaret Peacock
5	Steven	Buchanan	Steven Buchanan
6	Michael	Suyama	Michael Suyama
7	Robert	King	Robert King
8	Laura	Callahan	Laura Callahan
9	Anne	Dodsworth	Anne Dodsworth

Query ex... QATSQL\SQL2008R2 (10.50 RTM) QATSQL\Student (53) Northwind 00:00:00 9 rows



# Changing column names





# Changing column names

Results		Messages			
	ProductID	ProductName	UnitsInStock	UnitsOnOrder	FutureStock
1	1	Chai	39	0	39
2	2	Chang	17	40	57
3	3	Aniseed Syrup	13	70	83
4	4	Chef Anton's Cajun Seasoning	53	0	53
5	5	Chef Anton's Gumbo Mix	0	0	0
6	6	Grandma's Boysenberry Spread			
7	7	Uncle Bob's Organic Dried Pears			
8	8	Northwoods Cranberry Sauce			

Query e... | QATSQL\SQL2012 (11.0 CTP) | QAT

Results		Messages	
	GivenName	FamilyName	FullName
1	Nancy	Davolio	Nancy Davolio
2	Andrew	Fuller	Andrew Fuller
3	Janet	Leverling	Janet Leverling
4	Margaret	Peacock	Margaret Peacock
5	Steven	Buchanan	Steven Buchanan
6	Michael	Suyama	Michael Suyama
7	Robert	King	Robert King
8	Laura	Callahan	Laura Callahan

Query ex... | QATSQL\SQL2012 (11.0 CTP) | QATSQL\Stu



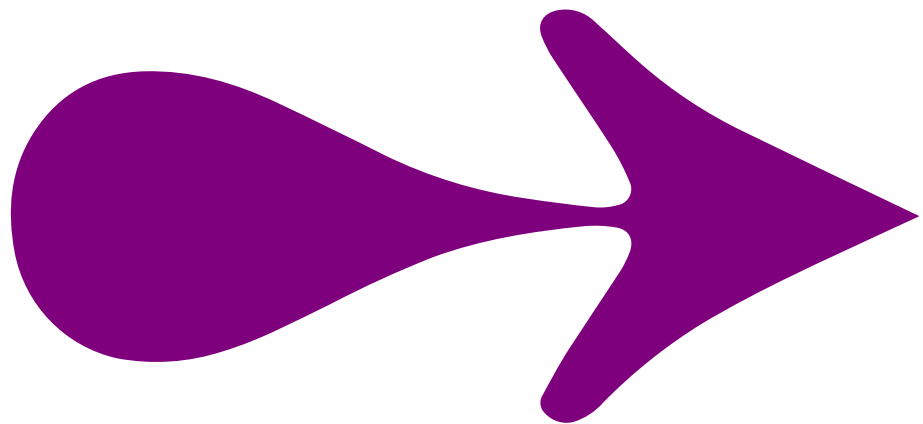
# Best practices





# **BEST PRACTICES**

- **Script formatting**
- **Comments**
- **Four-part names**





# QA Script formatting

- SQL is not case-sensitive
- SQL ignores whitespace

```
SELECT ProductID, ProductName, UnitsInStock, UnitsOnOrder FROM Products
```

- **Best practice: BE CONSISTENT!**

```
select productid, productname, unitsinstock, unitsonorder from products
```

```
SELECT
ProductID, ProductName, UnitsInStock, UnitsOnOrder
FROM
Products
```

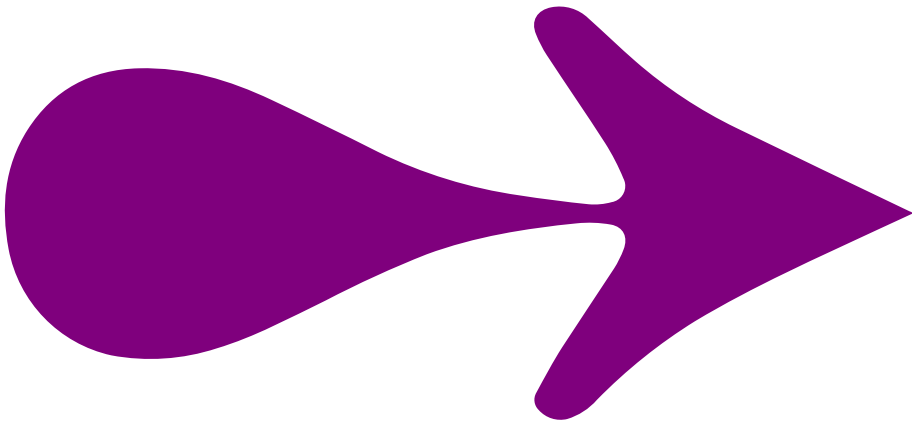
```
SELECT
ProductID,
ProductName,
UnitsInStock,
UnitsOnOrder
FROM
Products
```

```
SELECT
    ProductID,
    ProductName,
    UnitsInStock,
    UnitsOnOrder
FROM
    Products
```



# Comments

- **Ignored by SQL**
  - Add documentation to your scripts
- **Two styles:**
  - ```
SELECT
    UnitsInStock + UnitsOnOrder AS
FutureStock -- calculate FS
FROM
    Products
and
/*
This query gets a list of employees
with their full names
*/
SELECT FirstName + ' ' + LastName AS Name
FROM Employees
```
- **Best practice: comment your scripts**



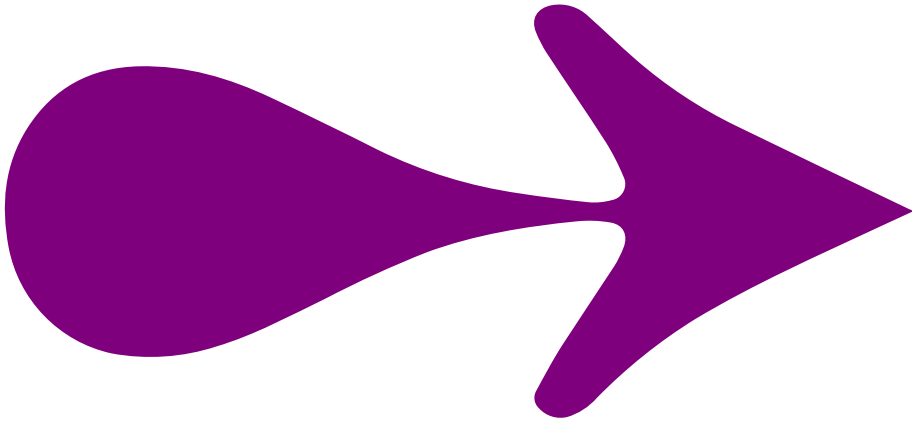


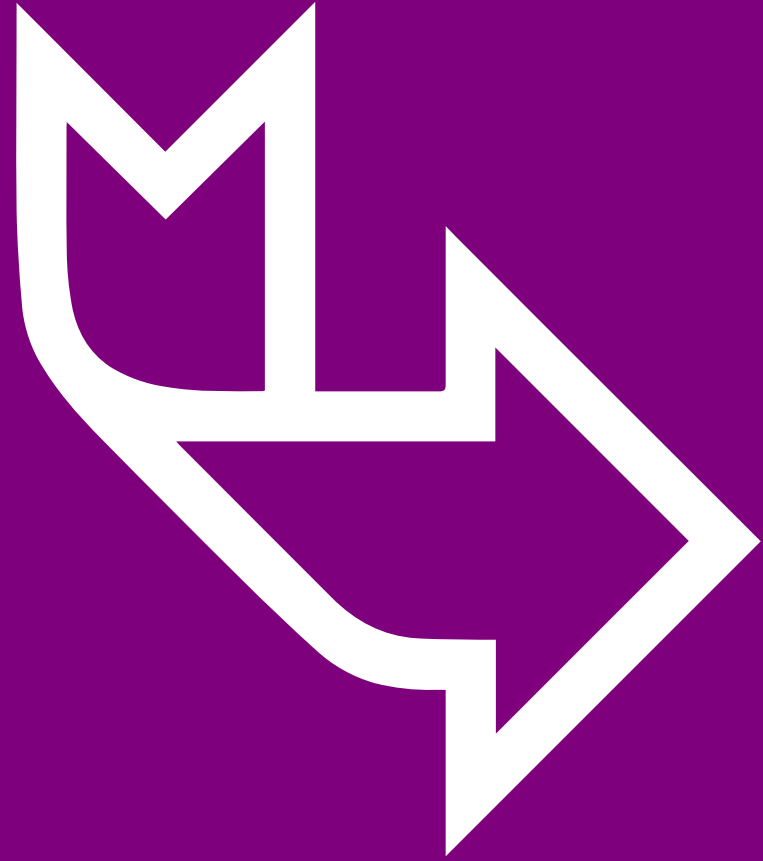
# FOUR-PART NAMES

## Referring to tables in queries:

- FROM Employees
- FROM dbo.Employees
- FROM Northwind.dbo.Employees
- FROM QATSQL.Northwind.dbo.Employees

**Best Practice: use at least two-part names**





## **Hands-on lab**

- **Basic SELECT statements**
- **Expressions in select lists**



# Review

- **SELECT \* FROM ...**
- **SELECT *columns* FROM ...**
- **SELECT *calculatedColumns* FROM ...**
- **Comments**
- **Four-part names**

