

Guided Lab - 304.5.2 - Operators

Objective:

In this lab, we will demonstrate and utilize common SQL operators.

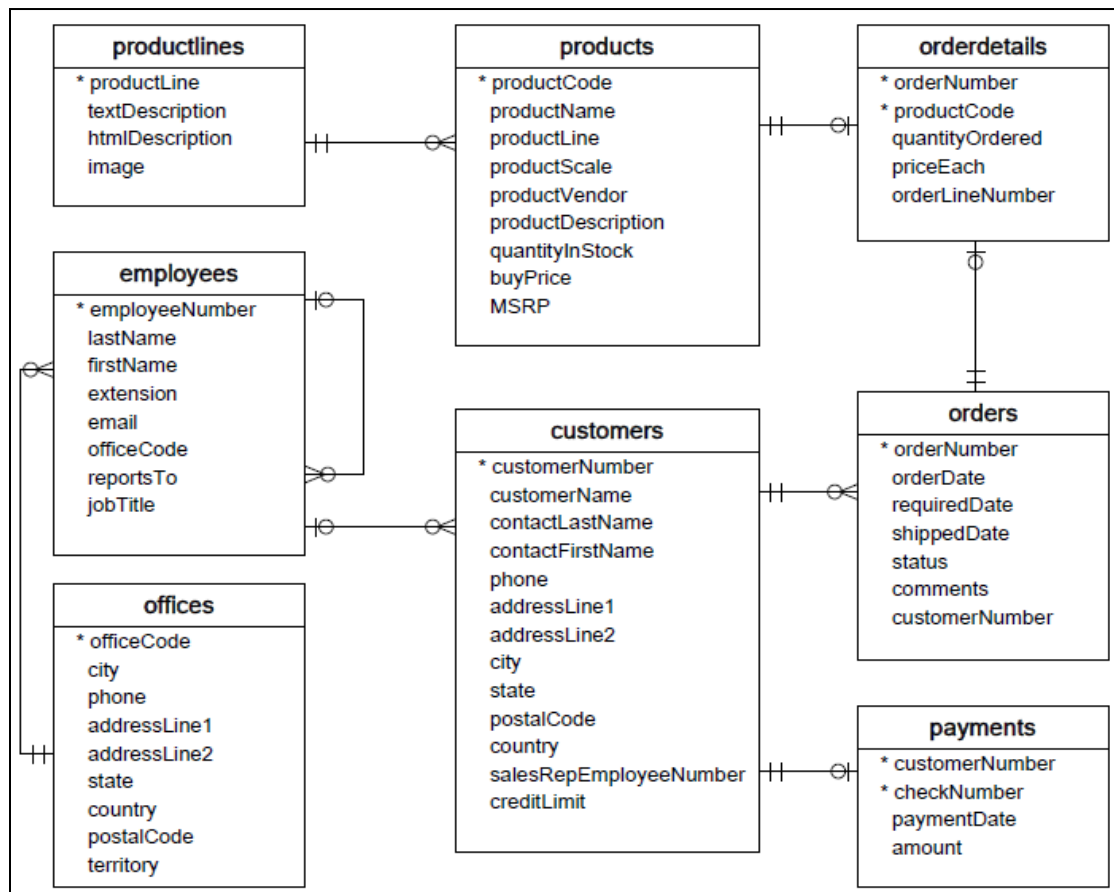
Learning Objective:

After this lab, learners will have demonstrated the ability to use SQL Operators.

Prerequisites:

For this lab, you must have a “**classicmodels**” database. If you do not have a ‘classicmodels’ database setup, [click here to download the database script file.](#)

The classicmodels database schema



1. Example: “OR” Operator Examples

Consider the **customer's** table.

customers
* customerNumber
customerName
contactLastName
contactFirstName
phone
addressLine1
addressLine2
city
state
postalCode
country
salesRepEmployeeNumber
creditLimit

For example, to get the customers who are located in the USA or France, you can use the **OR** operator in the **WHERE** clause as follows:

```
SELECT    customername, country
FROM      customers
WHERE     country = 'USA' OR country = 'France';
```

Result:

	customername	country
►	Atelier graphique	France
	Signal Gift Stores	USA
	La Rochelle Gifts	France
	Mini Gifts Distributors Ltd.	USA
	Mini Wheels Co.	USA
	Land of Toys Inc.	USA
	Saveley & Henriot, Co.	France
	Musde Machine Inc	USA
	Diecast Classics Inc.	USA
	Technics Stores Inc.	USA
	American Souvenirs Inc	USA
	Daedalus Designs Imports	France

As you can see in the result, the query returns customers who are located in either the USA or France.

2. Example: “AND” Operator Examples

The **AND** operator is a logical operator that combines two or more **Boolean** expressions, and returns true only if both expressions evaluate as true. The **AND** operator returns false if one of the two expressions evaluates as false.

Let’s use the **customer's** table.

customers
* customerNumber
customerName
contactLastName
contactFirstName
phone
addressLine1
addressLine2
city
state
postalCode
country
salesRepEmployeeNumber
creditLimit

- A. The following query will return the customer's records who are located in the USA or France and have credit limits greater than 100,000.

```
SELECT    customername, country, creditLimit
FROM      customers
WHERE (country = 'USA' OR country = 'France') AND
creditlimit > 100000;
```

Result

	customername	country	creditLimit
	La Rochelle Gifts	France	118200
	Mini Gifts Distributors Ltd.	USA	210500
	Land of Toys Inc.	USA	114900
	Saveley & Henriot, Co.	France	123900
	Muscle Machine Inc	USA	138500
	Diecast Classics Inc.	USA	100600
	Collectable Mini Designs Co.	USA	105000
	Marta's Replicas Co.	USA	123700

- B. The below query will return the customers who are located in the USA or the customers who are located in France with a credit limit greater than 10000.

```
SELECT customername, country, creditLimit FROM customers
WHERE country = 'USA' OR country = 'France' AND creditlimit > 100000;
```

Note: We did not use the parentheses.

Result

	customername	country	creditLimit
	Signal Gift Stores	USA	71800
	La Rochelle Gifts	France	118200
	Mini Gifts Distributors Ltd.	USA	210500
	Mini Wheels Co.	USA	64600
	Land of Toys Inc.	USA	114900
	Saveley & Henriot, Co.	France	123900
	Muscle Machine Inc	USA	138500
	Diecast Classics Inc.	USA	100600
	Technics Stores Inc.	USA	84600

3. Example: BETWEEN and NOT BETWEEN

- The BETWEEN operator selects values within a given range. The values can be numbers, text, or dates.
- The BETWEEN operator is inclusive: Begin and End values are included.

Consider the following **products** table in the classicmodels database:

products
* productCode
productName
productLine
productScale
productVendor
productDescription
quantityInStock
buyPrice
MSRP

- A. Suppose you want to find products whose buy prices are within the ranges of **90** and **100**. You can use the **BETWEEN** operator, as in the following query:

```
SELECT    productCode, productName, buyPrice
FROM      products
WHERE     buyPrice BETWEEN 90 AND 100;
```

Result

	productCode	productName	buyPrice
	S10_1949	1952 Alpine Renault 1300	98.58
	S10_4698	2003 Harley-Davidson Eagle Drag Bike	91.02
	S12_1099	1968 Ford Mustang	95.34
	S12_1108	2001 Ferrari Enzo	95.59
	S18_1984	1995 Honda Civic	93.89
	S18_4027	1970 Triumph Spitfire	91.92
	S24_3856	1956 Porsche 356A Coupe	98.3

- B. You can achieve the same effect by using the greater than or equal to (\geq) and the less than or equal to (\leq) operators, as in the following query:

```
SELECT productCode, productName, buyPrice
FROM products
WHERE buyPrice  $\geq$  90 AND buyPrice  $\leq$  100;
```

- C. To find the product whose buy price is not between \$20 and \$100, you can combine the **BETWEEN** operator with the **NOT** operator as follows:

```
SELECT productCode, productName, buyPrice FROM products
WHERE buyPrice NOT BETWEEN 20 AND 100;
```

Result

	productCode	productName	buyPrice
	S10_4962	1962 LanciaA Delta 16V	103.42
	S18_2238	1998 Chrysler Plymouth Prowler	101.51
	S24_2840	1958 Chevy Corvette Limited Edition	15.91
	S24_2972	1982 Lamborghini Diablo	16.24

You can rewrite the query above using the less than ($<$), greater than ($>$), and logical operator (AND) as the following query.

```
SELECT productCode, productName, buyPrice FROM products
WHERE buyPrice  $<$  20 OR buyPrice  $>$  100;
```

4) Example: “IS NULL” Operator

Consider the **customers** table in the “classicmodels” database:

customers
* customerNumber customerName contactLastName contactFirstName phone addressLine1 addressLine2 city state postalCode country salesRepEmployeeNumber creditLimit

1. The following query uses the **IS NULL** operator to find customers who do not have a sales representative:

```
SELECT customerName, country, salesrepemployeenumber
FROM customers
WHERE salesrepemployeenumber IS NULL
ORDER BY customerName;
```

Result:

	customerName	country	salesrepemployeenumber
▶	ANG Resellers	Spain	NULL
	Anton Designs, Ltd.	Spain	NULL
	Asian Shopping Network, Co	Singapore	NULL
	Asian Treasures, Inc.	Ireland	NULL
	BG&E Collectables	Switzerland	NULL
	Cramer Spezialitäten, Ltd	Germany	NULL
	Der Hund Imports	Germany	NULL
	Feuer Online Stores, Inc	Germany	NULL
	Franken Gifts, Co	Germany	NULL

- The below query uses the **IS NOT NULL** operator to get the customers who have a sales representative:

```
SELECT customerName, country, salesrepemployeenumber
FROM customers
WHERE salesrepemployeenumber IS NOT NULL
ORDER BY customerName;
```

Result:

	customerName	country	salesrepemployeenumber
▶	Alpha Cognac	France	1370
	American Souvenirs Inc	USA	1286
	Amica Models & Co.	Italy	1401
	Anna's Decorations, Ltd	Australia	1611
	Atelier graphique	France	1370
	Australian Collectables, Ltd	Australia	1611
	Australian Collectors, Co.	Australia	1611
	Australian Gift Network, Co	Australia	1611
	Auto Associés & Cie.	France	1370

3. The following query uses the **LEFT JOIN predicate** and the **IS NULL operator** to find customers who have no order:

```
SELECT c.customerNumber, c.customerName, orderNumber,
o.STATUS
FROM customers c
LEFT JOIN orders o
ON c.customerNumber = o.customerNumber
WHERE orderNumber IS NULL;
```

Result:

	customerNumber	customerName	orderNumber	status
	125	Havel & Zbyszek Co	NULL	NULL
	168	American Souvenirs Inc	NULL	NULL
	169	Porto Imports Co.	NULL	NULL
	206	Asian Shopping Network, Co	NULL	NULL
	223	Natürlich Autos	NULL	NULL
	237	ANG Resellers	NULL	NULL
	247	Messner Shopping Network	NULL	NULL
	273	Franken Gifts, Co	NULL	NULL
	293	BG&E Collectables	NULL	NULL
	303	Schuyler Imports	NULL	NULL

Canvas submission Instructions: Please include the following deliverables in your submission -

- All queries should be written and submitted in a single SQL script file named, for example :<your_name_labname>.sql.
- Submit your SQL script file using the **Start Assignment** button in the top-right corner of the assignment page in Canvas.

CANVAS STAFF USE ONLY: Canvas Submission Guideline:

Instructions for Canvas Assignment Creation
<p>Assignment Name: GLAB - 304.5.2 - Operators</p> <p>Points: 100</p> <p>Assignment Group: Module 304 - Relational Databases and SQL - (Not Graded)</p> <p>Display Grade As: Complete/Incomplete</p> <p>Do not count this assignment towards the final grade: Checked</p> <p>Submission Types: Files Uploads</p> <p>Allowed Attempts: Unlimited</p> <p>Everything else is the default.</p>