Lab Experiment 3

To demonstrate the usage of wildcards and other operators in SQL

Objectives

- Demonstration of the usage of various wildcards and operators including LIKE, BETWEEN and IN operators

Introduction

SQL Wildcards

SQL wildcards can:

- be used when searching for data in a database along with LIKE operator.
- substitute for one or more characters when searching for data in a database.

Table below shows various wildcards that can be used:

Wildcard	Description
%	A substitute for zero or more characters
_	A substitute for exactly one character
[charlist]	Any single character in charlist
[^charlist]	Any single character not in charlist
or	
[!charlist]	

Examples

Consider the table 1. below:

Table 1

P_Id	LastName	FirstName	Address	City
1	Hansen	Ola	Timoteivn 10	Sandnes
2	Svendson	Tove	Borgvn 23	Sandnes
3	Pettersen	Kari	Storgt 20	Stavanger

The "%" Wildcard

Now we want to select the persons living in a city that starts with "sa" from the "Persons" table.

We use the following SELECT statement:

```
SELECT * FROM Persons
WHERE City LIKE 'sa%'
```

The result-set will look like this:

P_Id	LastName	FirstName	Address	City
1	Hansen	Ola	Timoteivn 10	Sandnes
2	Svendson	Tove	Borgvn 23	Sandnes

Next, we want to select the persons living in a city that contains the pattern "nes" from the "Persons" table.
We use the following SELECT statement:

```
SELECT * FROM Persons
WHERE City LIKE '%nes%'
```

The result-set will look like this:

P_Id	LastName	FirstName	Address	City
1	Hansen	Ola	Timoteivn 10	Sandnes
2	Svendson	Tove	Borgvn 23	Sandnes

The "_" Wildcard

Now we want to select the persons with a first name that starts with any character, followed by "la" from the "Persons" table.
We use the following SELECT statement:

```
SELECT * FROM Persons
WHERE FirstName LIKE '_la'
```

The result-set will look like this:

P_Id	LastName	FirstName	Address	City
1	Hansen	Ola	Timoteivn 10	Sandnes

The "[charlist]" Wildcard

Now we want to select the persons with a last name that starts with "b" or "s" or "p" from the "Persons" table.
We use the following SELECT statement:

```
SELECT * FROM
Persons WHERE
LastName LIKE
'[bsp]%'
```

The result-set will look like this:

P_Id	LastName	FirstName	Address	City
2	Svendson	Tove	Borgvn 23	Sandnes
3	Pettersen	Kari	Storgt 20	Stavanger

Next, we want to select the persons with a last name that do not start with "b" or "s" or "p" from the "Persons" table.
We use the following SELECT statement:

```
SELECT * FROM
Persons WHERE
LastName LIKE
'[!bsp]%'
```

The result-set will look like this:

P_Id	LastName	FirstName	Address	City
1	Hansen	Ola	Timoteivn 10	Sandnes

The "IN" Operator

The IN operator allows you to specify multiple values in a WHERE clause.

SQL IN Syntax

```
SELECT column_name(s)
FROM table_name
WHERE column_name IN (value1,value2,...)
```

Example:
Consider Table 1. For this example where want to select the persons with a last name equal to "Hansen" or "Pettersen" .
We use the following SELECT statement:

```
SELECT * FROM Persons
WHERE LastName IN ('Hansen','Pettersen')
```

The result-set will look like this:

P_Id	LastName	FirstName	Address	City
1	Hansen	Ola	Timoteivn 10	Sandnes
3	Pettersen	Kari	Storgt 20	Stavanger

The "BETWEEN" Operator

The BETWEEN operator selects a range of data between two values. The values can be numbers, text, or dates.

SQL BETWEEN Syntax

```
SELECT column_name(s)
FROM table_name
WHERE column_name
BETWEEN value1 AND value2
```

Example

Refer to Table 1 for this example where we want to select the persons with a last name alphabetically between "Hansen" and "Pettersen"

We use the following SELECT statement:

```
SELECT * FROM Persons
 WHERE LastName
 BETWEEN 'Hansen' AND 'Pettersen'
```

The result-set will look like this:

P_Id	LastName	FirstName	Address	City
1	Hansen	Ola	Timoteivn 10	Sandnes

Note: The BETWEEN operator is treated differently in different databases.

In some databases, persons with the LastName of "Hansen" or "Pettersen" will not be listed, because the BETWEEN operator only selects fields that are between and excluding the test values).
In other databases, persons with the LastName of "Hansen" or "Pettersen" will be listed, because the BETWEEN operator selects fields that are between and including the test values).
And in other databases, persons with the LastName of "Hansen" will be listed, but "Pettersen" will not be listed (like the example above), because the BETWEEN operator selects fields between the test values, including the first test value and excluding the last test value.
ALWAYS Check how your database treats the BETWEEN operator.

Also Check **NOT BETWEEN** operator usage

Lab Tasks

Task 1

Refer to Table 2.

Table 2

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
1	Alfreds Futterkiste	Maria Anders	Obere Str. 57	Berlin	12209	Germany
2	Ana Trujillo Emparedados y helados	Ana Trujillo	Avda. de la Constitución 2222	México D.F.	05021	Mexico
3	Antonio Moreno Taquería	Antonio Moreno	Mataderos 2312	México D.F.	05023	Mexico
4	Around the Horn	Thomas Hardy	120 Hanover Sq.	London	WA1 1DP	UK
5	Berglunds snabbköp	Christina Berglund	Berguvsvägen 8	Lulea	S-958 22	Sweden

Write SQL statements that do the following:

- Create Table 2
- Select all Customers with a City starting with the letter “s”.
- Select all Customers with a City ending with the letter “s”.
- Select all Customers with a City containing the pattern “land”.
- Select all Customers with a City not containing the pattern “land”.
- Select the two first Customers from table who belong to “Germany” or “Sweden”.
- Select all Customers with a City of "Paris" or "London" without using ‘OR’ operator.

Task 2

Refer to Table 3.

Table 3

ProductID	ProductName	SupplierID	CategoryID	Unit	Price
1	Chais	1	1	10 boxes x 20 bags	18
2	Chang	1	1	24 - 12 oz bottles	19
3	Aniseed Syrup	1	2	12 - 550 ml bottles	10
4	Chef Anton's Cajun Seasoning	1	2	48 - 6 oz jars	22
5	Chef Anton's Gumbo Mix	1	2	36 boxes	21.35

Write SQL statements that do the following:

- Create Table 3
- Select all products with a price from 10 to 20.
- Select all products with a price from 20 to 30.
- Select all products with a price from 10 to 22 but products with units containing bags should not be displayed.
- Select all products with a **ProductName** beginning with any of the letter not between 'C' and 'M'.

Rubric for Lab Assessment

The student performance for the assigned task during the lab session was:			
Excellent	The student completed assigned tasks without any help from the instructor and showed the results appropriately.	4	
Good	The student completed assigned tasks with minimal help from the instructor and showed the results appropriately.	3	
Average	The student could not complete all assigned tasks and showed partial results.	2	
Worst	The student did not complete assigned tasks.	1	

Instructor Signature: _____ Date: _____