Apply filters to SQL queries

Project description

In this scenario an `organization` database with 2 tables `(log_in_attempts` and `employees`) will be used. Both tables have multiple columns that will be searched and filtered using SQL queries and operators like AND, OR and NOT.

Retrieve after hours failed login attempts

In the log_in_attempt table all records are needed for which the login_time is later than 6 PM.
The following query is used:

```
	SELECT *
	FROM log_in_attempts
	WHERE login_time > '18:00' AND success = FALSE;
```

The relational operator '>' is used to filter for login-time values that are greater(later) than '18:00' (6 PM). The AND operator is used to add another condition for all failed attempts (`success = 0` can also be used). Only those records are listed that match both criteria.

Retrieve login attempts on specific dates

Activities on 2 dates (2022-05-08 and 2022-05-09) needed to be listed from the log_in_attempts table.
Using the following query 75 rows are listed:

```
	SELECT *
	FROM log_in_attempts
	WHERE login_date = '2022-05-09' OR login_date = '2022-05-08';
```

Because of the OR operator all records are returned that match either login_date coditions.

Retrieve login attempts outside of Mexico

All login attempts are needed that do not originate from Mexico. In the country field Mexico is indicated 2 ways ('MEXICO' or 'MAX').
A query with the NOT operator can be used:

```
	SELECT *
	FROM log_in_attempts
	WHERE NOT country LIKE 'MEX%';
```

The LIKE operator filters for a string pattern starts with the 'MAX' string and has 3 or more characters (the '%' wildcard indicates any character in any length). Using NOT all records that match this pattern are excluded from the returned list.

Retrieve employees in Marketing

All employee records are needed from the `employees` table who work in the marketing department and are located in the offices of the East building.
A combination of relational and logical operators should be used:

```
SELECT *
FROM employees
WHERE department = 'Marketing' AND office LIKE 'East%';
```

Using the AND operator, an '=' (equal) and a LIKE condition can be combined. It lists all employees from the Marketing department whose office names start with the 'East' string.

Retrieve employees in Finance or Sales

All employee records are needed that are linked to the Finance or Sales departments.
A query with the OR operator is the solution:

```
SELECT *
FROM employees
WHERE department = 'Finance' OR department = 'Sales';
```

The OR list all rows in the employees table for which the department value is either 'Fainance' or 'Sales'.

Retrieve all employees not in IT

For this scenario all employee records are needed that are not working for the Information Technologi department.

```
SELECT *
FROM employees
WHERE NOT department = 'Information Technology';
```

The NOT operator excludes all IT employees.
Another filter variation can be used as well:

```
WHERE department != 'Information Technology';
```

The '!' negates the '=' operator (does not equal).

Summary

With these scenarios some basic SQL filtering options have been displayed. Using the OR and AND logical operators multiple filtering conditions can be combined. The NOT operator at the beginning of a condition excludes all those records that match the given condition. The LIKE operator with the ‘%’ or ‘_’ wildcard can be used to set patterns for filtering conditions in case variations or permutations of a value in a filed is needed.