DDL / DML / DQL + DB OPERATIONS

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TASKS [21/03/2023]

Task #3: Write a few lines about these terms with examples:

- What is SQL?
- What is DDL?
- What is DML?
- What us DQL?

Task #4: Practice about following in SSMS:

- Creating a Database.
- Altering a Database.
- Deleting a Database.

Week 2 / Task 3

WHAT IS SQL?

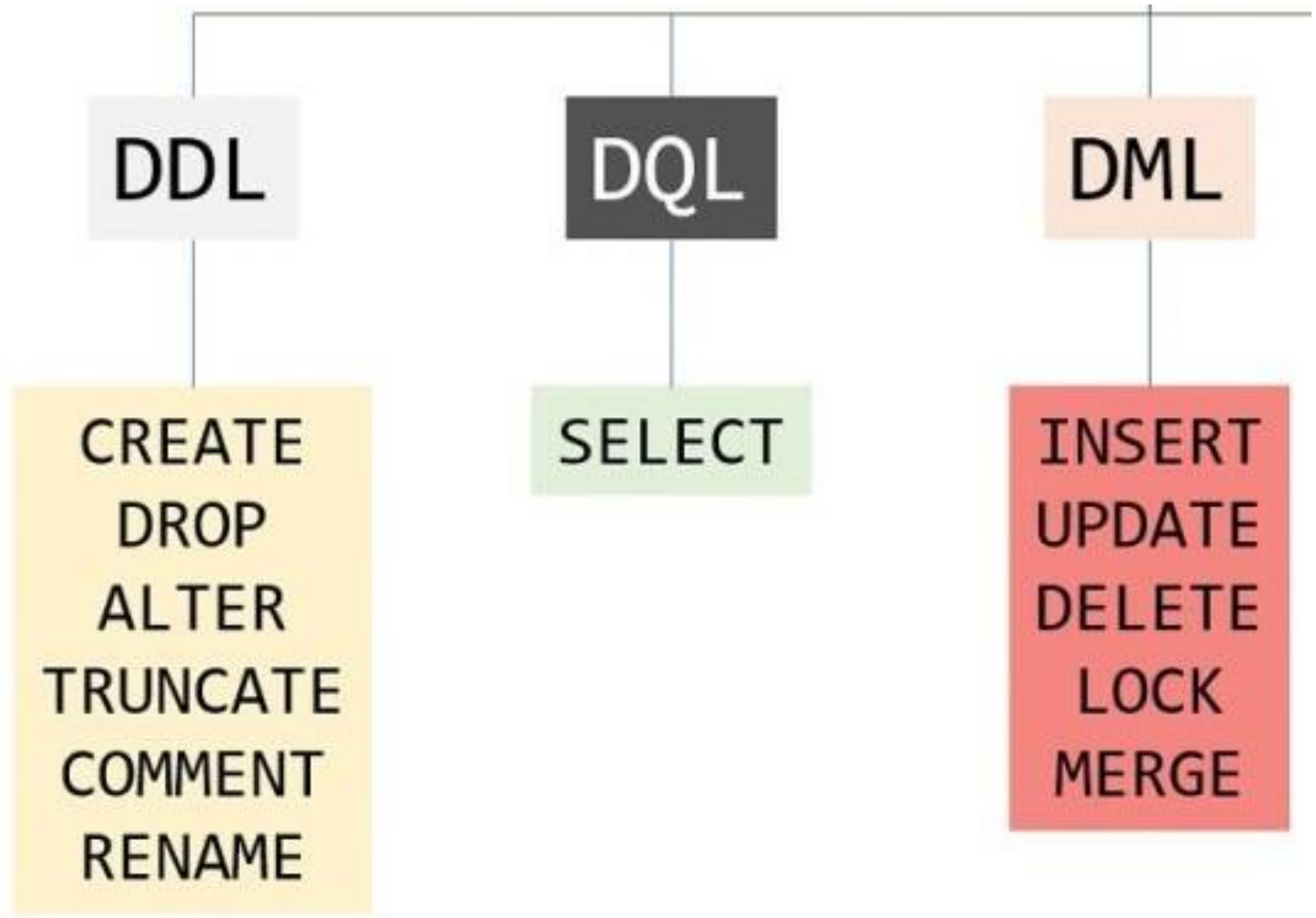
SQL (Structured Query Language) is a programming language designed for managing relational databases. SQL commands are instructions used to interact with a database, such as creating tables, inserting, updating, and deleting data, and querying the data in the database.

Here are some common SQL commands:

- SELECT - retrieves data from one or more tables
- UPDATE - modifies existing data in a table
- DELETE - removes data from a table
- CREATE - creates a new table
- DROP - deletes a table

TYPES OF SQL COMMANDS

- Data Definition Language (DDL) : Data definition language (DDL) refers to SQL commands that design the database structure. Database engineers use DDL to create and modify database objects based on the business requirements. For example, the database engineer uses the CREATE command to create database objects such as tables, views, and indexes.
- Data Query Language (DQL) : Data query language (DQL) consists of instructions for retrieving data stored in relational databases. Software applications use the SELECT command to filter and return specific results from a SQL table.
- Data Manipulation Language (DML): Data manipulation language (DML) statements write new information or modify existing records in a relational database. For example, an application uses the INSERT command to store a new record in the database.


DDL
DQL
DML
CREATE
DROP
ALTER
TRUNCATE
COMMENT
RENAME
SELECT
INSERT
UPDATE
DELETE
LOCK
MERGE

DATA DEFINITION LANGUAGE (DDL)

- DDL stands for Data Definition Language and is a subset of SQL used to define the structure of the database. DDL statements are used to create and modify database objects such as tables, indexes, and constraints.

Here are some commands that come under DDL:

- CREATE
- ALTER
- DROP
- TRUNCATE

DDL COMMANDS

- CREATE: It is used to create a new table in the database.

```
CREATE TABLE employee (
        ID INT,
        Name VARCHAR(100),
        Department VARCHAR(50);
```

- DROP: It is used to delete both the structure and record stored in the table.

```
DROP TABLE employee;
```

- ALTER: It is used to alter the structure of the database. This change could be either to modify the characteristics of an existing attribute or probably to add a new attribute.

```
ALTER TABLE employee ADD(ADDRESS VARCHAR(20));
```

- TRUNCATE: It is used to delete all the rows from the table and free the space containing the table.

```
TRUNCATE TABLE  employee;
```

DATA MANIPULATION LANGUAGE (DML)

- DML stands for Data Manipulation Language and is a subset of SQL used to manipulate the data within the database. DML statements are used to insert, update, and delete data from tables.

Here are some commands that come under DML:

- INSERT
- UPDATE
- DELETE

DML COMMANDS

- INSERT: The INSERT statement is a SQL query. It is used to insert data into the row of a table.

```
INSERT INTO employee (ID, Name, Department)
VALUES (452, “Fahad“, ”IT”);
```

- UPDATE: This command is used to update or modify the value of a column in the table.

```
UPDATE students
SET Name= 'Fahad A.'
WHERE ID= '452'
```

- DELETE: It is used to remove one or more row from a table.

```
DELETE FROM employee
 WHERE ID=“452";
```

DATA QUERY LANGUAGE (DQL)

DQL stands for Data Query Language and is a subset of SQL used to retrieve data from the database. DQL statements are used to retrieve data from one or more tables in a database.

It uses only one command:

- SELECT

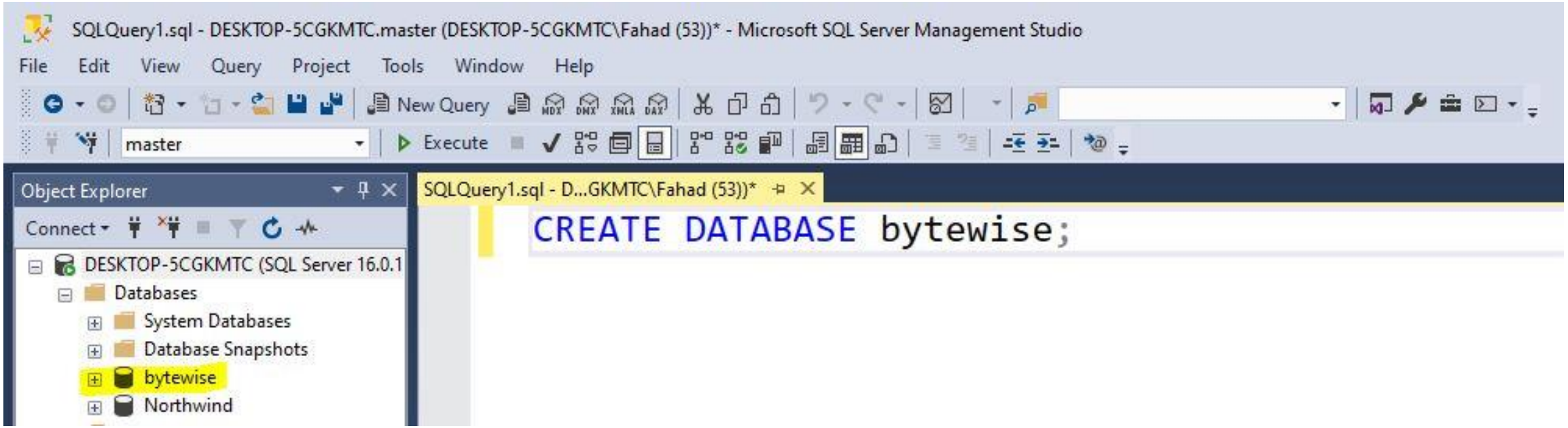
DQL COMMAND

- SELECT: This is the same as the projection operation of relational algebra. It is used to select the attribute based on the condition described by WHERE clause.

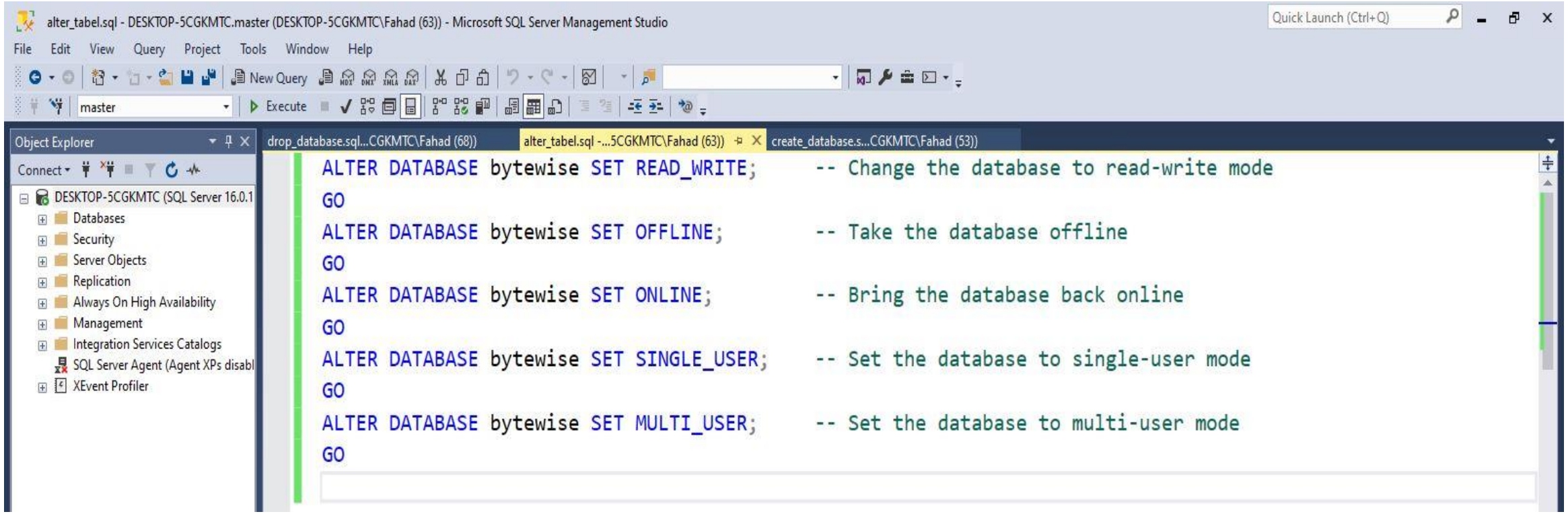
```
SELECT emp_name
FROM employee
WHERE Department = 'IT';
```

Week 2 / Task 4

CREATE DATABASE IN SQL SERVER



ALTER DATABASE IN SQL SERVER



ALTER DATABASE IN SQL SERVER