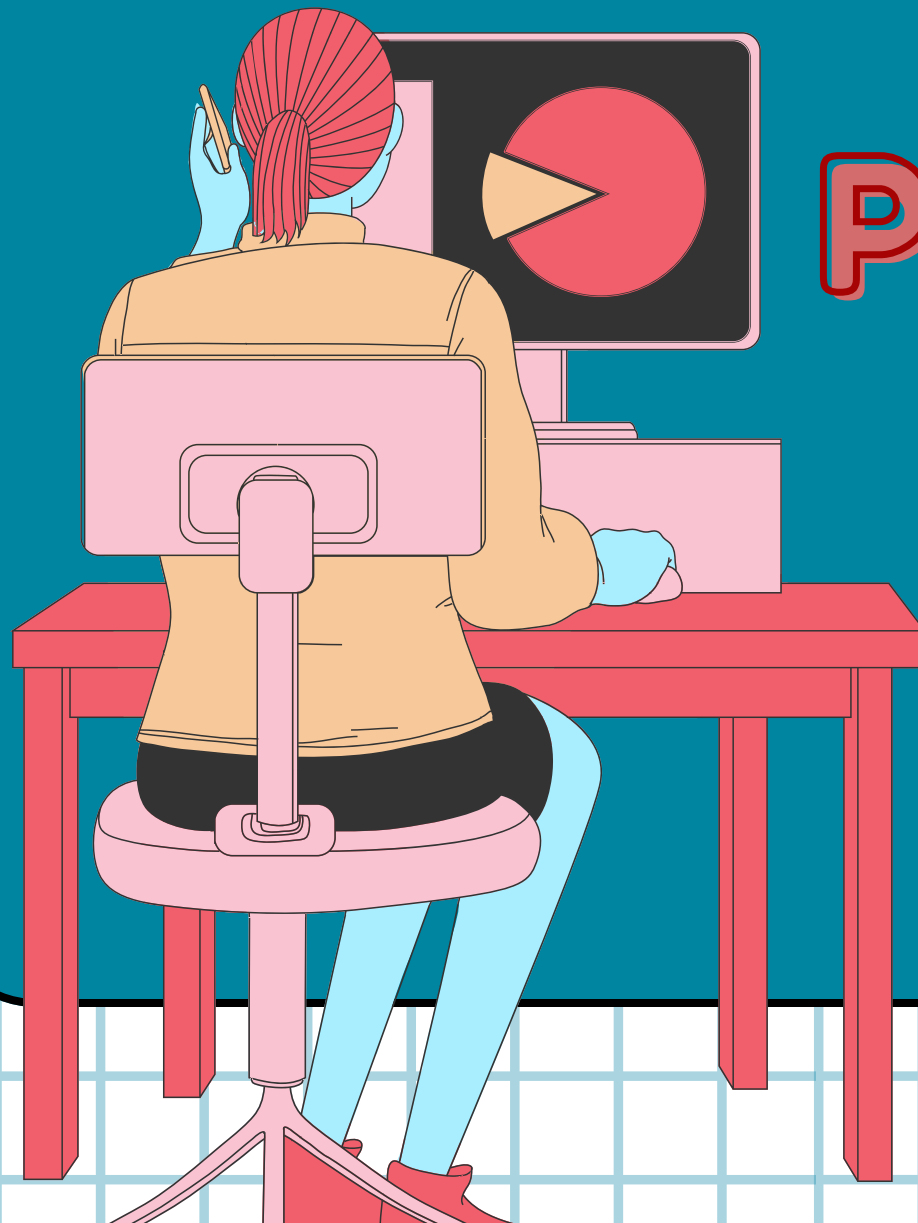


Structured Query Language

Part-3

A Lecture Presentation

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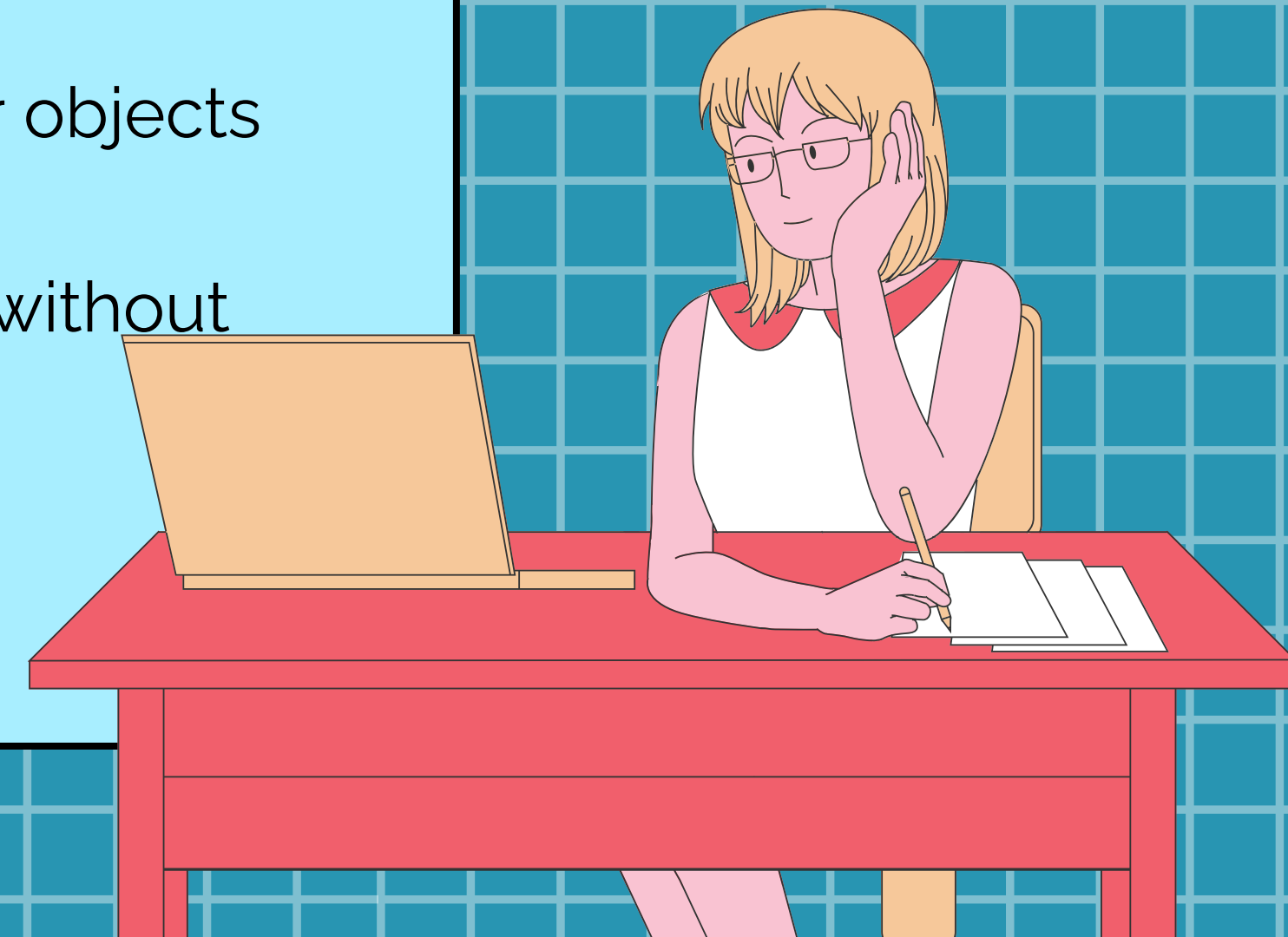
DDL (DATA DEFINITION LANGUAGE)

DDL (Data Definition Language) refers to SQL commands that define or modify the structure of a database. These commands affect the schema or the objects within the database, such as tables, views, indexes, and schemas themselves. The changes made by DDL commands are permanent and are stored in the database's metadata. Commands define the structure of the database but do not deal with data manipulation or querying.



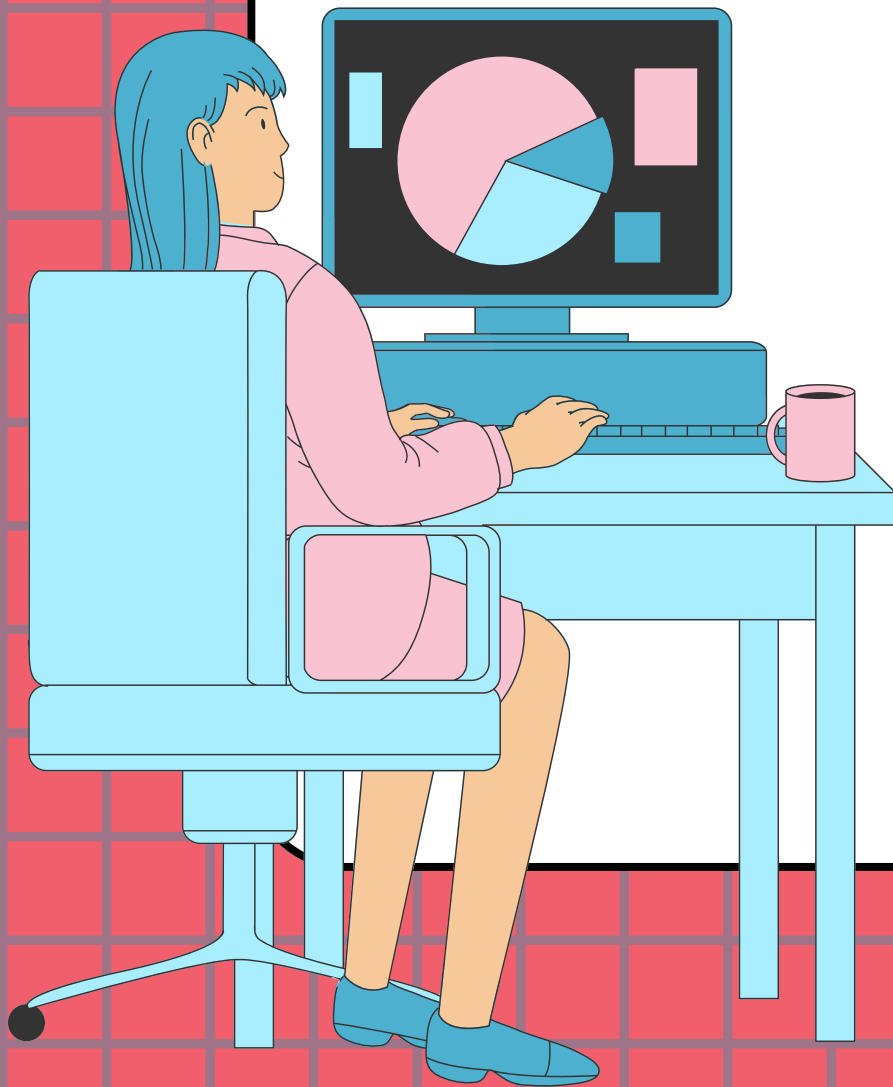
KEY DDL COMMANDS

- **CREATE** – Creates a new table, database, view, or other database objects.
- **ALTER** – Modifies an existing database object, such as adding or deleting a column in a table.
- **DROP** – Deletes a table, database, view, or other objects from the database.
- **TRUNCATE** – Removes all records from a table without affecting its structure (faster than DELETE).
- **RENAME** – Changes the name of an existing database object.



DML (DATA MANIPULATION LANGUAGE)

DML (Data Manipulation Language) refers to SQL commands that are used to manage and manipulate the data within database tables. Unlike DDL commands, DML commands focus on inserting, updating, and deleting data, not the database structure. The changes made by DML commands are permanent and affect the data stored in the database. DML commands allow users to interact with and manage the actual data in the database.



KEY DML COMMANDS

- **SELECT** – Retrieves data from one or more tables.
- **INSERT** – Adds new rows of data to a table.
- **UPDATE** – Modifies existing data in a table.
- **DELETE** – Removes rows of data from a table.



DCL (DATA CONTROL LANGUAGE)

DCL (Data Control Language) refers to SQL commands that control access and permissions for users in a database. These commands help manage who can access and modify data, providing security and restricting unauthorized access to sensitive information. DCL ensures that only authorized users can perform actions on the data, providing a layer of security and access control in the database system.



KEY DCL COMMANDS

- **GRANT** – Gives a user specific privileges (e.g., SELECT, INSERT, UPDATE) on a database object (e.g., table or view).
- **REVOKE** – Removes specific privileges from a user on a database object.



DTL (DATA TRANSACTION LANGUAGE)

DTL (Data Transaction Language) refers to SQL commands that manage transactions within a database. A transaction is a sequence of operations performed as a single unit, which ensures data integrity and consistency. DTL commands are used to begin, manage, and finalize these transactions. DTL ensures that a series of operations is executed reliably, maintaining the ACID properties (Atomicity, Consistency, Isolation, Durability) of a transaction.



KEY DTL COMMANDS

- **COMMIT** – Saves all changes made during the current transaction permanently to the database.
- **ROLLBACK** – Undoes all changes made during the current transaction, reverting to the state before the transaction began.
- **SAVEPOINT** – Sets a point within a transaction to which you can later roll back, offering more granular control over transaction management.
- **SET TRANSACTION** – Configures properties for the transaction, such as isolation level.



DQL (DATA QUERY LANGUAGE)

DQL (Data Query Language) refers to SQL commands that are used to query and retrieve data from a database. The primary purpose of DQL is to fetch data in a structured manner, often with filtering, sorting, and aggregating capabilities. DQL commands do not modify the data; they only allow users to view the data stored in the database. It's primarily used for data retrieval.



KEY DQL COMMAND

SELECT – Retrieves data from one or more tables. It can be used with various clauses (e.g., WHERE, ORDER BY, GROUP BY) to filter, sort, and aggregate data.

