2a. https://github.com/BredaUniversityADSAI/2023-24d-fai1-adsai-personal-DominikPtaszek231643/blob/main/Datalabprep\_231643/Week1\_231643/Day3\_231643/introduction\_to\_sql.pdf

2b. SQL database is a relational database which indicates that it is based on connection between tables called keys. Moreover, SQL stands for Structured Query Language which is responsible for querying, updating or manipulating data stored in such database. Moreover, it differs from NoSQL by different approach towards data storage. SQL database focuses on handling structured data. For instance, every field has pre-defined type of data it can contain. On the other hand, NoSQL is well-suited for complex, diverse and unstructured data information storage. Moreover, NoSQL stands for Not only SQL. Therefore, it does not solely relies on SQL language.

2c.

Advantages:

Well-suited for structured data

Simultaneous access from many devices

Predictable behavior in various situations

Disadvantages:

Expensive in scaling

Not efficient in storing unstructured data

Less-beginner friendly than NoSQL databases

3a

Data warehouse is like a vast library which is meant to hold massive amount of past and current data information. Moreover, it is focused on gathering data from multiple sources. Thus, it is perfect to perform data analysis and identify notable trends. It is critical concept in significant companies to adjust products to client needs on the fly.

3b.

Datalake is a massive pool of raw data for which the goal has not yet been determined. Moreover, data stored in datalake is not filtered or processed unlike in data warehouse. This a great system to have this agility and greater flexibility. Further addition to this system would be a data warehouse which could be built on top of datalake. This approach is called data lakehouse which connects advantages of both solution without limiting the possibilities of use

5a. I watched it

5b.I installed PostgreSQL

5c.I installed DBeaver

6a. When you try to create a table with a name that already exists in the database, the database system will provide an error stating that the table cannot be created because it already exists. This avoids overwriting or duplicating existing database structures.

6b.

Both Example 1a and Example 1b attempt to insert multiple records into the youth table, with the ClientKey used as the PRIMARY KEY. The PRIMARY KEY constraint requires that values be unique across the table, meaning no two rows can have the same ClientKey.

-- Using Example 1a format but with unique ClientKeys

INSERT INTO youth VALUES

(1, 24, 'Jan', 4657, 2014),

(3, 51, 'Jan', 45, 2014), -- Changed ClientKey from 1 to 3

(2, 205, 'Anne', 6778, 2008);

In example 2 is attempting to insert a record into the youth table without providing the string value for Bert in quotes. In SQL, textual data must be enclosed in single quotes.

INSERT INTO youth VALUES (11, 106, 'Bert', 2234.50, 2005);

In example 3 attempts to delete a row from the youth table using incorrect syntax. The statement incorrectly tries to delete a specific column (ClientKey) from the rows.

DELETE FROM youth

WHERE ClientKey = 11; -- Assuming we want to delete the row where ClientKey is 11

6c. PRIMARY KEY Constraint: Ensures each row in a table is unique and not null, facilitating reliable data retrieval and entity integrity.

FOREIGN KEY Constraint: Establishes a relationship between tables, ensuring referential integrity by linking a column or group of columns to the primary key of another table.

NOT NULL Constraint: Prevents a column from holding a null value, ensuring that critical fields always contain data, which is essential for data completeness and accuracy.