1. **Primary and Secondary Files in Databases:**

   - The **primary file** is the main file (usually with a name ending in `.mdf`) and contains the primary data and system database.

   - **Secondary files** (usually ending in `.ndf`) are additional files for storing extra data when the primary file is full or when you want to organize data across multiple files.

2. **File Extensions and Their Contents:**

   - `.mdf`: The main data file containing tables and the database.

   - `.ndf`: Additional secondary data files.

   - `.ldf`: The transaction log file, which records all changes made to the database so they can be recovered or rolled back.

3. **Files and Filegroups:**

   - **Files** = data storage files (like `.mdf`, `.ndf`) or log files (`.ldf`).

   - **Filegroups** = a collection of data files grouped together to facilitate data management or improve performance (you can store tables or indexes in each filegroup).

4. **Normalization vs. Mapping:**

   - **Normalization**: Organizing and structuring tables to reduce redundancy and ensure data integrity.

   - **Mapping**: Converting entities or models into tables initially, without optimizations like reducing redundancy.

   - **Difference**: Normalization improves and organizes, while mapping is simply a basic conversion.

5. **Denormalization:**

   - The opposite of normalization, where we combine tables together to reduce the number of joins and speed up data reading.

   - Used when performance is important, especially in systems with intensive read queries like reporting systems.

6. **Clustered Index and Primary Key:**

- A **clustered index** makes the physical ordering of data on disk follow the primary key.

- This means the data is stored in an organized and sequential manner according to the primary key, which makes searching faster.