1. Key Terms:

Database: A structured set of data held in a computer, typically organized in tables for efficient retrieval.

Table: A collection of related data entries organized in rows and columns.

Record: A single row in a database table representing a complete set of related data.

Field: A single piece of data within a record, corresponding to a column in a database table.

Primary Key: A unique identifier for each record in a table, ensuring no duplicates and enabling efficient data retrieval.

SQL (Structured Query Language): A domain-specific language used for managing and manipulating relational databases.

Query: A request for information from a database, typically in the form of a SQL statement.

Index: A data structure that improves the speed of data retrieval operations on a database table.

Normalization: The process of organizing a database structure to minimize redundancy and dependency, enhancing data integrity and efficiency.

Database Management System (DBMS): Software that provides an interface for users to interact with databases while managing data storage, retrieval, and manipulation.

2. Discussions:

2.1.1. Purpose of a Primary Key: The primary key uniquely identifies each record in a table. For example, in a table storing employee information, the Employee ID could serve as the primary key. It ensures data integrity by preventing duplicate entries and facilitates efficient data retrieval.

2.1.2. DBMS vs. Database: A database is a structured collection of data, while a DBMS is software that facilitates the creation, maintenance, and manipulation of databases. In other words, a database is like a container for storing data, while a DBMS is the tool used to manage and interact with that data.

2.1.3. Importance of Normalization: Normalization reduces data redundancy and dependency, leading to improved data integrity and efficiency. For instance, by breaking down a table with redundant data into multiple tables and establishing relationships between them, normalization ensures that each piece of data is stored only once, reducing the risk of inconsistencies and anomalies in the database. This enhances data reliability and makes it easier to maintain and update the database structure.