Term	Meaning
Attributes	In database design an attribute represents an entity's property. For example, in the entity Employee the attribute EmployeeID is an attribute. Other attributes could be EmployeeName or EmployeeEmail. After normalisation, the attribute became the table's columns.
Cardinality ratio	Cardinality ratio represents the degree of participation of one entity in another entity. It is commonly represented by one-to-one, one-to-many and many-to-many or in their shorthand notation 1:1, 1:N and N:M.
Conceptual data model	The conceptual model is high-level or abstract representation of a database system in the real world. It is presented as a diagram often called entity relationship (ER) or conceptual schema.
Data structures	Data structures are the name given to organised ways of organising data for a specific purpose. The purpose can be to store, manipulate, or retrieve data or how the data is stored physically or in memory. In databases, this includes from a table to indexes, files, and pages.
Data types	Data types are the classification given to distinct types of data, including their ranges and format. Typical data types in databases are integers (INT(),) decimal (DEC(x.y)), fix character length(CHAR(), variable length (VARCHAR()) and date.
Data dictionary	In a database, the data dictionary is a document that collates the database table definitions and as a minimum includes table name, column names and datatype (with ranges) and other precision parameters such as NULL, UNIQUE, and so on.
Data redundancy and duplication	Any data that is unnecessarily duplicated is redundant and should be deleted. The process to identify and solve this problem is called normalisation.
Entities	In a database an entity represents an object about which the database needs to store information. After normalisation, the entities will become the database tables.

Term	Meaning
Entity relationship diagram (ERD)	The ERD is a graphical model that represents a database for a specific domain. The main components of an ERD are entities, attributes, and relations (cardinality ratio). There are a few notations and symbols that can be used to draw an ERD.
Foreign key	A foreign key is defined in a second table which relates to the primary key in the first table. The primary and foreign keys share the same values and establish a link between two related tables. Foreign key constraints can be applied to the relationship which can prevent related records from being removed.
Horizontal scalability or	Scalability is the solution that you try to address database performance load issues due to increased data volumes.
Scaling out	Adding more machines (in parallel) to distribute the data and data processing. SQL databases are better suited for horizontal scalability.
Logical data model	The logical data model is derived from the conceptual model, but it contains DBMS-specific information in relation to entities, attributes, primary and feign keys not present (or not necessary) in the conceptual model. The conceptual model is usually produced before the DBMS has been selected, often as a communication tool with stakeholders.
Index	An index can be defined on one or more columns, allowing database users to quickly locate records, in a comparable way to using an index in a book. For example, in a customer table, we could index the last name of each customer. Retrieving a customer using their last name can be achieved quickly using an index, compared to not using one. This would be akin to paging through a book starting at the front, to find the information, rather than using the index.
Normalisation	Normalisation is the process used in relational databases to reduce redundancy and duplication and ensure efficient storage of the data. The process is implemented with three main normal forms or set of normalisations rules, 1NF, 2NF, and 3NF. The process can be extended with other normal forms.

Term	Meaning
Physical data model	The physical data model is derived from the logical data model and represents the system as it is going to be implemented.
Primary key	A primary key can be defined on one or more columns, to uniquely identify a particular row. A primary key defined across multiple columns is called a composite key.
Referential integrity constraint	The referential integrity constraint checks that the foreign key in an entity refers to and always corresponds to an existing primary key in other entity and must fulfil two conditions: 1. The foreign key column must have the same declaration as the primary key. 2. A value in the foreign key column must be equal to a value in the primary key column or set to NULL.
Relational database	An organised and structured set of data held in interrelated tables. Each table typically shares data that is common with other tables, in columns that are defined in a primary/foreign key relationship.
Table	A table contains a series of rows (or records), and columns (or fields). Each column is of a particular data type, for example, text-based, numeric, or date-based. Each row typically holds unique data. For example, a table of customers.
UML	UML (unified modelling language) is a standard way used to visualise the design of a system. There are several UML diagrams that can be used to achieve this goal, including the use case diagram, class diagram, activity diagram, and sequence diagram.
User needs analysis	User needs analysis is the research, communication, and data gathering activities carried out to identify the needs and expectations that users have regarding products and services.
Validation rules or constraints	A validation constraints check and restrict input into a table. This is often achieved using CHECK constraints, semantic constraints, and triggers.

Term	Meaning
Vertical scalability or Scaling up	Scalability is the solution that you try to address database performance load issues due to increased data volumes. Adding more and better resources to existing machine. NoSQL databases are better suited for vertical scalability.

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