TABLE. In relational databases and SQL databases a table is a set of data elements (values) that is organized using a model of horizontal rows and vertical columns. The columns are identified by name, and the rows are identified by the values appearing in a particular column subset which has been identified as a candidate key. A table has a specified number of columns but can have any number of rows. Besides the actual data rows, tables generally have associated with them some "header" information, such as constraints on the table or on the values within particular columns.

RELATION. Strictly speaking, a relational database is merely a collection of relations (frequently called tables). Other items are frequently considered part of the database, as they help to organize and structure the data, in addition to forcing the database to conform to a set of requirements.

COLUMN. In the context of a relational database, a column of a table is a set of data values of a particular simple type, one for each row of the table. The columns provide the structure according to which the rows are composed. The term field is often used interchangeably with column, although many consider it more correct to use field (or field value) to refer specifically to the single item that exists at the intersection between one row and one column.

ROW. In the context of a relational database, a row—also called a record or tuple—represents a single, implicitly structured data item in a table. In simple terms, a database table can be thought of as consisting of rows and columns or fields. Each row in a table represents a set of related data, and every row in the table has the same structure.

PRIMARY KEY. In database design, a primary key (PK) is a value that can be used to identify a unique row in a table. Attributes are associated with it. Examples of primary keys are Social Security numbers (associated to a specific person) or ISBNs (associated to a specific book). In the relational model of data, a primary key is a candidate key chosen as the main method of uniquely identifying a row in a relation.

FOREIGN KEY. A foreign key (FK) is a field or group of fields in a database record that point to a key field or group of fields forming a key of another database record in some (usually different) table. Usually a foreign key in one table refers to the primary key (PK) of another table. This way references can be made to link information together and it is an essential part of database normalization. Foreign keys that refer back to the same table are called recursive foreign keys.

NORMALIZATION. In relational database management, a process that breaks down data into record groups for efficient processing. There are six stages. By the third stage (third normal form), data are identified only by the key field in their record. For example, ordering information is identified by order number, and customer information, by customer number. A major goal of normalization is to eliminate redundancy by having a non-key data element represented in only one place.

DATABASE MANAGEMENT SYSTEM. A collection of interrelated data together with a set of programs to access the data, also called database system, or simply database. The primary goal of such a system is to provide an environment that is both convenient and efficient to use in retrieving and storing information. A database management system (DBMS) is designed to
manage a large body of information. Data management involves both defining structures for storing information and providing mechanisms for manipulating the information. In addition, the database system must provide for the safety of the stored information, despite system crashes or attempts at unauthorized access. If data are to be shared among several users, the system must avoid possible anomalous results due to multiple users concurrently accessing the same data.

**SQL** (Structured Query Language). A language used to interrogate and process data in a relational database. Originally developed by IBM for its mainframes, all database systems designed for client/server environments support SQL. SQL commands can be used to interactively work with a database or can be embedded within a programming language to interface to a database. Programming extensions to SQL have turned it into a full-blown database programming language, and all major database management systems (DBMSs) support the language.

**STORED PROCEDURE.** In a database management system (DBMS), it is an SQL program that is stored in the database which is executed by calling it directly from the client or from a database trigger. When the SQL procedure is stored in the database, it does not have to be replicated in each client. This saves programming effort especially when different client user interfaces and development systems are used. Triggers and stored procedures are built into DBMSs used in client/server environments.

**TRIGGER.** A mechanism that initiates an action when an event occurs such as reaching a certain time or date or upon receiving some type of input. A trigger generally causes a program routine to be executed. In a database management system (DBMS), a trigger is an SQL procedure that is executed when a record is added or deleted. It is used to maintain referential integrity in the database. A trigger may also execute a stored procedure.

**REFERENTIAL INTEGRITY.** A database management safeguard that ensures every foreign key matches a primary key. For example, customer numbers in a customer file are the primary keys, and customer numbers in the order file are the foreign keys. If a customer record is deleted, the order records must also be deleted; otherwise they are left without a primary reference. If the DBMS does not test for this, it must be programmed into the applications.