



# Glossary

**1GL** First-generation language. The ones and zeros that computers use to communicate. Binary language.

**2GL** Second-generation language. Assembler language.

**3GL** Third-generation language. A general category of computer programming languages that tend to support structured or object-oriented programming in a manner that is closer to the spoken word than 2GLs. Common 3GLs: Java, C, FORTRAN, PHP, Perl.

**4GL** Fourth-generation language. Closer to the spoken word than 3GLs. The most well-known and widely used 4GL is SQL.

**administrator** See database administrator.

**aggregate** A single value representing any number of other values.

**alias** An alternative name for something. Example: “Joe” is an alias for “Joseph”.

**alphabetic** Describes the letters of the alphabet.

**alphanumeric** Describes the letters of the alphabet and numbers.

**ALTER** A SQL statement that modifies the structure, the name, or some other attribute of an existing object in the database. (Note: There are exceptions to this definition that occur when ALTER is combined with the keywords SESSION or STATEMENT.)

**ANSI** American National Standards Institute. An organization that oversees a number of voluntary committees that set standards for many industries, including software development and information technology.

**attribute** A property or characteristic. Examples might include a name, ZIP code, or entry date. Corresponds to a column in a table. *Also see* entity.

**BLOB** Binary Large Object. A datatype that stores unstructured binary data, up to 128 terabytes. BLOB datatypes can be rolled back or committed. Suitable for storing multimedia data.

**Boolean** Refers to the valuation of expressions as either true, false, or unknown, and using the logical operators AND, OR, and NOT. Named after the mathematician George Boole.

**built-in** Already present. SQL built-in functions are those that come already installed in a database, as opposed to user-defined functions, that you can create yourself and add to the set of available functions in a database.

**Cartesian product** The combination of each row in one table with every row in another table. The result of two or more tables joined together with no specified join criteria. Also known as a cross-join.

**case insensitive** Without regard for whether a letter is in uppercase or lowercase form. For example, when performing a case-insensitive comparison of the letter 'A' and the letter 'a', the two are equal.

**case sensitive** With regard for whether a letter is in uppercase or lowercase form. For example, when performing a case-sensitive comparison of the letter 'A' and the letter 'a', the two are not equal.

**character** The symbols of a writing system.

**character class** Also known as POSIX character classes. Shorthand references in regular expressions for specifying a range of characters.

**character set** An encoding system for representing characters in bytes.

**CHECK constraint** A rule on a table that filters incoming data. Only data that satisfies that rule will be accepted by the table. Also known as a CHECK integrity constraint.

**child** A row or record that is one level below another level in a hierarchical data relationship. For example, if one table contains "orders", and another contains the "line items" that each order contains, then a table containing those "line items" would be said to be the "child table". A child table is one that has a foreign key relationship with a parent table, so that rows in the parent table are one level higher in the hierarchy than the rows in the child table. *See also* orphan; parent.

**clause** A subset within a larger construct, such as a portion of a statement or command.

**CLOB** Character Large Object. A datatype that stores large amounts of character data, up to 128 terabytes. CLOB datatypes can be rolled back or committed.

**Codd** The last name of Dr. E.F. Codd, the person credited with forming the original ideas that led to the creation of modern-day relational database programming.

**column** A vertical space in a database table. Columns have a name and a datatype.

**command** A directive.

**COMMENT** A SQL statement to add comments to the data dictionary for database objects you have created.

**commit** To cause changes within the current session to be made permanent.

**COMMIT** A SQL statement to save data to the database.

**condition** An expression that evaluates to a meaningful result to indicate the next course of action. Conditions are used to determine if a statement will take a particular action or not; the decision hinges on whether the condition evaluates to true or false.

**conditional** A situation that depends on the evaluation of a condition.

**connect** Establish a user session with the database.

**constant** See literal.

**constraint** A rule defining how data is to be processed. A table can have one or more constraints that may restrict it to having certain kinds of data and rejecting others.

**conversion** The act of transforming something from one form to another. Conversion functions in SQL can change data from one datatype to another datatype.

**correlated subquery** A subquery that uses, as part of its execution logic, data from the outer query.

**CREATE** A reserved words that starts one of many SQL statements, used to create database objects such as tables, views, indexes, sequences, and synonyms.

**cross-join** See Cartesian product.

**data dictionary** A set of tables and views automatically maintained by the Oracle system for documenting the characteristics and status of all objects in the database.

**data file** A physical file in the file system for storing data, located in either the operating system file system, or in an Automated Storage Management disk group.

**database** An organized collection of information.

**database administrator** Often abbreviated DBA. The job of administering the database. The DBA often is tasked with installing the database software and configuring it for use, performing backups and generally making the database system available for use, maintaining at optimal performance, and protecting against loss of data.

**datatype** A set of rules defining a subset of data.

**date** A calendar date.

**datetime** Any of the set of datatypes DATE, TIMESTAMP, TIMESTAMP WITH TIME ZONE, or TIMESTAMP WITH LOCAL TIME ZONE.

**daylight saving time** Time defined as a one-hour offset from standard time to provide more daylight at the end of the working day during seasons in which daylight is limited.

**DBA** See database administrator.

**DBMS** Database management system.

**DDL** Data Definition Language. A subset of SQL. Refers to the set of SQL statements that is used to create database objects, modify their structure, and remove them from the database.

**default** When used in association with a parameter, “default” is the value of that parameter when no specific value is assigned. *See* parameter.

**DELETE** A SQL statement used to remove data from the database.

**deprecated** Said of a feature that may still exist but is no longer officially supported, and whose use is officially discouraged.

**developer** An individual engaged in the job of creating applications.

**development** The act of creating applications.

**DML** Data Manipulation Language. A subset of SQL. Refers to the set of SQL statements that is used to query existing data in database objects, add data to existing database objects, modify that data, and remove the data from the database.

**DROP** A reserved word used to start one of many SQL statements, all of which are used to remove certain existing database objects from the database.

**Ellison** The last name of Larry Ellison, founder of Oracle Corporation, the first company to release a commercial RDBMS product.

**entity** An organized collection of attributes in a data model. Corresponds to a table. *See also* attribute; ERD.

**equijoin** A join that uses an equality operator (the equal sign) in the join condition.

**ERD** Entity-relationship diagram. A diagram that shows entities and how they relate to each other. *See also* entity.

**escape character** A single character that can take on an alternative purpose separate from its character’s standard meaning. For example, a single quotation

mark is an escape character when preceding another single quotation mark in a text string delimited by single quotes, so that strings such as 'O"Brian' will be correctly interpreted as O'Brian in the database, rather than the truncated string 'O' followed by the characters *Brian*'—which would be meaningless in any SQL statement and would result in a syntax error.

**explicit commit** The COMMIT statement.

**expression** A combination of literal values, operators, variables, and functions, with the intent of computing a value of a particular datatype.

**external table** A SQL table that stores table metadata in the database but stores the table's data outside of the database.

**FLASHBACK** A SQL statement used to restore older versions of database objects.

**flashback operations** A set of operations that use undo data to support data recovery and the analysis of historical data over time.

**foreign key** A referential constraint in a table. A foreign key specifies one or more attributes in one entity that relate to one or more attributes in another entity. Values entered in the foreign key's attributes must already exist in the referenced table's corresponding attributes.

**function** A set of code that performs a particular task and returns a single result. A SQL function can be used within a SQL expression. A function is one type of subprogram, also known as a program unit. There is another form known as a procedure, which is not included on the exam.

**GRANT** A SQL statement used to give system privileges or object privileges to a user account.

**hierarchical query** A query that specifies multiple levels of relationship. Typically built on a self-join. Note that a typical join of two tables in a parent-child relationship can be said to be a two-level "hierarchy", technically that would be accurate. But the term "hierarchical query" in Oracle SQL is generally understood to indicate a particular type of query based on a data model that is capable of supporting more than two levels.

**IEEE** Institute of Electrical and Electronics Engineers. A non-profit organization with the mission to advance technology as it relates to the use of electricity.

**implicit commit** A commit event other than the COMMIT statement. The execution of DDL code will result in an implicit commit.

**inline view** A subquery that performs like a view in support of a single SQL statement.

**index** A database object that copies a subset of data from a table, presorted, and intended to support faster querying on the indexed table.

**inner join** A join of two or more tables in which a join condition is specified, and the result consists exclusively of rows in one table that match rows in the other table according to the join condition. If a row in one table has no matching counterpart in the other table, it is not included in the results.

**INSERT** A SQL statement used to store data in a database table.

**instance** One set of Oracle background processes and memory structures used to access a database.

**integrity constraint** *See* constraint.

**join** The act of connecting rows in one table with rows in one or more other tables, based on some criteria that determine how the data in the tables correlates to each other.

**key** One or more attributes—or columns—used in the definition of an integrity constraint. Keys include primary keys, foreign keys, and unique keys.

**keyword** A special word used in a SQL command or serving some other special purpose. Keywords are often reserved words, but they are not necessarily reserved.

**literal** A fixed data value. Also called a constant.

**LOB** Large Object. Any of a number of datatypes that store large amounts of information. *See also* BLOB; CLOB; NCLOB.



**lowercase** The letters of the alphabet in miniscule form, i.e., “a”, “b”, etc.

**MERGE** A SQL statement that performs a combination of INSERT, UPDATE, and/or DELETE statement functionality.

**metacharacter operators** Used to define patterns in regular expressions.

**metadata** Data about data. For example, is the “account number” at a given organization a numeric value, or is it an alphanumeric value? Or perhaps alphabetic? Metadata describes other data in high-level terms.

**multitable insert** A SQL INSERT statement that is able to add rows of data to one or more tables. Multitable inserts can be conditional or unconditional.

**namespace** A virtual location within the database in which no database objects may share the same name. All names must be unique within a given namespace.

**natural join** A join in which the join criteria are implied based on common names of columns in the tables being joined.

**NCLOB** National Character Set Large Object. A datatype that stores large amounts of character data in a national database character set. Stores up to 128 terabytes. NCLOB datatypes can be rolled back or committed.

**NLS** National Language Support.

**NLS parameters** Variables that customize the behavior of the database in accordance with a given locale. For example, NLS\_SORT.

**nonequijoin** A join condition that uses operators other than the equality operator to specify the join condition—such as greater-than or less-than operators.

**normalization** A specific series of processes intended to support the design of a database to maximize efficiency.

**NULL** Unknown. The absence of information.

**number** A digit.

**numeric** Said of a set of datatypes that accept number data.

**object** An item in the database. Objects have properties of structure and security.

**object privilege** The right to perform a particular task on a particular object in the database. *See also* system privilege.

**operator precedence** The rules defining the order in which operators within an expression are processed.

**operators** Symbols that perform tasks on values within an expression.

**ORA\_ROWSCN** A conservative upper bound of the latest commit time for the transaction that last changed the row. The actual commit SCN of the transaction can be somewhat earlier.

**Oracle** The leading RDBMS product on the market today.

**Oracle Corporation** The first company to produce a commercial RDBMS product.

**orphan** A child row in a child table for which there is no corresponding parent row in the corresponding parent table.

**outer join** A join of two or more tables in which a join condition is specified, and the result consists of rows in one table that match rows in the other table according to the join condition, as well as rows that do not necessarily match. If a row in one table has no matching counterpart in the other table, it may be included in the results.

**parameter** A variable that is passed to or from a function or procedure.

**parent** A row or record that is one level above another level in a hierarchical data relationship. For example, if one table contains “orders”, and another contains the “line items” that each order contains, then a table containing those “orders” would be said to be the “parent table”. A parent table is one that is referenced by a foreign key in a child table, so that rows in the parent table are one level higher in the hierarchy than the rows in the child table. *See also* orphan; parent.

**parse** To analyze code for syntactic accuracy. SQL code that is submitted for execution is parsed first and then executed upon successful completion of the parsing process.

**POSIX** Portable Operating System Interface (for Unix). A set of IEEE standards for defining standards and interoperability on a number of issues.

**precedence** A logical prioritization of a set of items.

**precision** Part of the definition of a numeric datatype. Precision specifies the number of significant digits in the numeric value. *See also* scale.

**predicates** These compare one expression to another to produce a true, false, or NULL result. Can be combined with Boolean operators AND, OR, and NOT.

**primary key** A unique non-NULL attribute in an entity, or a unique non-NULL column in a table.

**private synonym** A synonym that is not a PUBLIC synonym. There is no PRIVATE keyword.

**privilege** The right to perform a task in the database. *See also* object privilege; system privilege.

**procedure** A set of code that performs a particular task. A procedure may return anywhere from zero to multiple results. Procedures cannot be used within a SQL expression but instead are often invoked in statements by themselves.

**production** Professional use. Database applications in “production” are actively storing data for an ongoing organization, as opposed to database applications that are in development or testing.

**projection** The concept of querying a subset of columns from a table.

**pseudocolumns** Values that are defined automatically by the Oracle system for certain objects in the database, such as tables and sequences. Pseudocolumns can be selected like a column in a table.

**PUBLIC** A special database user automatically maintained by the database. PUBLIC represents all users in the database. Granting privileges to PUBLIC has the effect of granting them to all users.

**PURGE** A SQL statement to remove objects from the recycle bin.

**query** A SELECT statement. A request of the database for some of the data that is contained within it.

**RDBMS** Relational database management system.

**read consistency** The ability for data in the database to be read and joined in a manner that is accurate. Read consistency represents a view of data that is “frozen” in an instant of time. Read consistency becomes important when joining tables that are being modified in real time, so that as the database queries one table and then another, the combined records reflect what was intended.

**record** A set of data elements that are related to each other and represent a meaningful collection of information. One row can be a record; joined rows might also be a record.

**recycle bin** The structure in the SQL database into which dropped objects are tracked.

**redo logs** A set of operating system files that record all changes made to a database, whether those changes have been committed or not.

**referential integrity** A constraint, or rule, on one table’s column that requires any value to be stored in that column to be already present in another particular table’s column. *See also* foreign key.

**regular expression** A language of pattern matching. Not to be confused with expressions. Oracle’s support for regular expression is consistent with the POSIX and Unicode standards.

**relational** Having a relation or being related. A database is said to be relational when it is built on data objects that can be joined together based on common criteria within and among the objects.

**RENAME** A SQL statement used to change the name of certain objects in the database.

**reserved word** Special words set aside for special use and not available for application development. You cannot use reserved words as the names of database objects or variables.

**restore point** A marked point in time, to be recorded for possible future reference in support of flashback operations.

**REVOKE** A SQL statement to remove system privileges or object privileges that have been granted to a user account.

**role** A collection of one or more privileges.

**rollback** An action that restores the database to the most recent commit within the current session.

**ROLLBACK** A SQL statement used to restore the database to an earlier state. Cancels the effects on a transaction in progress.

**row** One set of values for the columns of a table.

**savepoint** A marked point in time, to be recorded for possible future rollback.

**SAVEPOINT** A SQL statement that marks a point in a session. Future uses of the ROLLBACK statement may choose to restore the database to the point marked by a SAVEPOINT statement.

**scalar subquery** A subquery that returns one column in one row as its output—in other words, a single value, as opposed to rows of values, or columns of values.

**scale** Part of the definition of a numeric datatype. Scale specifies where rounding will occur in the numeric datatype. *See also* precision.

**schema** A collection of tables owned by a user account.

**SCN** *See* system change number (SCN).

**segment** A level of logical database storage.

**SELECT** A SQL statement used to query one or more database tables.

**selectivity** The degree of uniqueness of values in a column. If all values in the column are identical, selectivity is said to be low. If the values are all unique, selectivity is said to be high.

**selection** The ability to query a subset of rows from a table.

**self-join** A join that connects rows in a table with other rows in the same table.

**semijoin** A query that returns rows that match an EXISTS subquery.

**sequence** A number generator. A database object.

**session** A user process in which the user interacts with the database.

**set operator** Any of the operators UNION, UNION ALL, INTERSECT, or MINUS.

**SQL** See Structured Query Language.

**standard time** Also known as Winter Time zones. Time as defined by UTC.

**statement** A command.

**string** A series of characters.

**Structured Query Language** A worldwide standard language for interacting with a database.

**subquery** A SELECT statement contained within another (outer) SELECT statement, so that the data of the subquery feeds into the processing of the outer query.

**superaggregate** An aggregation of aggregate values.

**synonym** An alias, or alternative name, for something in the database. A synonym is itself an object in the database.

**syntax** The rules for forming a statement, a command, or some other language construct.

**SYS** A built-in user account with DBA privileges that comes with all Oracle installations. SYS owns the data dictionary.

**SYSTEM** A built-in user account with DBA privileges that comes with all Oracle installations.

**system change number(SCN)** A marker that specifies a committed version of the database at a particular point in time. Each committed transaction is assigned an SCN. *See also* transaction.

**system privilege** The right to perform a particular task in the database. *See also* object privilege.

**table** A storage unit in the database that consists of columns and rows.

**tablespace** A mechanism in the database that is home to one or more tables and stores that data in one or more data files.

**TCL** Transaction Control Language. A subset of SQL. Refers to the set of SQL statements that is used to control a user's session in which DML statements are used. TCL determines if the results of a DML statement are allowed to be made permanent, or if they are undone from the database.

**text** Character-based data.

**time zone** A region of the earth that uses uniform standard time as an offset from UTC. There are currently 24 such regions defined in the earth, divided roughly by longitudinal lines. Also known as "time zone region".

**time zone name** The name of a time zone region. Examples: "Pacific/Auckland", "America/Indianapolis".

**time zone offset** A time difference between the local time and UTC.

**timestamp** A value representing the date and time.

**transaction** A series of one or more SQL statements that are executed between commit events.

**TRUNCATE** A SQL statement used to remove data from a database table.

**unconditional** Without restriction.

**undo segments** Segments that are maintained automatically by the database to support rollback operations, to assure read consistency, and to otherwise recover from logical corruptions.

**Unicode** An industry standard that attempts to create a standardized encoding of every character in every language in existence.

**unique** One of a kind.

**unique identifier** An unambiguous reference to something, leaving no doubt what is being referenced.

**UPDATE** A SQL statement used to modify data in a database table.

**uppercase** The letters of the alphabet in majuscule form, also known as capital letters, i.e., “A”, “B”, etc.

**user account** A process that provides password-protected access to and ownership of a set of database objects and privileges.

**UTC** Coordinated Universal Time. The new name for Greenwich Mean Time. The universal standard for measuring time internationally. UTC measures time as it exists at the Royal Observatory of Greenwich, London.

**variable** A small unit of storage, represented by a name and a datatype, for holding values that can be changed.

**view** A named query that is stored in the database.

**Winter Time zone** See standard time.