

Database Terminology and Concepts

Criteria – the conditions that control which records to display in a query.

Database – a collection of information related to a particular topic or purpose. There are two types of databases: Nonrelational and relational.

Database management system – a program such as Access, that stores, retrieves, arranges, and formats information contained in a database.

Database model – the structure of the information stored in the database. This model should include how each individual piece of information relates to all the other information in the database.

Proper planning, even in the initial pencil-and-paper stage, ensures that the database you create and maintain is efficient and provides easy access to the information you need most. A well-designed database should eliminate the need to enter the same data repeatedly and prevent duplication of information, thereby maintaining the integrity of the data.

Database modeling – the process of strategically planning where to store each piece of information you wish to include in your database.

Datasheet – a format of columns and rows displaying information.

display formats (format) - Specifies how data is displayed and printed. An Access database provides standard formats for specific data types, as does an Access project for the equivalent SQL data types. You can also create custom formats.

Field – a specific item of information containing a homogenous set of values throughout the table. Fields appear as columns in a table and as cells in a form.

field data types - a characteristic of a field that determines what kind of data it can store. For example, a field whose data type is Text can store data consisting of either text or number characters, but a Number field can store only numerical data.

Field list – a small window that lists the fields of a selected table or data source.

Form – a structured document with specific areas for viewing or entering data one record at a time. Forms can be constructed in columnar, tabular, datasheet, or a simple justified format.

Join line – the line between two tables identifying the common field between them.

Nonrelational database – also called a flat file, stores information in one table. Nonrelational databases are useful for information stored in a single list, such as a list of student names, addresses, and phone numbers.

Object – a component of a database, such as a table, query, form, or report.

One-to-many relationship – a relationship in which a record in the primary table can be related to one or more records in the related table.

One-to-one relationship – a relationship between two tables in which for each record in the first table, there is only one corresponding record in the related table.

Primary Key – a field in a table whose value is uniquely identifies each record in the table.

Query – a request for a particular collection of data in a database.

Query By Example (QBE) grid – the portion of the Query Design window used for selecting fields, setting criteria, and setting sort order in a select query.

QBE grid rows

ROW	DESCRIPTION
Field	Displays the name of the field used in the query.
Table	Displays the name of the table from which a field is selected.
Sort	Determines the order in which to display the records in the recordset.
Show	Determines whether the field used appears in the recordset.
Criteria	Displays selective criteria used to filter the query.
Or	Displays additional criteria for the query.

Record – an individual listing of related information consisting of a number of related fields stored in a table. A record is also called a row in the datasheet.

Recordset – the set of records and fields that result from running a query.

Related table – a table with a common field that uses values stored in a primary table.

Relational database – is useful for maintaining and analyzing complex information stored in a number of tables. For example, in addition to storing student names, you can list TAKS test scores, or demographic information related to the students in other tables in the same database.

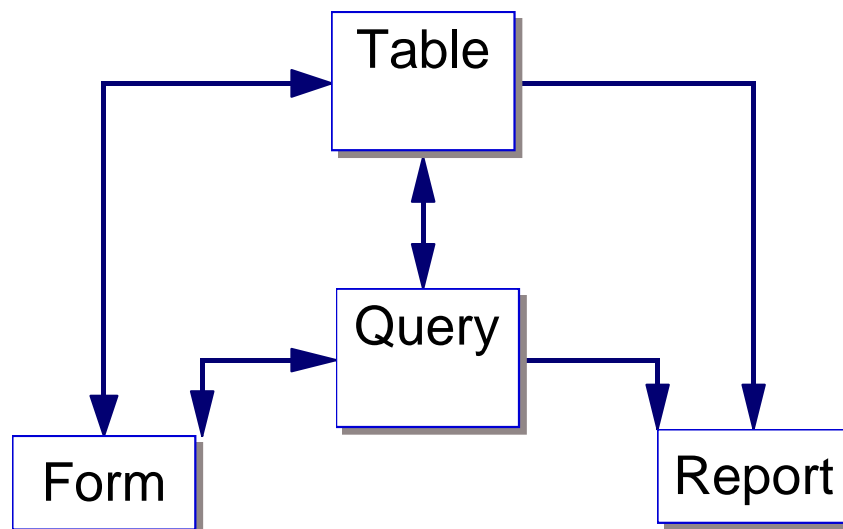
Relationship – the direct or indirect association between any two tables in a database.

Report – a formatted collection of information organized to provide printed data on a specific subject.

Select Query – a query that answers a question about one or more tables by limiting the number of records and fields displayed.

Table – an arrangement of related information stored in columns and rows.

Data Flow Diagram



OBJECT	FUNCTION
Table	Stores a collection of information about a specific database topic.
Query	Lists specific fields and records from a table based on selective criteria.
Form	Displays data from a table or a query one record at a time.
Report	Presents data from a table or query in printable format.
Page	Documents created in Access for display on an intranet or the Internet.
Macro	Automates a repetitive series of commands.
Module	Collects a group of Visual Basic for Applications declarations and procedures and stores them as a unit.

OBJECT	VIEWS	FUNCTION
Table	Design View	Create and design a table to your specifications.
	Datasheet View	View and modify the data in a row-and-column format.
Query	Design View	Create and design a query to your specifications.
	Datasheet View	View and modify the query data in a row-and-column format.
	SQL View	View the query as an SQL statement.
Form	Design View	Create and design a form to your specifications.
	Form View	Modify and view data in the fields of the form.
	Datasheet View	View and modify the form data in a row-and-column format.
Report	Design View	Create and design a report to your specifications.
	Print Preview	View the report as it appears when printed.
	Layout Preview	View the layout of the report to confirm design specifications.
Page	Design View	Create and design an Access Data Access Page to your specifications.
	Page View	View and modify as a Web page.

Primary Key and Table Relationships

To avoid duplication of information, a good database modeling technique is to use a field or fields that uniquely identify each record in a database table. Such fields might include unique employee ID number or a student ID number. A field that functions in this way is called a primary key. By default, Microsoft Access sorts records in primary key order, but primary keys serve other functions as well. Primary keys establish a relationship between specific records in two tables containing a common field.

Primary keys are displayed in bold in the Relationships window.

Data types in a Table

Microsoft Access provides two field data types to store data with text or combinations of text and numbers: Text and Memo.

Use a **Text data type** to store data such as names, addresses, and any numbers that do not require calculations, such as phone numbers, part numbers, or postal codes. A Text field can store up to 255 characters, but the default field size is 50 characters. The FieldSize property controls the maximum number of characters that can be entered in a Text field.

Use the **Memo data type** if you need to store more than 255 characters. A Memo field can store up to 65,536 characters. If you want to store formatted text

or long documents, you should create an OLE Object field instead of a Memo field.

Both Text and Memo data types store only the characters entered in a field; space characters for unused positions in the field aren't stored.

You can sort or group on a Text field or a Memo field, but Access only uses the first 255 characters when you sort or group on a Memo field.

Microsoft Access provides two field data types to store data containing **numeric values**: Number and Currency.

Use a **Number** field to store numeric data to be used for mathematical calculations, except calculations that involve money or that require a high degree of accuracy. The kind and size of numeric values that can be stored in a Number field is controlled by setting the FieldSize property. For example, the Byte field size will only store whole numbers (no decimal values) from 0 to 255 and occupies 1 byte of disk space.

Use a **Currency** field to prevent rounding off during calculations. A Currency field is accurate to 15 digits to the left of the decimal point and 4 digits to the right. A Currency field occupies 8 bytes of disk space.

Number and Currency fields provide predefined, or you can create a custom format

Microsoft Access provides the **AutoNumber** data type to create fields that automatically enter a unique number when a record is added. *Once a number is generated for a record, it can't be deleted or changed.* An AutoNumber field can generate three kinds of numbers: sequential numbers that increment by one, random numbers, and Replication ID (also referred to as GUIDs—globally unique identifiers) numbers. AutoNumbers that increment by one are the most common kind of AutoNumber and are a good choice for use as a table's primary key. Random AutoNumbers will generate a random number that is unique to each record within the table..

*(Primary Key: One or more fields (columns) whose values uniquely identify each record in a table. A primary key cannot allow **Null** values and must always have a unique index. A primary key is used to relate a table to foreign keys in other tables.)*

KEYBOARD METHODS

KEY	EFFECT
[TAB]	Next field
[SHIFT TAB]	Previous field
[HOME]	First field of current record
[END]	Last field of current record
[DOWN ARROW]	Down one record
[UP ARROW]	Up one record
[CTRL HOME]	First field of first record
[CTRL END]	Last field of last record

DATA ENTRY KEYBOARD SHORTCUTS

SHORTCUT	DESCRIPTION
[CTRL `]	Inserts a value from the same field in the previous record.
[CTRL ;]	Inserts the current date.
[CTRL :]	Inserts the current time.
[CTRL +]	Adds a record.
[CTRL -]	Deletes a record.

KEYBOARD EDITING SHORTCUTS

SHORTCUT	DESCRIPTION
[DELETE]	Deletes the character to the right of the insertion point.
[BACKSPACE]	Deletes the character to the left of the insertion point.
[INSERT]	Switches between insert mode and type-over mode.
[ESC]	Cancel changes in the current field or current record.
[F2]	Switches between editing mode and navigation mode.
[SHIFT F2]	Opens a window for editing the contents of long fields.
[RIGHT ARROW]	Moves the insertion point to the next field or one character to the right.
[CTRL RIGHT ARROW]	Moves the insertion point one word to the right.
[LEFT ARROW]	Moves the cursor one character to the left within a field.
[CTRL LEFT ARROW]	Moves the insertion point one word to the left.
[END]	Moves the insertion point to the end of the line.
[CTRL END]	Moves the insertion point to the end of the field in a multiple-line field.
[HOME]	Moves the insertion point to the beginning of the line.
[CTRL HOME]	Moves the insertion point to the beginning of the field in a multiple-line field.
[TAB]	Moves the insertion point to the next field.
[DOWN ARROW]	Moves the insertion point to the next record.
[ENTER]	Moves the cursor one field to the right.

COMPARISON OPERATORS

OPERATOR	MEANING	EXAMPLE
= (optional)	Equal to	=50
<	Less than	<10
>	Greater than	>100
<=	Less than or equal to	<=25
>=	Greater than or equal to	>=25
<>	Not equal to	<>0

REPORT DESIGN SECTIONS

SECTION	FUNCTION
Report header	Displays a header at the top of the first page only. Includes name or the source table or query.
Page header	Displays a header at the top of every page. Inserts field names from the source table or query.
Group header	Displays a header at the beginning of each new group. Inserts the field name used for grouping.
Detail	Displays the records of the fields listed in the group header.
Group footer	Displays a footer at the conclusion of each group. Inserts the field name used for grouping.
Page footer	Displays a footer on the bottom of every page. Typically includes page numbers and dates.
Report footer	Displays a footer on the last page only. Can include any summary information, such as a grand total.