

Database Uses in Business



I. **Database Use and Purpose** – A **database** is a tool used to organize, store, retrieve, and communicate groups of related information.

A. Examples of databases and database uses in business and society:

1. a phone book
2. online library card catalog
3. payroll data including employee names, social security numbers, pay rates, exemptions, etc.
4. eBay and other online businesses use databases to maintain inventory and keep track of customers, products, vendors, pay pal accounts

B. **Tables** are the building blocks of all databases. They are used to group and organize the information within a database.

1. A **table** is an arrangement of columns and rows. It is the fundamental building block of all databases.
2. An **entry** is a single piece of data entered in a database table.
3. A **field** is a grouping or category of similar information contained in a table: the column heading
4. A **record** is a complete description of all of the fields related to one item in a table; such as a person, event, or product; everything on one row

II. Data Types, Field Properties, Data Entry, and Printing

A. Before a database can be built, the user must first define its purpose and determine how the data will be organized into fields.

1. Fields should be formatted in accordance with the data they contain so that the database can be searched, used in calculations, and sorted as needed for communicating.
2. A field name should be short and descriptive
3. A **data type** defines the *value* of a cell and a **field property** defines the *format* of the data within the cell

B. **Data types:** used to control how data in a particular field will be searched, sorted, or used in calculations. The default format is text.

1. **Text** – used for data that will be sorted in alphabetical order or listed randomly, but will **not** be used in mathematical calculations.

2. **Memo** – a data type used for lengthy entries that allows combinations of text and numbers, to write a note or explanation
 3. **Number** – used for data that may be **calculated**, sorted, or filtered.
 4. **Date/time** – data type used to arrange and sort data **chronologically**, often used with the input mask field property
 5. **Currency** – data type used to format numbers as decimal values with a **dollar sign**. The default format for currency is two decimal places.
 6. **Auto Number** – used to automatically assign a number to each record and to assist in preventing duplication of data. Often used to assign the **Primary Key**
 7. **Yes/No** – a data type in toggle format that allows a user to select a yes or no value in a database cell. The **default setting is No**.
 8. **Lookup Wizard** – a data type used to define preset values for database entries. This feature increases productivity and accuracy by reducing the amount of data entry required. Makes a **drop down box with predefined values**.
- C. **Field properties**– used to control how data is entered in a field
1. **Field size** – used to control the size of the field, measured in characters
 2. **Format** – used to control the layout of the field, such as one or two decimal places
 3. **Input Mask** – a template-like field property that regulates how data is entered in a cell. For example, if the phone number input mask is used, the user will be prompted to input data in a specific format, such as (919) 555-5555. Used for **phone numbers, zip codes, times like a.m. and p.m.**
 4. **Caption** – a field property used for **column naming** that allows a more **user-friendly** and properly formatted field name than the field name stored in the database design
- D. **Editing and Printing** – Procedures to add and delete records and fields, edit field names, rearrange fields in a database and print. Use Landscape orientation for wide databases with a lot of fields.

III. Database Management – The effectiveness of a database can be measured by the user’s ability to retrieve useful information.

- An effective database is one that contains timely information and thus requires continuous maintenance.
- Consider the telephone directory and the amount of information that must be gathered, edited, and processed to provide customers with accurate information.
- Many tools are available to assist in the retrieval, processing, and manipulation of database information.

A. **Filters** allow for the retrieval of information that meets specific criteria.

1. **Filter by Selection** – filters for information related to an active cell
2. **Filter/Advanced Filter Sort** – used to define specific search criteria

B. **Sorts** allow for information to be arranged in a specific order such as alphabetical, chronological, ascending, or descending.

C. **Database Relationships** – a link between two or more tables in a database

- The relationship is developed when common fields in the tables are linked, such as the Customer ID field in a Customer Address table and the Customer ID field in a Purchases table.
- The relationship enhances the power of the database by allowing retrieval of data from both sources and eliminating the need for data duplication among tables.

1. **Types of Relationships:**

- a. **One-to-Many** – when a record in one table is linked to more than one record in another table.
- b. **Many-to-Many** – when multiple records from both (or more) tables are linked. A Many-to-many relationship is actually two one-to-many tables that are connected by a **junction table**.

2. **Relationship Components**

- a. **Primary Key** – used to format each record in a database as a unique entity. Primary keys allow database tables to communicate.
 - i. May be assigned to an existing field that contains information unique to each record.
 - ii. May be assigned via an AutoNumber field that automatically assigns a unique number to each record.

- iii. The linked fields must be of the same data type and size
- b. **Foreign key** – when tables are linked by the primary key, the related field in the second table is known as the foreign key
- c. **Junction table** – a table used to join primary key fields from multiple tables
- d. **Join line** – a graphical representation of the link between two or more tables
- e. **Referential integrity** protects related data that is stored in multiple tables.
Referential integrity would prevent a customer in a customers table from being deleted if the customer's ID also appears in the order table

IV. Raw Data Import - A useful and practical method for obtaining information from other sources and creating database tables. Eliminates the need for repetitive data entry and assists in the protection of the data's integrity.

- A. Must be formatted as text
- B. Must be separated at field and record breaks with a separator, such as a comma (delimited)