

## **Introduction to Database Design workshop: March 22-23, 1999**

### **Glossary of Database Terminology**

**Attribute:** A characteristic of an entity that we want to record or track or retrieve later; a fact about an object we're interested in.

**Business Rule:** A statement that imposes some form of constraint on elements within a field specification, or on a relationship between two tables

**Data:** values stored in a database.

**Data integrity:** Refers to the validity, accuracy, and consistency of the data in a database.

**Entity:** A person, place, thing, or event about which we want to record information; an object we're interested in.

**Entity-Relationship Diagram (ERD):** Identifies the data / information required by the business by displaying the relevant entities and the relationships between them.

**Field:** The smallest structure in a relational database, used to store the individual pieces of data about the object; stores a single fact about an object that we're interested in; represents an attribute.

#### **Goals of the database design process:**

- understand your data and why you're tracking it
- eliminate duplication of data
- eliminate redundant data
- eliminate meaningless data or data we don't care about
- promote accuracy of data
- promote consistency of data
- make sure we can retrieve the information we need from the database
- support the business functions that use the database
- build a database that lends itself to future growth

**Key:** a field in the database (or an attribute in an ERD) that is used to uniquely identify records and establish relationships between tables or entities; used for the retrieval of data in the table.

**Primary Key:** uniquely identifies each record in a table, the field lives in the table for which it operates.

**Foreign Key:** A key from another table that is used to define a relationship to another record in another table. It has the same name and properties as the primary key from which it is copied.

**Rules for foreign keys:**

1-1: Primary key from the main table is inserted into the second table

1-Many: Primary key from the “1” table gets inserted into the “many” table

Many-many: Primary key from each side gets placed into a third intermediate linking table that (usually) includes nothing but both keys.

**Non-key:** a “regular” field; describes a characteristic of the table’s subject.

**Mission statement:** Declares the specific purpose of the database in general terms, it is concise and unambiguous, does not define itself with examples or specific tasks.

**Objective:** Defines a single general task, with no unnecessary detail

**Record:** A single “row” in a table; represents the collection of information for a single occurrence of the entity that the table represents.

**Relational database:** A data structure through which data is stored in tables that are related to one another in some way. The way the tables are related is described through a relationship (see below).

**Relationship:** Establishes a connection or correspondence or link between a pair of tables in a database, or between a pair of entities in an entity-relationship diagram (ERD).

**One-to-one relationship:** A single record in table A is related to only one record in table B, and vice versa.

**One-to-many relationship:** A single record in table A can be related to one or more records in table B, but a single record in table B can be related to only one record in table A.

**Many-to-many relationship:** A single record in table A can be related to one or more records in table B, and vice versa. Problems with many-to-many relationships: one of the tables will contain a large amount of redundant data, both tables will contain some duplicate data, it will be difficult to add, update, delete records because of the duplication of fields between tables.

**Table:** The chief structure in a relational database, composed of fields and records, whose order is unimportant. A single table collects together all of the information we are tracking for a single entity; represents an object or an entity.