

LESSON 1.2

98-364 Database Administration Fundamentals

Understand Relational Database Concepts

Lesson Overview

1.2 Understand relational database concepts

In this lesson, you will review:

- **Relational model**
- **The three foundations of a modern database**
- **One-to-one relationship**
- **Many-to-many relationship**
- **Parent/child relationship**
- **Keys**

Relational model

A data model in which the data is organized in relations (tables). This is the model implemented in most modern database management systems.

The three foundations of a modern database

- Entries – Data
- Attributed/fields – Characteristics
- Relationship/keys – how databases tie together

One-to-one relationship

- An association between two tables in which the primary key value of each record in the primary table corresponds to the value in the matching field or fields of one, and only one, record in the related table.

Many-to-many relationship

- A complex association between two sets of parameters, in which many parameters of each set can relate to many others in the second set. A many-to-many relationship is most commonly used to describe an association between two tables in which one record in either table can relate to many records in the other table.

98-364 Database Administration Fundamentals

In a **many-to-many relationship**, the relationships can be complex.

Tables in a many-to-many relationship have multiple unique data in common.

For example, a student can take one or many classes, classes can have one or many students, and teachers can teach one or many classes.

In these examples, the link could include:

- Student to class
- Class to teacher
- Teacher to student

Parent/child relationship

- Pertaining to or constituting a relationship between nodes in a tree data structure in which the parent is one step closer to the root (that is, one level higher) than the child.

Keys

- A **PRIMARY KEY** defines one or more columns that uniquely identify each row in the table.
- As with a **PRIMARY KEY**, a **UNIQUE** constraint defines that values within a column must be unique. However, unlike a **PRIMARY KEY**, you can have more than one **UNIQUE** constraint on a table.
- Relationships (or links) between tables are stored as **FOREIGN KEY** constraints.

Assignment

- Students gather data using information about their classes for each class period of the day to create a many-to-many relationship table.