

LESSON 2.2

98-364 Database Administration Fundamentals

Understand Tables and How to Create Them

Lesson Overview

In this lesson, you will learn:

- What is ANSI SQL syntax ?
- What is a table?
- Why are tables used?
- How are tables created?

What is ANSI?

- American National Standards Institute (ANSI)
 - An organization formed in 1918 by a small group of engineering societies and government agencies
 - Originally called the American Engineering Standards Committee (AESC)

What is ANSI SQL syntax ?

- Structured Query Language (SQL) was designed to manage relational databases.
 - See Review Lesson 1.2 for a review of SQL.
- SQL syntax is the set of rules governing the structure and content of statements.
- When the rules are not followed, the result is a syntax error.

What is a table?

- Table—a data structure that usually consists of a list of entries, each entry being identified by a *unique key* and containing a set of related values.
 - A table is often implemented as an array of *records*, a linked list, or (in more primitive languages) several arrays of different *data types*, all using a common *indexing scheme*.
- One record is displayed here in a table with data type labels:

Student ID	LastName	FirstName	Address	City
Char(9) 123456789	Vchar(20) Jones	Vchar(20) William	Vchar(40) 5200 Central Ave.	Vchar(20) New York

- Student ID is the unique item key or index.
- The name, address, and city make up the rest of the record.

What is a table? (continued)

- In relational databases, a data structure characterized by rows and columns, with data occupying or potentially occupying each *cell* formed by a row-column intersection. The table is the underlying structure of a relation.

Student ID	LastName	FirstName	Address	City
Char(9) 123456789	Vchar(20) Jones	Vchar(20) William	Vchar(40) 5200 Central Ave.	Vchar(20) New York

In this table, “William” is a junction of a Row and Column. The cell is called FirstName, and the data type is Vchar of size 20. These cells make up the table.

Why are tables used?

- Tables organize data, making it easier to find things.
- Tables form the basis of data relationships.
- Tables store data that can be related to other data by a unique key or index.
- The table here forms a list of data in a specific order.

Student ID	LastName	FirstName	Address	City
Char(9) 123456789	Vchar(20) Jones	Vchar(20) William	Vchar(40) 5200 Central Ave.	Vchar(20) New York

- The administrator chose how to form the table or its schema. (See Review Lesson 1.4.)
- The key or index of this table is the Student ID.

How are tables created?

- Syntax

```
CREATE TABLE table_name  
(column_name1 data_type,  
column_name2 data_type,  
column_name3 data_type, ...)
```

- Sample code—creates a table called **student_info** with five fields/columns

```
CREATE TABLE student_info  
(student_id char(9) not null,  
first_name char(20) not null,  
last_name char(20) not null,  
address char(40) not null,  
city char(20) not null)
```

Quiz

Create a table that will store the students' final grades for this class.

- Include the table name and a minimum of four fields.
- Extra credit activity: Insert two more fields that would add value and usefulness to this table.
- Justify the usefulness of the additional two fields.