

Welcome to Lesson 1 of Module 3 on the relational data model and the CREATE TABLE statement

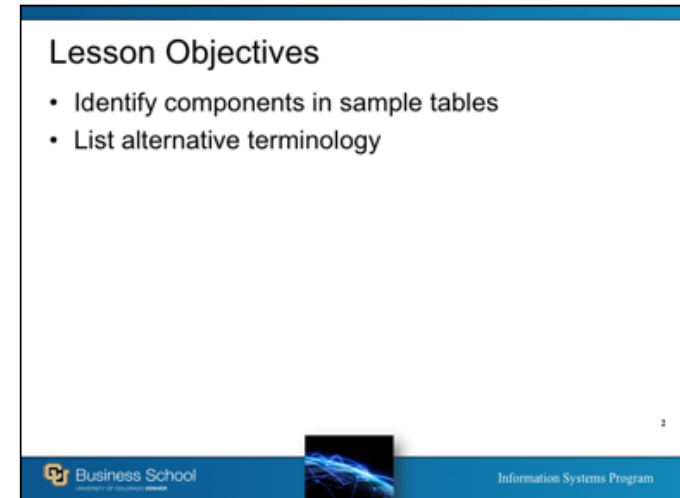
- Careful study of the relational data model
- This lesson covers examples of tables and connections among tables.

Opening question:

- Why is the relational data model commercially dominant?
- Commercial dominance by a concept or approach is very difficult but the relational data model has dominated the database industry for decades.

Relational databases are the dominant commercial standard

- Simplicity and familiarity with table manipulation
- Strong mathematical framework
- Lots of research and development



## Relational Database Basics

- Collection of tables
- Heading: table name and column names
- Body: rows, occurrences of data

Student

StdNo	StdFirstName	StdLastName	StdCity	StdState	StdZip	StdMajor	StdClass	StdGPA
123-45-6789	HOMER	WELLS	SEATTLE	WA	98121-1111	IS	FR	3.00
124-56-7890	BOB	NORBERT	BOTHELL	WA	98011-2121	FIN	JR	2.70
234-56-7890	CANDY	KENDALL	TACOMA	WA	99042-3321	ACCT	JR	3.50

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Partial Student table:

- 9 columns
- 3 rows
- Real student table: 10 to 50 columns; thousands of rows

Convention:

- Table names begin with uppercase
- Mixed case for column names
- First part of column name is an abbreviation for the table name
- Upper case for data

## Sample Tables with Matching Values

Student

StdNo	StdFirstName	StdLastName	StdCity	StdState	StdZip	StdMajor	StdClass	StdGPA
123-45-6789	HOMER	WELLS	SEATTLE	WA	98121-1111	IS	FR	3.00
124-56-7890	BOB	NORBERT	BOTHELL	WA	98011-2121	FIN	JR	2.70
234-56-7890	CANDY	KENDALL	TACOMA	WA	99042-3321	ACCT	JR	3.50

Offering

OfferNo	CourseNo	OffTerm	OffYear	OffLocation	OffTime	FacNo	OffDays
1111	IS320	SUMMER	2013	BLM302	10:30 AM		MW
1234	IS320	FALL	2012	BLM302	10:30 AM	098-76-5432	MW
4321	IS320	FALL	2012	BLM214	3:30 PM	098-76-5432	TTH

Enrollment

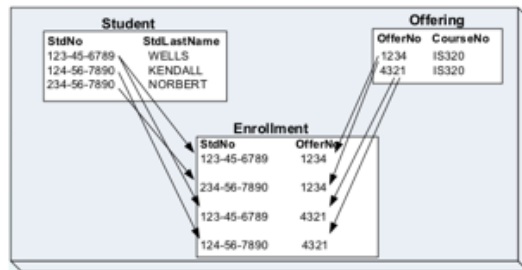
OfferNo	StdNo	EnrGrade
1234	123-45-6789	3.3
1234	234-56-7890	3.5
4321	123-45-6789	3.5
4321	124-56-7890	3.2

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Relationships are shown in column values.

- StdNo values in Enrollment table
- OfferNo values in Enrollment table
- FacNo values in Offering table
- CourseNo values in Offering table

## Graphical Depiction of Matching Values



Shown by matching values

- First Student row (123-45-6789) related to 1<sup>st</sup> and 3<sup>rd</sup> rows of Enrollment table

- First Offering row (1234) related to 1<sup>st</sup> two rows of Enrollment table

Combine tables using matching values

Relational databases can have many tables (hundreds)

Follow matching values to combine tables:

- Combine Student and Enrollment where StdNo matches
- Join operation

## Alternative Terminology

Table-Oriented	Set-Oriented	Record-Oriented
Table	Relation	Record Type, File
Row	Tuple	Record
Column	Attribute	Field

Table-oriented: familiar

Set-oriented: mathematical

Record-oriented: IS staff

Terminology is often mixed: table, record, field

## Summary

- Commercial dominance of relational model
- Use sample tables as an aid in query formulation
- Importance of visualizing relationships



Commercial dominance:

- Simple and familiar
- Theoretically sound
- Lots of R&D
- SQL standard

Sample tables

- Useful for understanding basic terminology
- Useful for query formulation especially as a novice
- Understand relationships in sample rows