ORACLE® ACADEMY

Database Foundations

2-4
Data Modeling Terminology

Roadmap

What Is a Table?

Relational Databases

Conceptual Data Modeling

Data Modeling Terminology

You are here

Unique Identifiers and Primary Keys

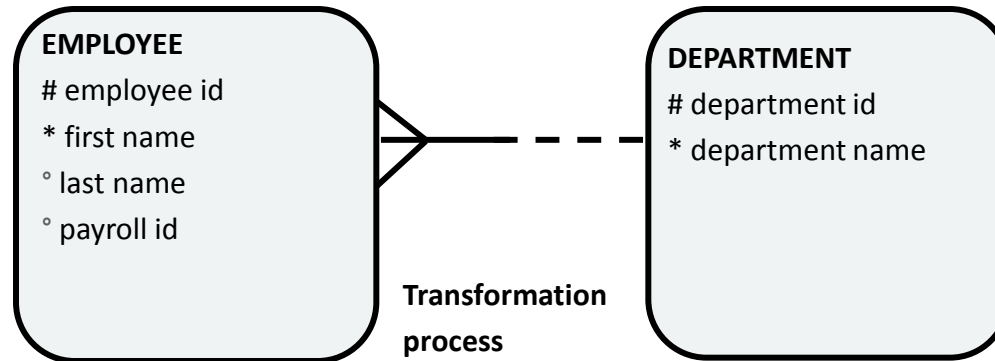Relationships and Foreign Keys
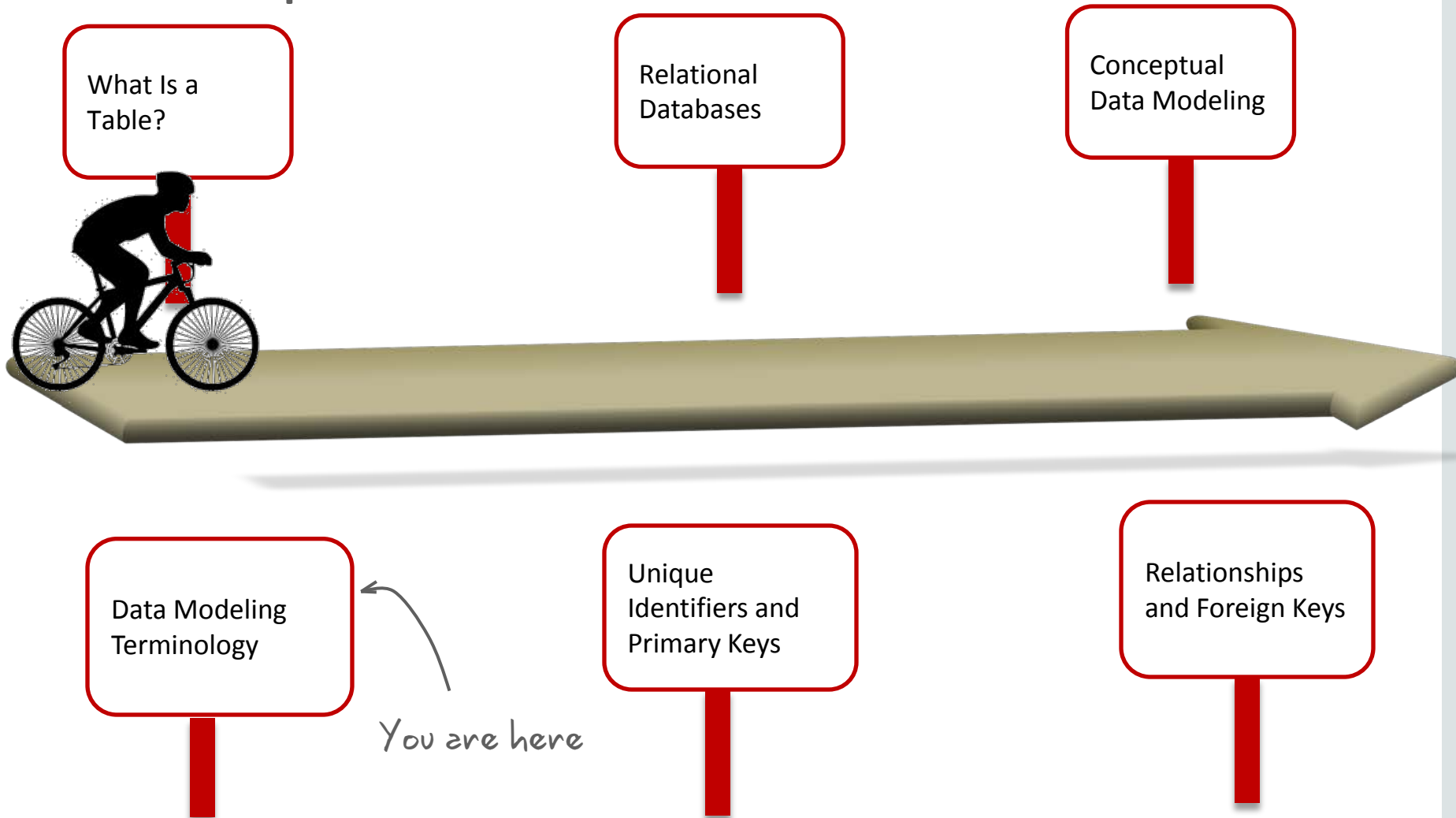
Objectives

This lesson covers the following objectives:

- Apply terminology mapping between the conceptual and physical models

- Understand and apply the Oracle naming conventions for tables and columns used in physical models

Conceptual To Physical Transformation: Example
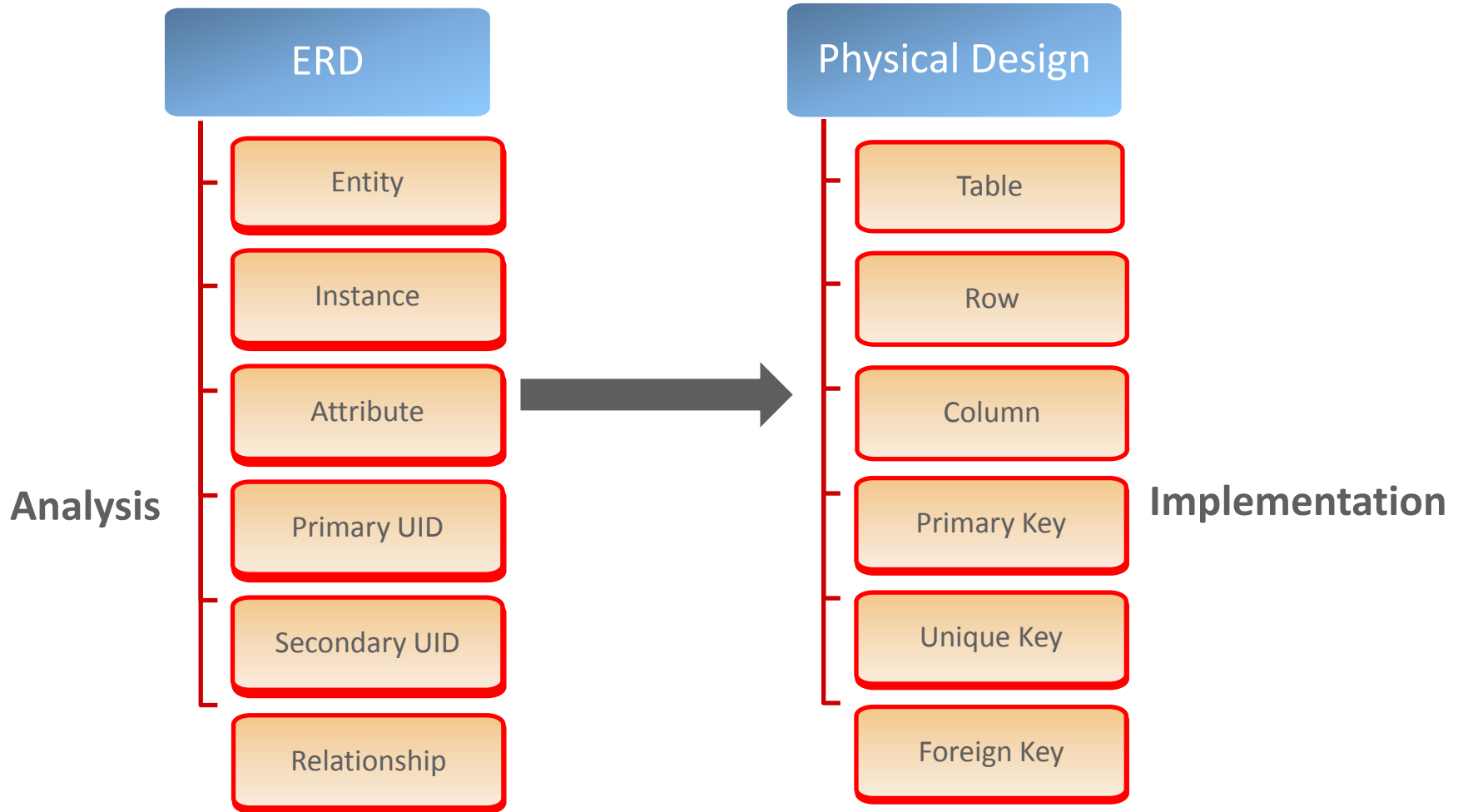
Conceptual
Model (ERD)

EMPLOYEE
employee id
* first name
° last name
° payroll id

DEPARTMENT
department id
* department name

Transformation process

Physical Implementation:
Relational Database

EMPLOYEES (EMP)

Key Type	Optionality	Column name
pk	*	employee_id
uk	*	payroll_id
	*	last_name
	*	first_name
fk	*	department_id

DEPARTMENTS (DPT)

Key Type	Optionality	Column name
pk	*	department_id
	*	department_name

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Terminology Mapping

ERD

- Entity
- Instance
- Attribute
- Primary UID
- Secondary UID
- Relationship

Analysis

Physical Design

- Table
- Row
- Column
- Primary Key
- Unique Key
- Foreign Key

Implementation

An Entity and a Corresponding Table

STUDENT

Entity →

Table ↘

STUDENTS Table

ID	First_Name	Last_Name
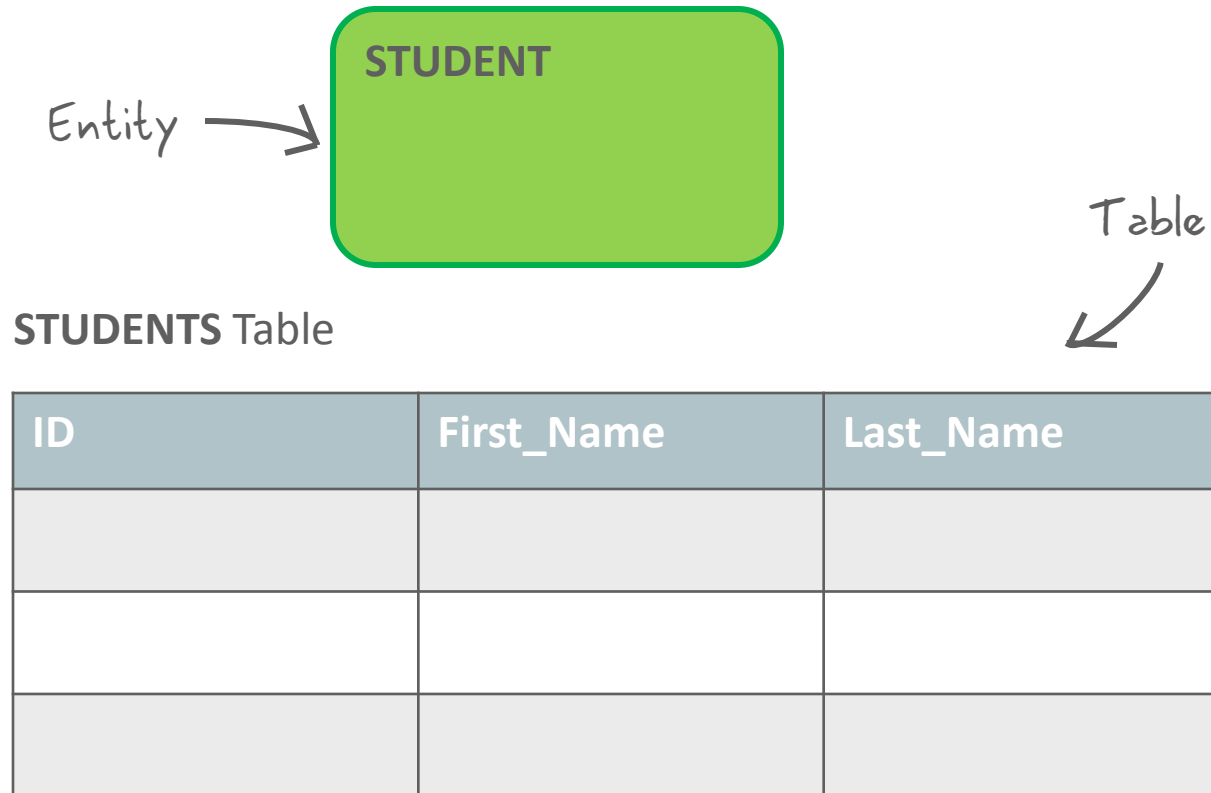
Attributes and Corresponding Columns

Attribute

STUDENT

\# id

* first name

° last name

* street address

* city

STUDENTS Table

Column

ID	First_Name	Last_Name	Street_address	City

An Instance and a Corresponding Row

Entity   Instance

STUDENT   J Smith

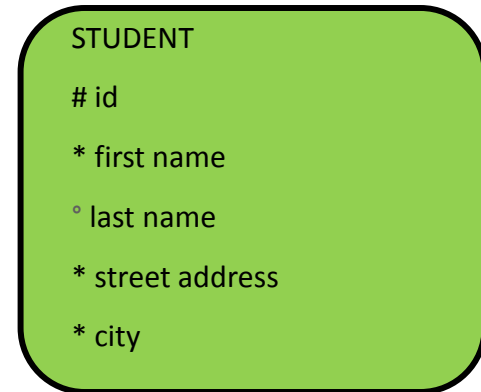| ID	First_Name	Last_Name	Street_address	City
101	Sam	Linkin	99B, Chuah Street	LA
102	Neena	Markin	44A, Church Street	NZ
103	Rick	Austina	1st Cross, Palm Street	SA
104	J	Smith	Alpha Street	CA

→Row

Table Diagram Notations

A table diagram is additional documentation that is often used to further explain keys and columns in the physical database.

STUDENTS Table

Key Type	Optionality	Column Name
pk	*	id
	*	first_name
	*	last_name
	*	street_address
	*	city

Naming Conventions for Tables

- The table name is the plural of the entity name.

- Example: STUDENT becomes STUDENTS.

STUDENT

id

* first name

° last name

* street address

* city

STUDENTS		
Key Type	Optionality	Column name
pk	*	id
	*	first_name
	*	last_name
	*	street_address
	*	city

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Naming Conventions for Columns

- Column names are identical to the attribute names, except that special characters and spaces are replaced with underscores.

- Column names often use more abbreviations than attribute names.

- Example: First name becomes first_name or fname.
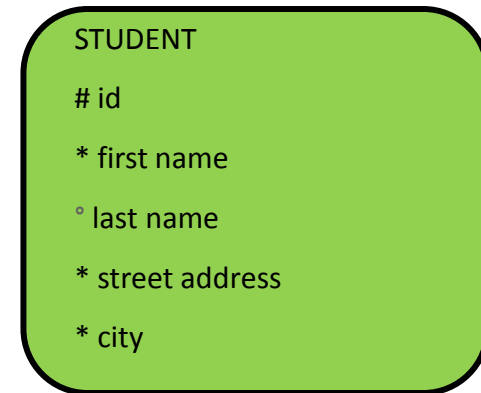
STUDENT

\# id

* first name

° last name

* street address

* city

STUDENTS		
Key Type	**Optionality**	**Column name**
pk	*	id
	*	first_name
	*	last_name
	*	street_address
	*	city

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Table Short Names

A unique short name for every table is useful when naming foreign key columns.

Create short names based on:

- Entity names that contain more than one word

- Entity names that contain one word but more than one syllable

- Entity names that contain one syllable but more than one character

PRIVATE HOME
id
* address
° comments

PRIVATE HOMES (PHE)		
Key Type	Optionality	Column Name
pk	*	id
	*	address
	°	comments

Naming Restrictions with Oracle

- Table and column names:
  - Must start with a letter
  - Can contain up to 30 alphanumeric characters
  - Cannot contain spaces or special characters such as "!," but "$," "#," and "_" are permitted
- Table names must be unique within one user account in the Oracle database.
- Column names must be unique within a table.

Summary

In this lesson, you should have learned how to:

- Apply terminology mapping between the conceptual and physical models

- Understand and apply the Oracle naming conventions for tables and columns used in physical models