



Business School  
UNIVERSITY OF COLORADO DENVER

Information Systems Program

# Module 4

## Basic Query Formulation with SQL

### Lesson 3: Join Operator



# Lesson Objectives

- Create the result of a join operation on sample tables
- Briefly explain the components of the natural join operator



# Natural Join Example I

## Offering

| <u>OfferNo</u> | FacNo       |
|----------------|-------------|
| 1111           | 111-11-1111 |
| 2222           | 222-22-2222 |
| 3333           | 111-11-1111 |

## Faculty

| <u>FacNo</u> | FacName |
|--------------|---------|
| 111-11-1111  | JOE     |
| 222-22-2222  | SUE     |
| 333-33-3333  | SARA    |



# Natural Join Example II

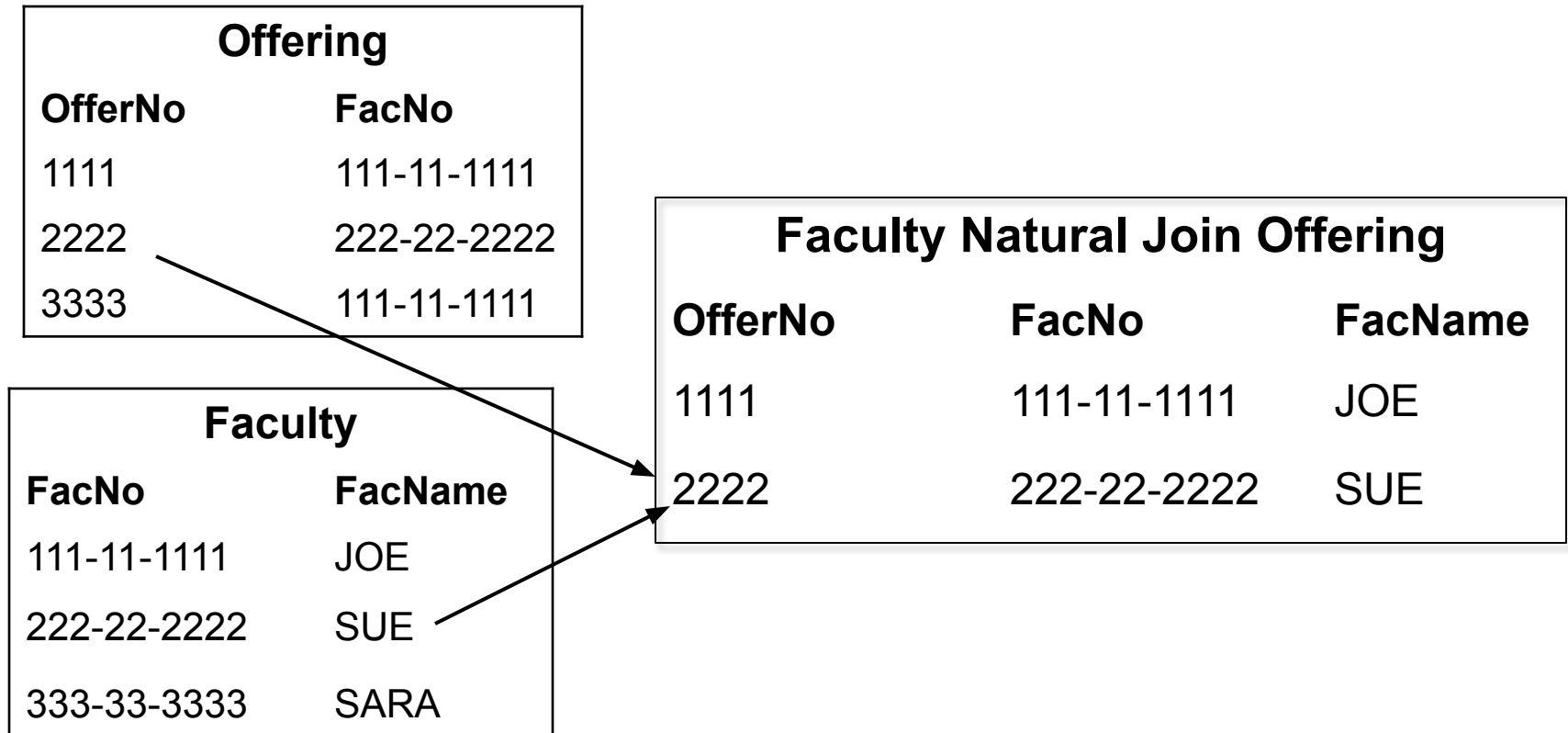
| Offering |             |
|----------|-------------|
| OfferNo  | FacNo       |
| 1111     | 111-11-1111 |
| 2222     | 222-22-2222 |
| 3333     | 111-11-1111 |

| Faculty     |         |
|-------------|---------|
| FacNo       | FacName |
| 111-11-1111 | JOE     |
| 222-22-2222 | SUE     |
| 333-33-3333 | SARA    |

| Faculty Natural Join Offering |             |         |
|-------------------------------|-------------|---------|
| OfferNo                       | FacNo       | FacName |
| 1111                          | 111-11-1111 | JOE     |



# Natural Join Example III



# Natural Join Example IV

| Offering |             |
|----------|-------------|
| OfferNo  | FacNo       |
| 1111     | 111-11-1111 |
| 2222     | 222-22-2222 |
| 3333     | 111-11-1111 |

| Faculty     |         |
|-------------|---------|
| FacNo       | FacName |
| 111-11-1111 | JOE     |
| 222-22-2222 | SUE     |
| 333-33-3333 | SARA    |

| Faculty Natural Join Offering |             |         |
|-------------------------------|-------------|---------|
| OfferNo                       | FacNo       | FacName |
| 1111                          | 111-11-1111 | JOE     |
| 2222                          | 222-22-2222 | SUE     |
| 3333                          | 111-11-1111 | JOE     |



# Join Operator

- Most databases have many tables
- Combine tables using the join operator
- Specify matching condition
  - Can be any comparison but usually =
  - PK = FK most common join condition
  - Relationship diagram useful when combining tables



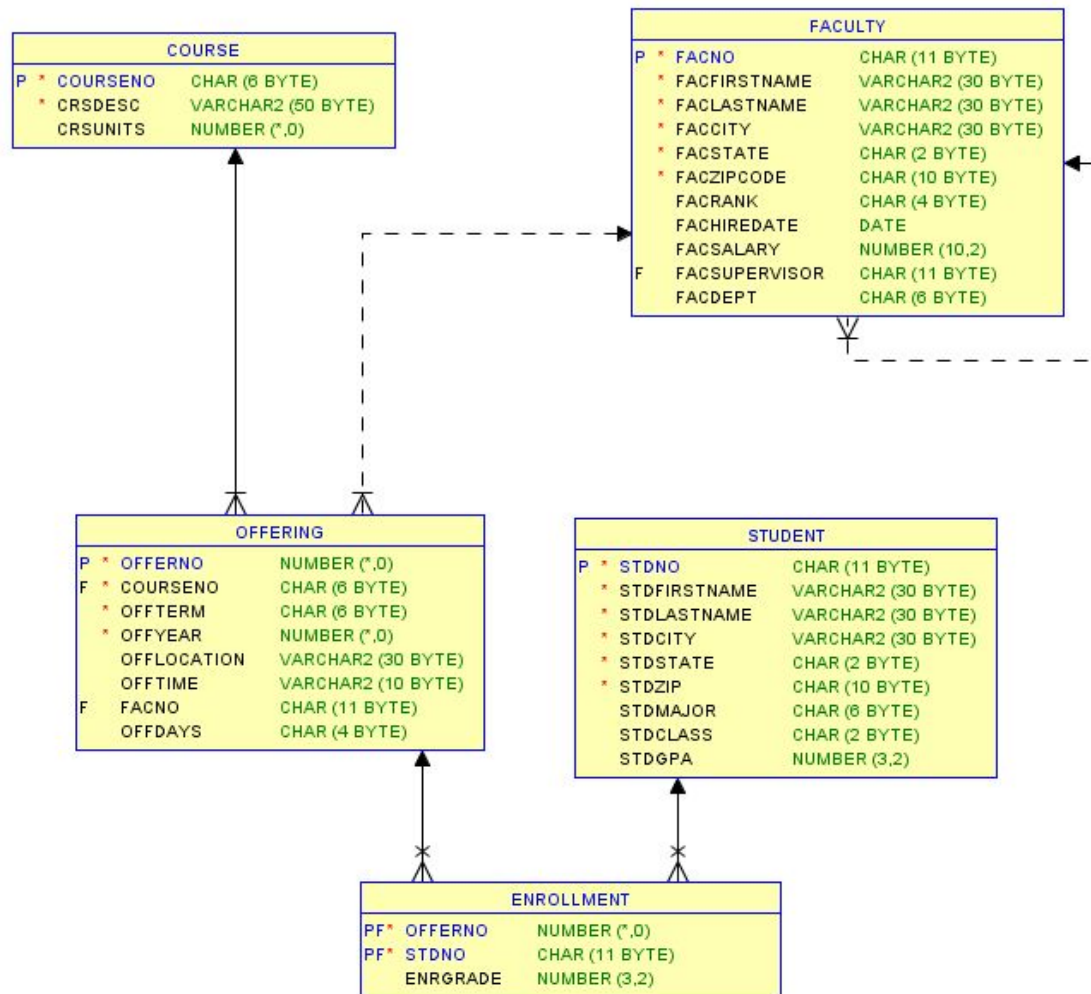
# Natural Join Operator

- Most common join operator
- Requirements
  - Equality matching condition
  - Matching columns with the same unqualified names
  - Remove one join column in the result
- Usually performed on PK-FK join columns





# University Database Diagram



# Summary

- Essential operator in query formulation
- Use sample tables to learn the join operator
- Explicit join specification in the SELECT statement

