



Business School  
UNIVERSITY OF COLORADO DENVER

Information Systems Program

# Module 2

## Introduction to Databases and DBMSs

### Lesson 4: Non-Procedural Access

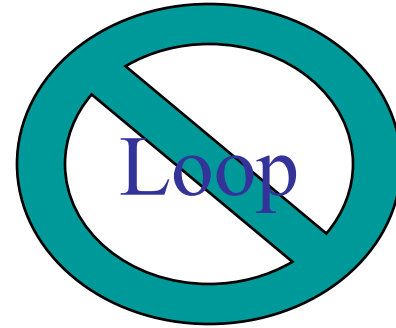


# Lesson Objectives

- Discuss the importance of non-procedural access
- Explain the link between the five types of application development tools and nonprocedural access



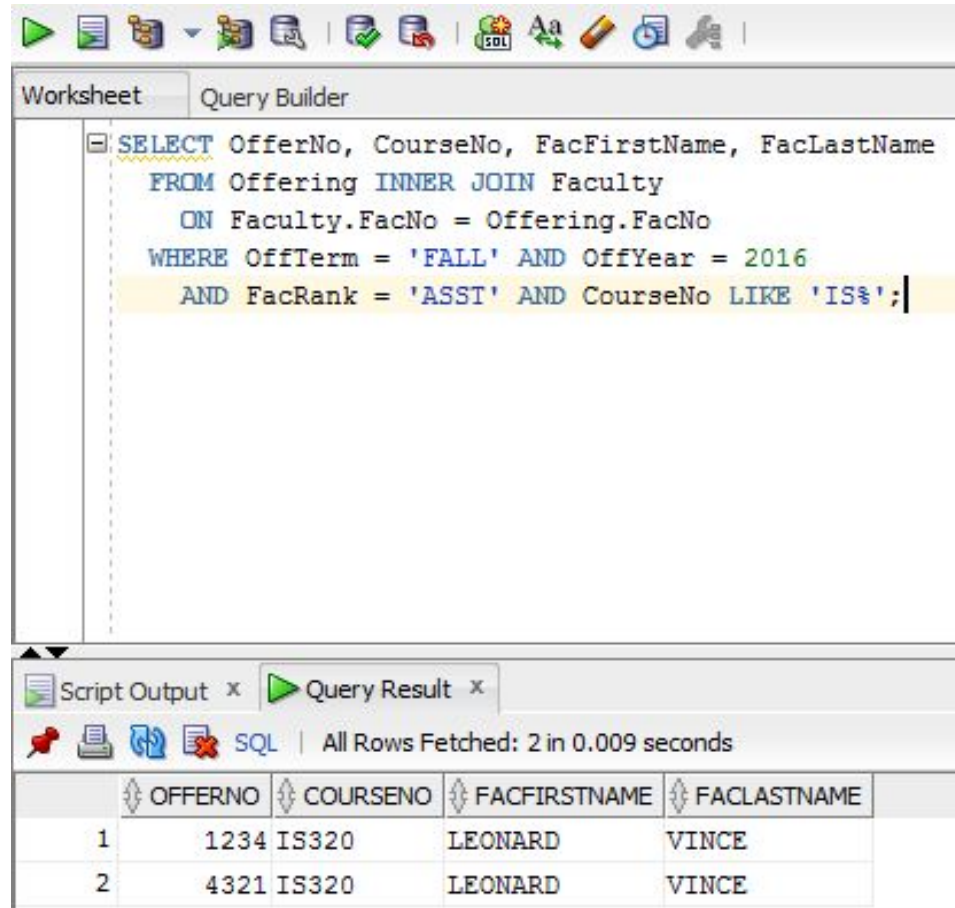
# Nonprocedural Database Access



- Query: request for data to answer a question
- Indicate what parts of database to retrieve not the procedural details
- Improve productivity and improve accessibility
- SQL SELECT statement and graphical tools



# SELECT Statement Execution



The screenshot displays a database query tool interface. The top toolbar contains various icons for execution, saving, and editing. Below the toolbar, the 'Query Builder' tab is active, showing a SQL query in a text editor. The query is a SELECT statement that joins the 'Offering' and 'Faculty' tables, filtering for 'FALL' 2016 offerings with an 'ASST' rank and a course number starting with 'IS'. The 'Script Output' and 'Query Result' tabs are visible at the bottom. The 'Query Result' tab shows the execution status and a table of results with 2 rows.

```
SELECT OfferNo, CourseNo, FacFirstName, FacLastName
FROM Offering INNER JOIN Faculty
ON Faculty.FacNo = Offering.FacNo
WHERE OffTerm = 'FALL' AND OffYear = 2016
AND FacRank = 'ASST' AND CourseNo LIKE 'IS%';
```

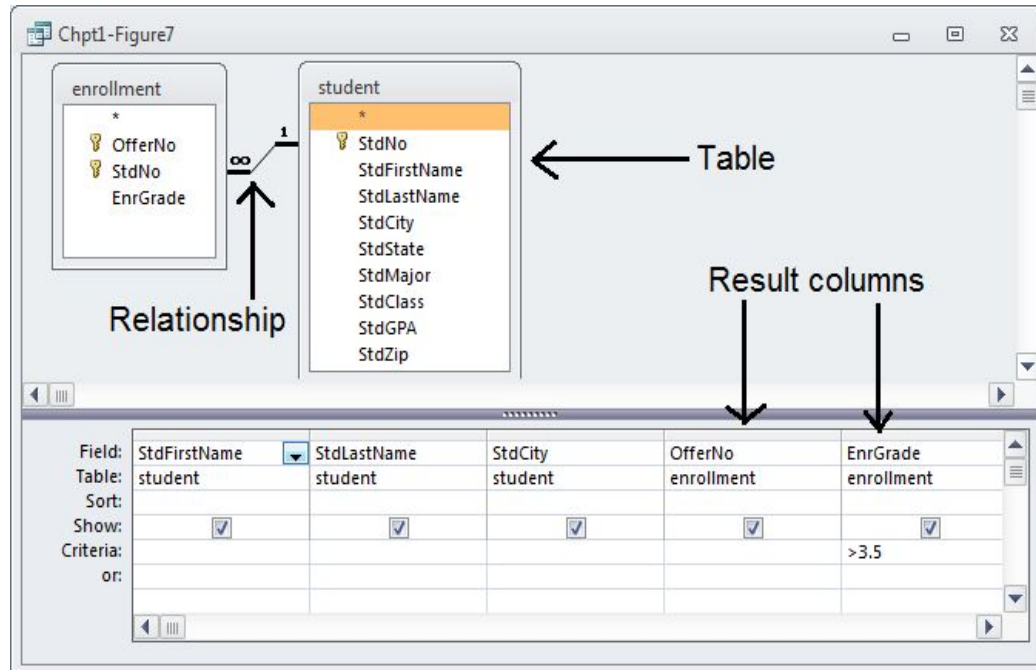
Script Output x Query Result x

SQL | All Rows Fetched: 2 in 0.009 seconds

	OFFERNO	COURSENO	FACFIRSTNAME	FACLASTNAME
1	1234	IS320	LEONARD	VINCE
2	4321	IS320	LEONARD	VINCE



# Graphical Tool for Nonprocedural Access



StdFirstName	StdLastName	StdCity	OfferNo	EnrGrade
MARIAH	DODGE	SEATTLE	1234	3.8
BOB	NORBERT	BOTHELL	5679	3.7
ROBERTO	MORALES	SEATTLE	5679	3.8
MARIAH	DODGE	SEATTLE	6666	3.6
LUKE	BRAZZI	SEATTLE	7777	3.7
WILLIAM	PILGRIM	BOTHELL	9876	4



# Sample Data Entry Form

Faculty Assignment Form

Faculty No. 098-76-5432

First Name LEONARD Last Name: VINCE

Department MS

**Assignments**

Faculty No	Offer No	Course No	Units	Term	Year	Location	Days	Start Time
098765432	1234	IS320	4	FALL	2016	BLM302	MW	10:30 AM
098765432	3333	IS320	4	SPRING	2017	BLM214	MW	8:30 AM
098765432	4321	IS320	4	FALL	2016	BLM214	TTH	3:30 PM

Record: 3 of 3 No Filter Search

Record: 1 of 6 No Filter Search



# Sample Report

## Faculty Work Load Report for the 2016-2017 Academic Year

<i>Department Name</i>	<i>Term</i>	<i>Offer Number</i>	<i>Units</i>	<i>Limit</i>	<i>Enrollment</i>	<i>Percent Full</i>	<i>Low Enrollment</i>
FIN							
JULIA MILLS							
	WINTER	5678	4	20	1	5.00%	<input checked="" type="checkbox"/>
	Summary for term = WINTER (1 detail record)						
	Sum		4		1		
	Avg					5.00%	
	Summary for JULIA MILLS						
	Sum		4		1		
	Avg					5.00%	
	Summary for 'department' = FIN (1 detail record)						
	Sum		4		1		
	Avg					5.00%	



# Procedural Language Interface

- Combine procedural language with nonprocedural access
- Why
  - Batch processing
  - Customization (especially for ecommerce) and automation
  - Performance improvement





# Summary

- Database technology vital to modern organizations
- Crucial DBMS feature: nonprocedural access
- Query language, visual tool, form tool, report tool, and embedding
- Fundamental skill: query formulation

