



Module 2

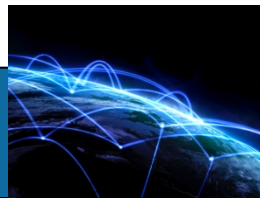
Introduction to Databases and DBMSs

Lesson 4: Non-Procedural Access

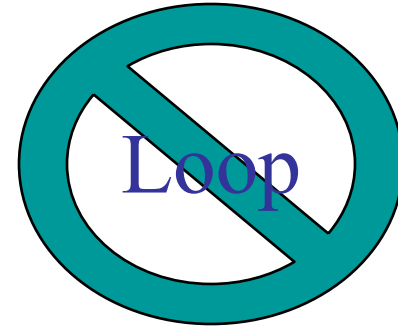


Lesson Objectives

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

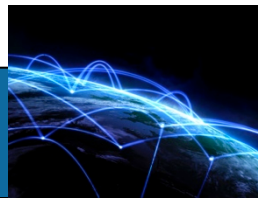


Nonprocedural Database Access

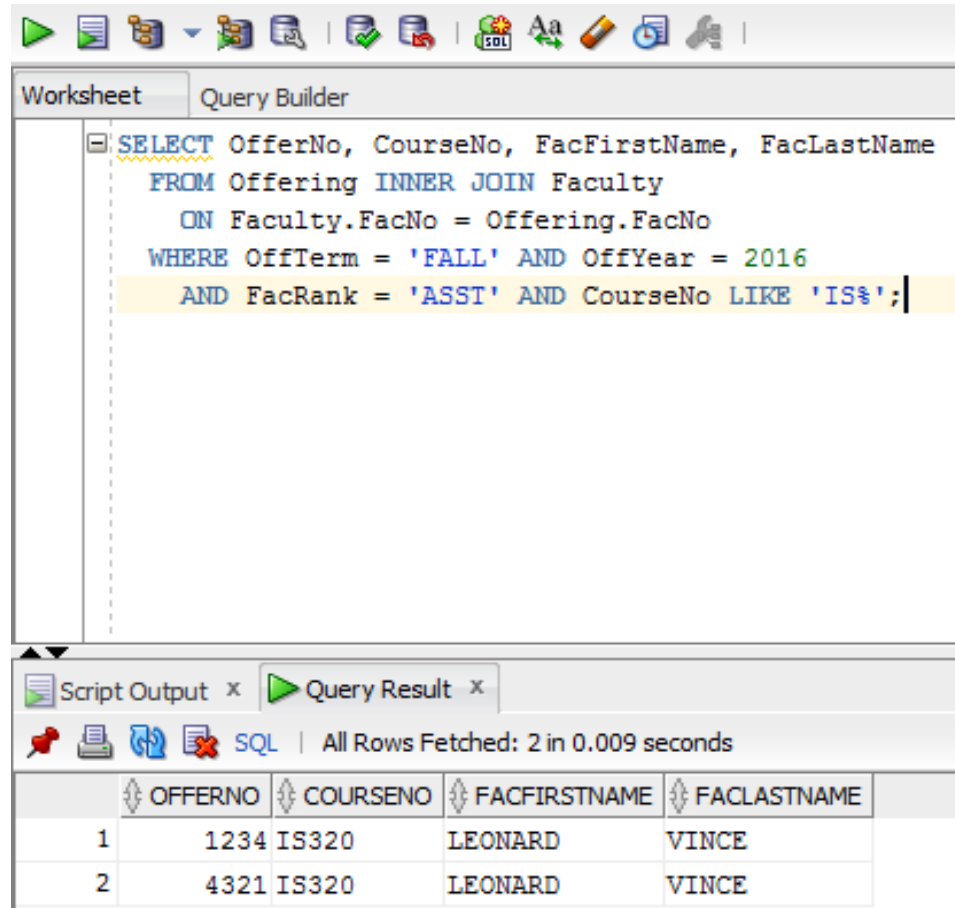


- Query: request for data to answer a question
- Indicate what parts of database to retrieve not the procedural details
- Improve productivity and improve accessibility
- SQL SELECT statement and graphical tools

Retrieve data easier



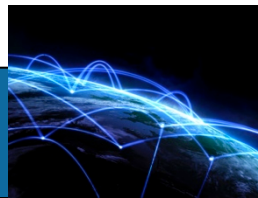
SELECT Statement Execution



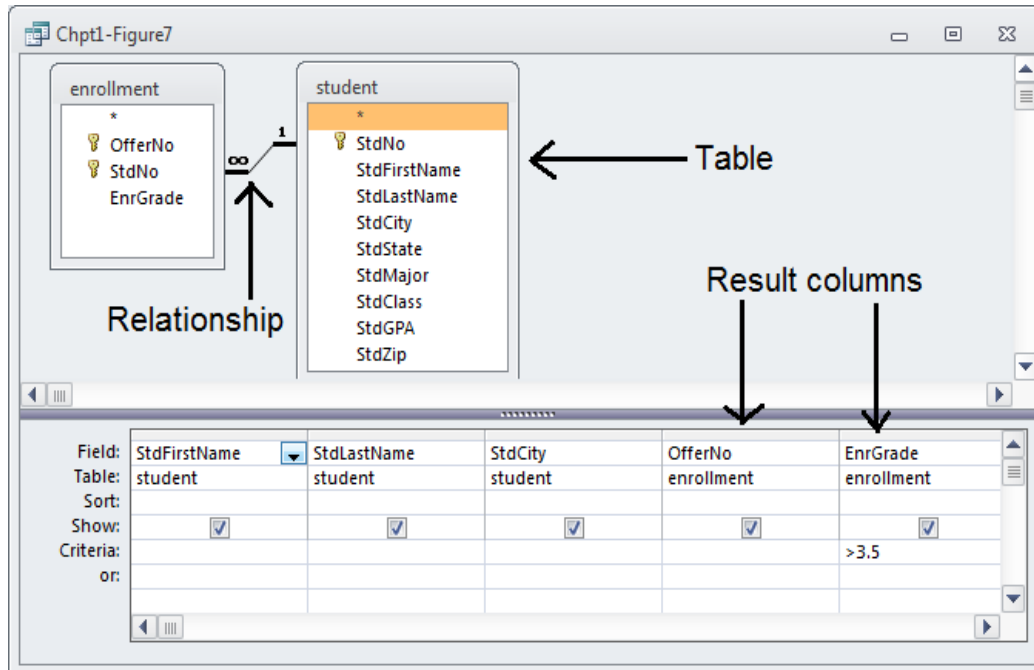
The screenshot displays a database query tool interface. The top toolbar contains various icons for file operations, execution, and formatting. Below the toolbar, the 'Query Builder' tab is active, showing a SQL query in a text editor. The query is a SELECT statement that retrieves columns from two tables, joined by an inner join, with specific filters in the WHERE clause. Below the query editor, the 'Query Result' tab is active, showing a table with two rows of data. The table has five columns: a row identifier, OfferNo, CourseNo, FacFirstName, and FacLastName. The first row shows OfferNo 1234, CourseNo IS320, and FacFirstName LEONARD, FacLastName VINCE. The second row shows OfferNo 4321, CourseNo IS320, and FacFirstName LEONARD, FacLastName VINCE. The status bar indicates 'All Rows Fetched: 2 in 0.009 seconds'.

```
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%';
```

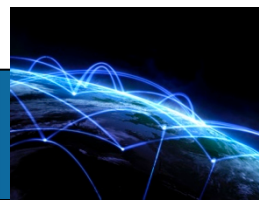
	OFFERNO	COURSENO	FACFIRSTNAME	FACLASTNAME
1	1234	IS320	LEONARD	VINCE
2	4321	IS320	LEONARD	VINCE



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>
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FIN

JULIA MILLS

<i>WINTER</i>	5678	4	20	1	5.00%	<input checked="" type="checkbox"/>
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Summary for term = WINTER (1 detail record)

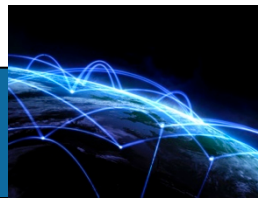
Sum		4		1	
Avg					5.00%

Summary for JULIA MILLS

Sum		4		1	
Avg					5.00%

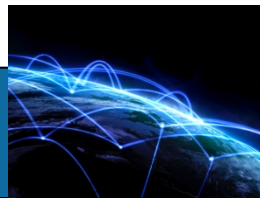
Summary for 'department' = FIN (1 detail record)

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

