

A decorative graphic on the left side of the slide, consisting of a network of white lines and circles on a teal background, resembling a circuit board or a neural network.

WEEK 6

QUERY BY EXAMPLE (QBE)

CS3319

STUDENT OBJECTIVES

- Upon completion of this video, you should be able to:
 - Use Query By Example to create a query in MS Access without writing SQL
 - Use Query By Example to create a query the computes an aggregate function
 - Use Query By Example to create a unmatched query

QUERY BY EXAMPLE (QBE)

- User friendly language developed by IBM
- Based on the domain calculus
- To use it you fill in templates of your tables with the restrictions you are after
- Giving examples of what you want
- The user doesn't have to know SQL, just fills in templates of tables on the screen
- MS Access built upon IBM's success to use visual representation of queries.

VISUAL TOOLS FOR QUERY BY EXAMPLE USING MICROSOFT ACCESS

QBE in MS Access:

Example: One table only with a projection and a selection:

The query is:

Find all the data about all employees whose last name is Simpson.

The screenshot shows the Microsoft Access Query Design View for a 'Select Query'. The 'Table' list on the left includes 'employee'. The 'Field' list at the bottom shows 'employee.*' and 'employee'. The 'Criteria' row contains the condition '=>'Simpson''. A green arrow labeled 'Projection' points to the 'Field' list, and another green arrow labeled 'Selection' points to the 'Criteria' row.

Field:	Table:	Sort:	Show:	Criteria:	or:
employee.*	employee		<input checked="" type="checkbox"/>		

we don't need to know how to write sql query!

Original Table and the Query Results:

	SSN	LastName	MiddleInitia	FirstName	BDate	Address	Sex	Salary	SuperSSN	DeptNumber
▶	1	Simpson	P	Bart	2/2/95	London	M	\$1,000.00	2	G8H
	2	Smithers	J	Waylan	1/1/60	Springfie	M	\$2,000.00	4	S7G
	3	Beuvieau	P	Patty	3/3/59	Toronto	F	\$4,000.00	6	Y5J
	4	Burns	P	Montgomer	7/7/20	Toronto	M	\$5,000.00		S7G
	6	Simpson	J	Lisa	6/6/90	London	F	\$1,000.00	2	S7G
	12	Simpson	J	Homer	8/8/61	Toronto	M	\$2,000.00	2	G8H
*	0							\$0.00	0	

Record: 1 of 6

	SSN	employee	MiddleInitia	FirstName	BDate	Address	Sex	Salary	SuperSSN	DeptNumber	Field0
▶	1	Simpson	P	Bart	2/2/95	London	M	\$1,000.00	2	G8H	Simpson
	6	Simpson	J	Lisa	6/6/90	London	F	\$1,000.00	2	S7G	Simpson
	12	Simpson	J	Homer	8/8/61	Toronto	M	\$2,000.00	2	G8H	Simpson

Record: 1 of 3

SQL generated by MS
Access for QBE above

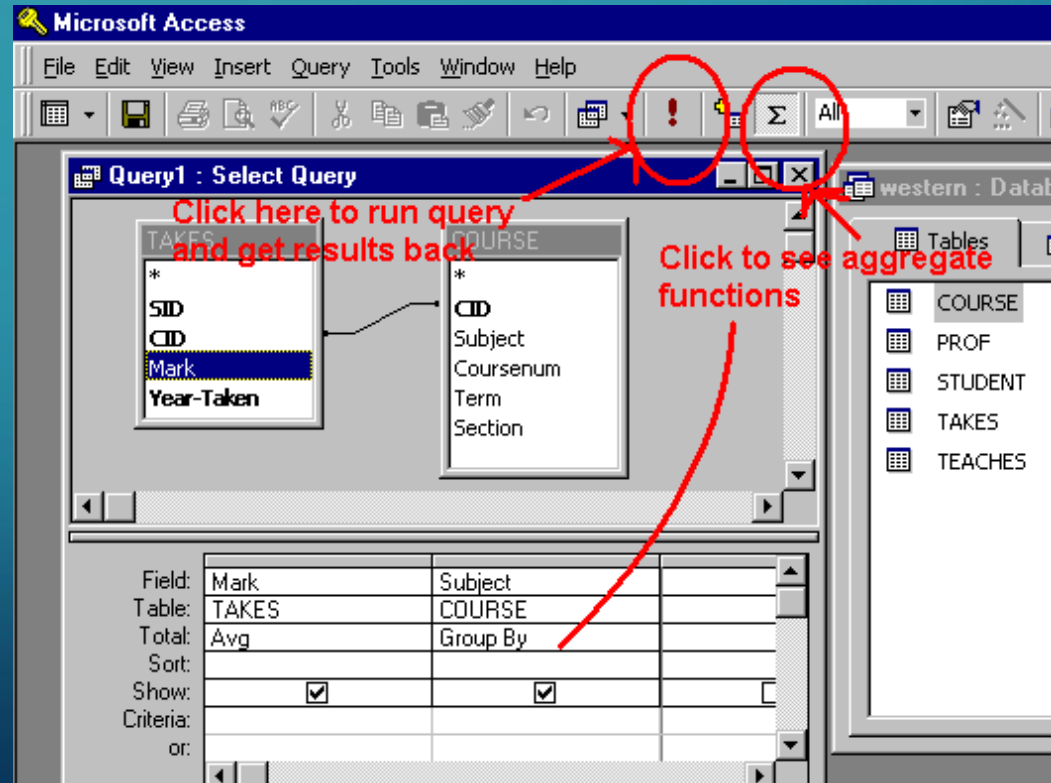
```
Query1 : Select Query
SELECT employee.*, employee.LastName
FROM employee
WHERE (((employee.LastName)='Simpson'));
```

The background is a dark teal gradient. In the corners, there are white line-art illustrations of circuit boards or neural networks, with lines and small circles representing nodes and connections.

LET'S TRY IT OUT IN MS ACCESS

AGGREGATE FUNCTIONS:

- To do things like totals, averages, maximums, etc...



Results from Query:

Query1 : Select Query		
	AvgOfMark	Subject
▶	66.92	Computer Scier
	55.3846153846	English
	67.7	French
	70.4545454545	Geology
	74.4285714286	History
	72.7142857143	Journalism
	69.5714285714	Kinesiology
	74.25	Mathematics
	80.1428571429	Music
	89	Zoology

Record: 1 of 10

SQL Generated by the Query:

```
Query1 : Select Query
SELECT Avg(TAKES.Mark) AS AvgOfMark, COURSE.Subject
FROM COURSE INNER JOIN TAKES ON COURSE.CID = TAKES.CID
GROUP BY COURSE.Subject;
```


UNMATCHED QUERY

- Query: *Find the students who don't take any courses*

STUDENT Without Matching TAKES : Select Query

STUDENT

- *
SID
Lastname
Firstname
Street
City

TAKES

- *
SID
CID
Mark
Year-Taken

Field: SID Lastname Firstname SID
Table: STUDENT STUDENT STUDENT TAKES
Sort:
Show: ☒ ☒ ☒ ☐ ☐
Criteria: Is Null
or:

Results from Query:

STUDENT Without Matching TAKES : Select Query			
	SID	Lastname	Firstname
▶	1000345	DeSando	Pietro
	3218949	Greaves	Ian
*			

SQL Generated by the Query:

```
STUDENT Without Matching TAKES : Select Query
SELECT DISTINCTROW [STUDENT].[SID], [STUDENT].[Lastname], [STUDENT].[Firstname]
FROM STUDENT LEFT JOIN TAKES ON [STUDENT].[SID] = [TAKES].[SID]
WHERE ([TAKES].[SID] Is Null);
```

ORACLE: QUERY BY EXAMPLE

The screenshot shows the Oracle Argus Insight web application interface. At the top, there is a navigation bar with 'Home', 'Tools', 'Help', and 'Logout' links. Below this is a secondary navigation bar with 'Home', 'Create Query', 'Query Results', and 'Case Series Reports'. The main content area is titled 'Create Query > Query by Example' and 'QUERY BY EXAMPLE LIBRARY'. On the right side of this area, there are two status fields: 'Active Query Name: < Not Saved >' and 'Active Case Series: < Not Saved >'. The central part of the interface is a 'Choose Query' section with a table listing queries. The table has columns for Name, Description, Last Modified, User Full Name, Category, and Associated Report. Below the table are buttons for 'New', 'Modify', 'Delete', 'Associate', 'Disassociate', a checkbox for 'Limit Query to Active Case Series', and an 'Execute' button.

Name	Description	Last Modified	User Full Name	Category	Associated Report
		00-MMM-0000			
		00-MMM-0000			
COI - US	COI - US	27-DEC-11	insighttest	General	

REMEMBER:

- In Relational Calculus shows you what is to be retrieved but not HOW to retrieve it
- Query by Example – you don't have to learn SQL, you can just pick the tables and then fill in columns