WEEK 6

QUERY BY EXAMPLE (QBE)

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

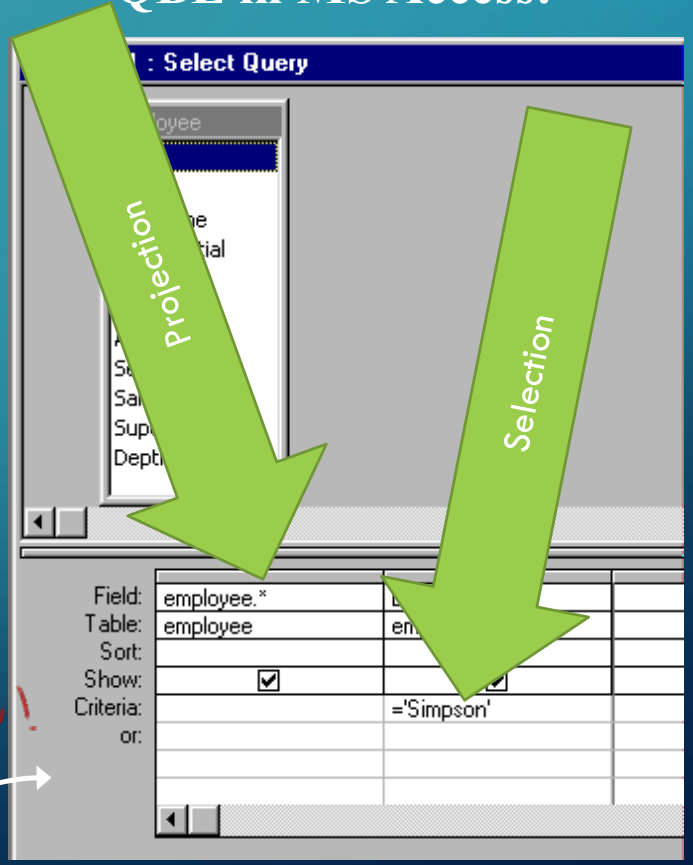
Example: One table only with a projection and a selection:

The query is:

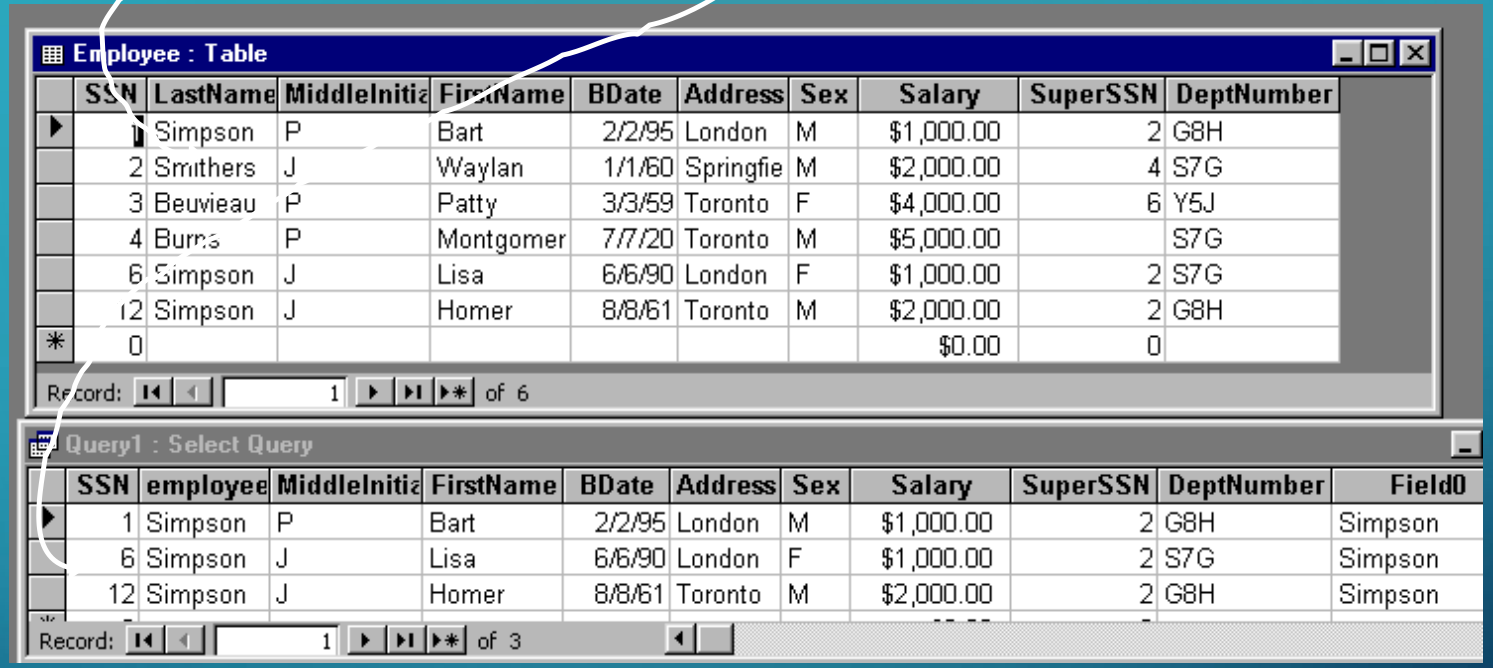
Find all the data about all employees whose last name is Simpson.

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

QBE in MS Access:



Original Table and the Query Results:



Employee : Table

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

Query1 : Select Query

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

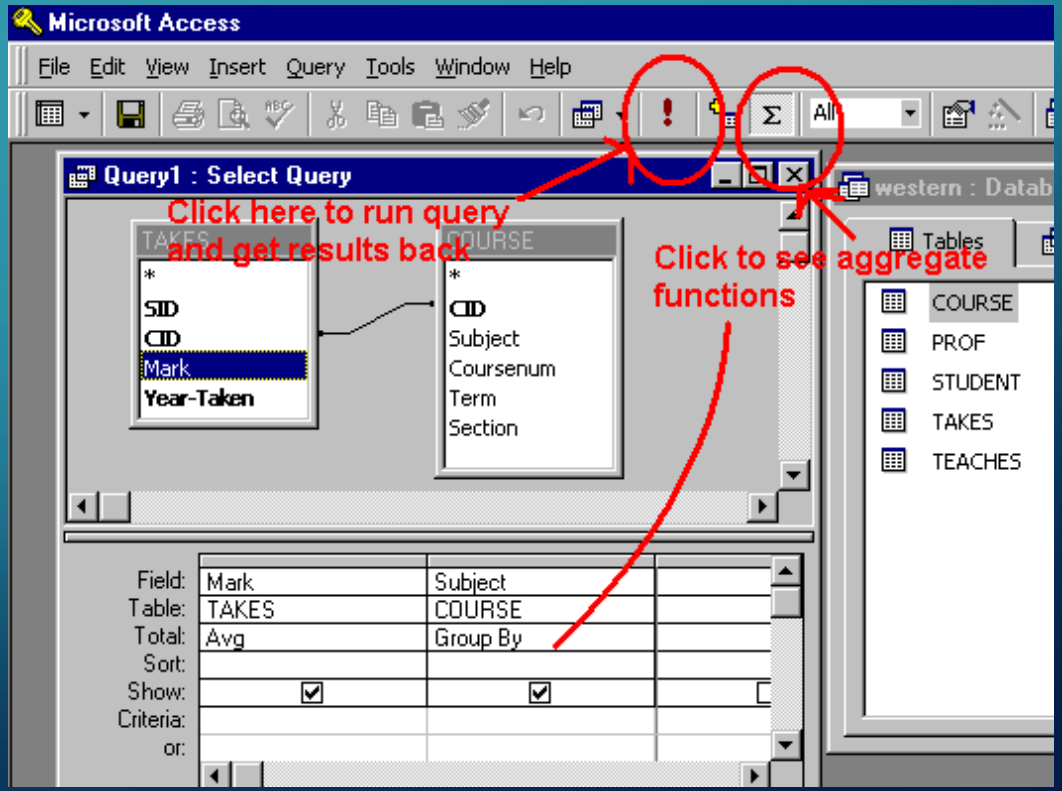
Query1 : Select Query

```
SELECT employee.*, employee.LastName
FROM employee
WHERE (((employee.LastName)='Simpson'));
```

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

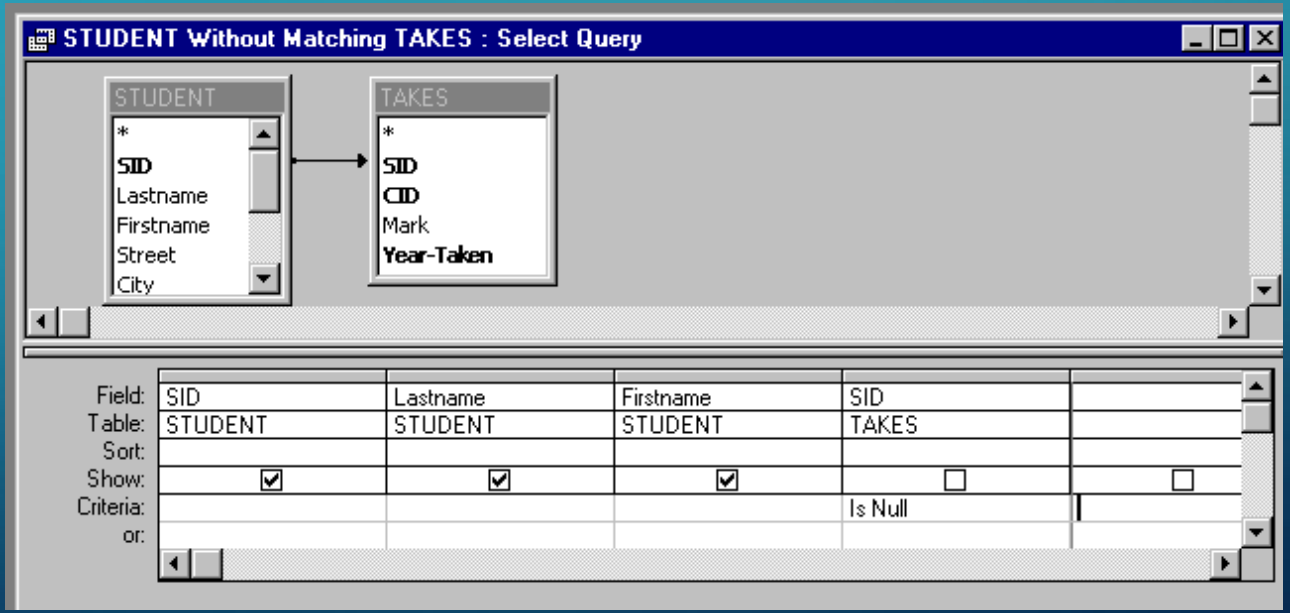
SQL Generated by the Query:

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***



Results from Query:

STUDENT Without Matching TAKES : Select Query

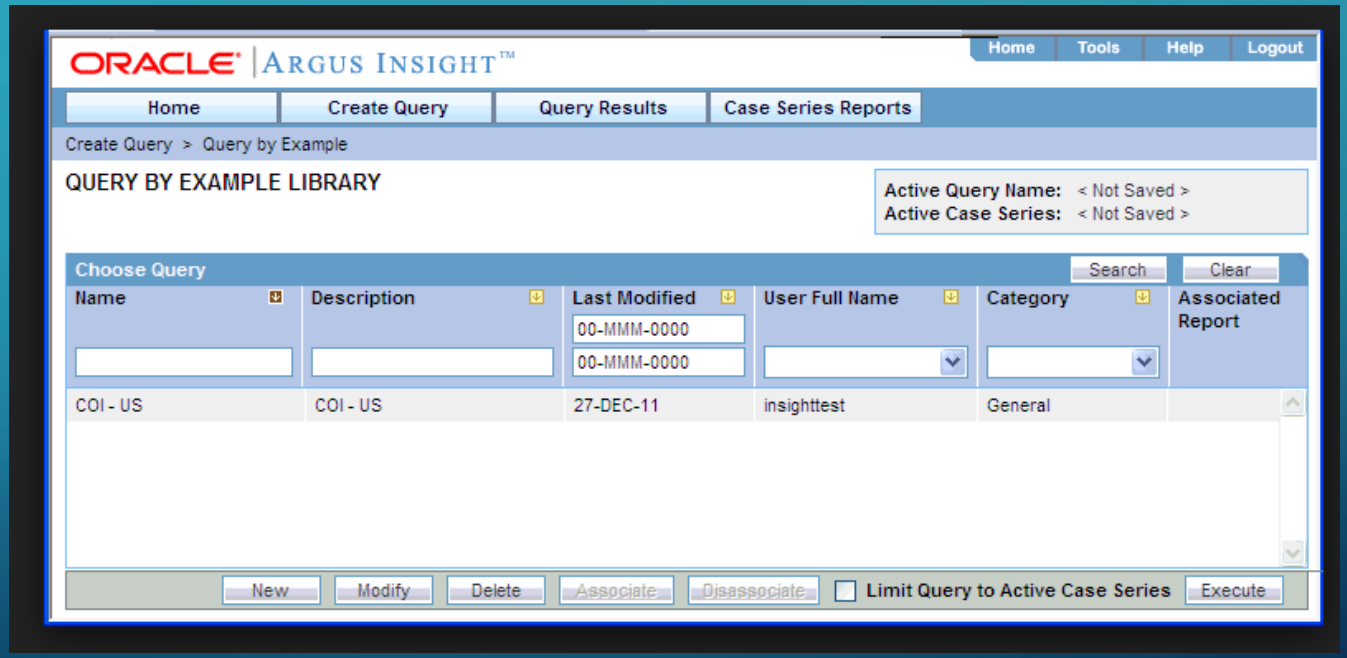
SID	Lastname	Firstname
1000345	DeSando	Pietro
3218949	Greaves	Ian

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



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