

Graphical Query Languages

Graphical Query Languages – CSC 460 v1.1 (McCann) – p. 1/9

QBE (Query By Example)

- Mid-1970s creation of Moshe Zloof at IBM Research
- Associated with development of Domain Relational Calculus
- Still available within IBM's QMF (Query Management Facility) component of DB2
- Some DBMSes offer a QBE-inspired interface
- Idea: Let users create queries by showing what they want to see

QBE Templates and π

A QBE template is the schema ('skeleton') of a table.

Example(s): The 'table skeleton' of the SPJ table:

SPJ	sno	pno	jno	qty

π : Easy! Type P . beneath each field to be displayed.

Example(s): In which cities are the suppliers located?

S	sno	sname	status	city

Graphical Query Languages – CSc 460 v1.1 (McCann) – p. 3/9

QBE and σ

To select tuples, place partial conditions under the attributes.

Example(s):

What are the names and numbers of the active suppliers in London?

S	sno	sname	status	city

Graphical Query Languages – CSc 460 v1.1 (McCann) – p. 4/9

QBE and \bowtie

To force values to match, we add variables

- In QBE, variables begin with an underscore (‘ _ ’).

Example(s):

What are the names of the parts that can be supplied by individual suppliers in quantity > 200 ?

P	pno	pname	color	weight	city

SPJ	sno	pno	jno	qty

QBE and \cup

To do Union, we need multiple lines in the templates.

Example(s):

What are the S#s of the suppliers who are either located in Athens or are inactive, or both?

S	sno	sname	status	city

QBE and \cap

For Intersection, we need multiple lines and a variable.

Example(s):

What are the names of the suppliers in London and Paris that share the same name?

S	sno	sname	status	city

Graphical Query Languages – CSc 460 v1.1 (McCann) – p. 7/9

QBE: Miscellaneous Notes

- Other π options: P . ALL, P . AO, P . DO
(ALL = keep duplicates, AO = ascending order, DO = descending order)
- Aggregate functions include: AVG, MIN, MAX, SUM, CNT
Example: P . SUM . ALL (The . ALL is required.)
- Other actions:
 - D . under the relation name deletes tuples
 - I . inserts tuples
 - U . updates tuples
- IBM does have QBE documentation on-line, but it's not easy to find!

Graphical Query Languages – CSc 460 v1.1 (McCann) – p. 8/9

Microsoft Access Demonstration

What is the name of the employee who is supervising building 'A'?

M

<u>Num</u>	Name
1	Roy
2	Amy
3	Joy

N

<u>Building</u>	Supervisor
A	2
B	1
C	2
D	NULL