Introduction to Database Systems SQL Query Language: Part 1



Example Instances

R1

sid	<u>bid</u>	<u>day</u>
22	101	10/10/96
58	103	11/12/96

*S*1

sid	sname	rating	age
22	dustin	7	45.0
31	lubber	8	55.5
58	rusty	10	35.0

*S*2

sid	sname	rating	age
28	yuppy	9	35.0
31	lubber	8	55.5
44	guppy	5	35.0
58	rusty	10	35.0

Basic SQL Query

SELECT [DISTINCT] target-list FROM relation-list WHERE qualification

- <u>relation-list</u> A list of relation names (possibly with a <u>range-variable</u> after each name).
- <u>target-list</u> A list of attributes of relations in *relation-list*
- <u>qualification</u> Comparisons (Attr *op* const or Attr1 *op* Attr2 combined using AND, OR and NOT.
- DISTINCT is an optional keyword indicating that the answer should not contain duplicates. Default is that duplicates are <u>not</u> eliminated!

Conceptual Evaluation Strategy

- Semantics of an SQL query defined in terms of the following conceptual evaluation strategy:
 - Compute the cross-product of relation-list.
 - Discard resulting tuples if they fail qualifications.
 - Delete attributes that are not in target-list.
 - If **DISTINCT** is specified, eliminate duplicate rows.
- This strategy is probably the least efficient way to compute a query! An optimizer will find more efficient strategies to compute *the same answers*.

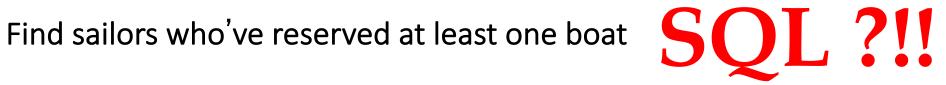
Example of Conceptual Evaluation

SELECT S.sname

FROM Sailors S, Reserves R

WHERE S.sid=R.sid AND R.bid=103

(sid)	sname	rating	age	(sid)	bid	day
22	dustin	7	45.0	22	101	10/10/96
22	dustin	7	45.0	58	103	11/12/96
31	lubber	8	55.5	22	101	10/10/96
31	lubber	8	55.5	58	103	11/12/96
58	rusty	10	35.0	22	101	10/10/96
58	rusty	10	35.0	58	103	11/12/96



Find sailors who've reserved at least one boat

SELECT S.sid FROM Sailors S, Reserves R WHERE S.sid=R.sid

- Would adding DISTINCT to this query make a difference?
- What is the effect of replacing *S.sid* by *S.sname* in the SELECT clause? Would adding DISTINCT to this variant of the query make a difference?

Find sid's of sailors who've reserved a red or a green boat

SQL ?!!

Find sid's of sailors who've reserved a red or a green boat

FROM Sailors S, Boats B, Reserves R
WHERE S.sid=R.sid and R.bid=B.bid
AND (B.color='red' or B.color='green')