Structured Query Language
- Practice Queries -

CS430/630
Lecture 5

Slides based on “Database Management Systems” 3rd ed, Ramakrishnan and Gehrke
### Example Schema

#### Sailors

<table>
<thead>
<tr>
<th>sid</th>
<th>sname</th>
<th>rating</th>
<th>age</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>dustin</td>
<td>7</td>
<td>45.0</td>
</tr>
<tr>
<td>31</td>
<td>lubber</td>
<td>8</td>
<td>55.5</td>
</tr>
<tr>
<td>58</td>
<td>rusty</td>
<td>10</td>
<td>35.0</td>
</tr>
</tbody>
</table>

#### Boats

<table>
<thead>
<tr>
<th>bid</th>
<th>name</th>
<th>color</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>interlake</td>
<td>red</td>
</tr>
<tr>
<td>103</td>
<td>clipper</td>
<td>green</td>
</tr>
</tbody>
</table>

#### Reserves

<table>
<thead>
<tr>
<th>sid</th>
<th>bid</th>
<th>day</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>101</td>
<td>10/10/96</td>
</tr>
<tr>
<td>58</td>
<td>103</td>
<td>11/12/96</td>
</tr>
</tbody>
</table>
Query Example 1

“Find names of sailors who’ve reserved boat #103”

```sql
SELECT S.sname
FROM Sailors S, Reserves R
WHERE S.sid = R.sid AND R.bid = 103
```
**Query Example 2**

- “Find names of sailors who’ve reserved a red boat”

```sql
SELECT  S.sname
FROM    Sailors S, Reserves R, Boats B
        AND B.color='red';
```
“Find sailor ids who’ve reserved a red or a green boat; list each matching sailor id once”

```
SELECT DISTINCT S.sid
FROM Sailors S, Reserves R, Boats B
AND (B.color = 'red' OR B.color = 'green');
```
Same query with set operations

```sql
SELECT  S.sid
FROM    Sailors S, Boats B, Reserves R
        AND B.color='red'
UNION
SELECT  S.sid
FROM    Sailors S, Boats B, Reserves R
        AND B.color='green'
```
Query Example 4

- “Find sailor ids who’ve reserved a red and a green boat”

```sql
SELECT S.sid
FROM Sailors S, Boats B1, Reserves R1,
     Boats B2, Reserves R2
WHERE S.sid=R1.sid AND R1.bid=B1.bid
    AND S.sid=R2.sid AND R2.bid=B2.bid
    AND (B1.color='red' AND B2.color='green')
```

<table>
<thead>
<tr>
<th>Sailors</th>
<th>Boats</th>
</tr>
</thead>
<tbody>
<tr>
<td>sid</td>
<td>sname</td>
</tr>
<tr>
<td>Reserves</td>
<td></td>
</tr>
</tbody>
</table>
Same query with set operations

```
SELECT  S.sid
FROM    Sailors S, Boats B, Reserves R
        AND B.color='red'
INTERSECT
SELECT  S.sid
FROM    Sailors S, Boats B, Reserves R
        AND B.color='green'
```
LIKE with escape sequence

```
SELECT  S.age, S.age-5 AS age1, 2*S.age AS age2
FROM    Sailors S
WHERE   S.sname LIKE 'd_!%n' ESCAPE '!';
```