

Chapter 7 & 8

SQL Facilities

SQL Examples

- Get color and city for “nonParis” parts with weight greater than ten pounds.

```
SELECT COLOR, CITY  
FROM P  
WHERE CITY <> 'Paris'  
AND WEIGHT > 10.0;
```

SQL Examples

- For all parts, get the part number and the weight of that part in grams

```
SELECT P#, WEIGHT*454 AS GMWT  
FROM P;
```

SQL Examples

- Get all combinations of supplier and part information such that the supplier and part in question are colocated

```
SELECT S.*, P.P#, P.PNAME, P.COLOR, P.WEIGHT  
FROM S, P  
WHERE S.CITY = P.CITY;
```

SQL Examples

- Get all pairs of supplier numbers such that the two suppliers concerned are colocated

```
SELECT A.S_NUM SA, B.S_NUM SB
FROM S A, S B
WHERE A.CITY = B.CITY
AND A.S_NUM > B.S_NUM;
```

- Eliminate pairs like (x, x)
- Guarantees the pairs (x, y) and (y, x) will not both appear

SQL Examples

- Get the total number of suppliers

```
SELECT COUNT(*) NUM_SUPPLIERS  
FROM S;
```

- Do not use "AS" in mySQL database

SQL Examples

- Get the maximum and minimum quantity for part 2

```
SELECT MAX(QTY) MAXQ, MIN(QTY) MINQ  
FROM SPJ  
WHERE P_NUM = 'P2';
```

– AVG, SUM

SQL Examples

- For each part supplied, get the part number and the total shipment quantity.

```
SELECT P_NUM, SUM(QTY) TOTQTQ  
FROM SPJ  
GROUP BY P_NUM;
```


SQL Examples

- Get the part number for parts supplied by more than one supplier.

```
SELECT P_NUM, COUNT(S_NUM)
FROM SPJ
GROUP BY P_NUM
HAVING COUNT(S_NUM) > 1;
```

- HAVING is used to eliminate groups as WHERE is used to eliminate rows.

SQL Examples

- Get supplier names for suppliers who supply part P2.

```
SELECT DISTINCT S.SNAME
FROM S
WHERE S.S_NUM IN
(
    SELECT SPJ.S_NUM
    FROM SPJ
    WHERE SPJ.P_NUM = 'P2' )
```

SQL Examples

- Get supplier names for suppliers who supply part P2.

```
SELECT DISTINCT S.SNAME
FROM S
WHERE EXISTS
  ( SELECT *
    FROM SPJ
    WHERE SPJ.P_NUM = 'P2' AND SPJ.S_NUM = S.S_NUM )
```

EXISTS – evaluated to true if and only if (...) is not empty.

SQL Examples

- Get supplier names for suppliers who do not supply part P2.

```
SELECT DISTINCT S.SNAME
FROM S
WHERE NOT EXISTS
  ( SELECT *
    FROM SPJ
    WHERE SPJ.P_NUM = 'P2' AND SPJ.S_NUM = S.S_NUM )
```

NOT EXISTS – evaluated to true if and only if (...) is empty.

SQL Examples

- Get part numbers for parts that either weigh more than 16 pounds or are supplied by supplier P2, or both.

```
SELECT P_NUM
FROM P
WHERE WEIGHT > 16.0
UNION
SELECT P_NUM
FROM SPJ
WHERE S_NUM = 'S2'
```

UNION, INTERSECT, MINUS

SQL Examples

- Get supplier names for suppliers who supply all parts

```
SELECT DISTINCT S.SNAME
FROM S
WHERE NOT EXISTS
  ( SELECT *
    FROM P
    WHERE NOT EXISTS
      ( SELECT * FROM SPJ
        WHERE SPJ.S_NUM = S.S_NUM AND
              SPJ.P_NUM = P.P_NUM
      )
    )
);
```