

CSC 321/621

Database Query Exercise

Assigned: Thursday 2/17/2012 @ 3:15pm

Due date: Wednesday 2/22/2012 @ 5:00pm

Given your hotel domain (corrected if needed) and my example insert values, implement the following SQL queries. After you have successfully gotten a query working, copy it into a file you can upload.

These queries are effectively from the exercises at the back of the SQL Data Manipulation Statements chapter of the book, modified to support our particular use of the domain (for Deacon Boutique Hotels) and to ignore some we have used as examples.

Simple queries:

List full details of all hotels in Winston-Salem.

```
SELECT * FROM hotel WHERE city='Winston-Salem';
```

List details on all double or queen rooms with prices < \$100.00 a night, in ascending order of price.

```
SELECT * FROM room WHERE (type='D' AND price < 100) OR (type='Q' AND price < 100) ORDER BY price ASC;
```

List the bookings which are active as of 2/21/2012 (meaning someone is actually occupying the room on 2/21).

```
SELECT * FROM booking WHERE (dateFrom <= '2012-02-21' AND dateTo >= '2012-02-21');
```

Aggregate functions:

How many hotels are there?

```
SELECT COUNT(hotelNumber) FROM hotel;
```

What is the average price of a room across all hotels?

```
SELECT AVG(price) FROM room;
```

What is the total possible revenue per night from all double rooms?

```
SELECT SUM(price) FROM room WHERE type='D';
```

How many different guests have made bookings that start in February?

```
SELECT COUNT(DISTINCT guestNumber) FROM booking WHERE (dateFrom >= '2012-02-01' AND dateFrom <= '2012-02-29');
```

Subqueries and joins:

What is the total income from bookings for the Winston Hotel on 2/17/2012?

```
SELECT SUM(price) FROM room NATURAL JOIN (SELECT roomNumber, hotelNumber FROM booking NATURAL JOIN (SELECT hotelNumber FROM hotel WHERE hotelName='Winston Hotel') as wsh WHERE dateFrom <= '2012-02-17' AND dateTo >= '2012-02-17') as c;
```

List the rooms that are unoccupied at the Winston Hotel on 2/17/2012.

```
SELECT roomNumber FROM room NATURAL JOIN (SELECT hotelNumber FROM hotel WHERE hotelName='Winston Hotel') as b WHERE roomNumber NOT IN (SELECT roomNumber FROM booking NATURAL JOIN (SELECT hotelNumber FROM hotel WHERE hotelName='Winston Hotel') AS a WHERE dateFrom <= '2012-02-17' AND dateTo >= '2012-02-17');
```

What is the lost income from unoccupied rooms at the Winston Hotel on 2/17/2012?

```
SELECT SUM(price) FROM room NATURAL JOIN (SELECT hotelNumber FROM hotel WHERE
hotelName='Winston Hotel') as b WHERE roomNumber NOT IN (SELECT roomNumber FROM booking
NATURAL JOIN (SELECT hotelNumber FROM hotel WHERE hotelName='Winston Hotel') AS a WHERE
dateFrom <= '2012-02-17' AND dateTo >= '2012-02-17');
```

Grouping:

List the number of rooms in each hotel.

```
SELECT count(roomNumber) FROM room GROUP BY hotelNumber;
```

List the number of rooms in each hotel in Winston-Salem.

```
SELECT count(roomNumber) FROM room NATURAL JOIN (SELECT hotelNumber FROM hotel WHERE
city='Winston-Salem') as WSH GROUP BY hotelNumber;
```

What is the average number of bookings across hotels in February?

```
SELECT COUNT(BOK.dateFrom)/COUNT(DISTINCT h.hotelNumber) FROM hotel h LEFT JOIN (SELECT
* FROM booking b WHERE dateFrom BETWEEN '2012-02-01' AND '2012-02-29' OR dateTo BETWEEN
'2012-02-01' AND '2012-02-29') as BOK ON (h.hotelNumber = BOK.hotelNumber);
```

List the names of guests with more than one booking in the system.

```
SELECT guestName FROM guest NATURAL JOIN (SELECT guestNumber,COUNT(*) as C FROM booking
GROUP BY guestNumber) as a WHERE C >= 2;
```

What is the most commonly booked room type for each hotel in Winston-Salem?

Overall:

```
ANSWER: SELECT type,MAX(typeCount) FROM (SELECT type,COUNT(type) as typeCount FROM room
NATURAL JOIN (SELECT roomNumber,hotelNumber FROM booking NATURAL JOIN (SELECT
hotelNumber FROM hotel WHERE city='Winston-Salem') as a) as b GROUP BY type) as d;
```

Per Hotel:

```
ANSWER: SELECT hotelNumber,type FROM (SELECT hotelNumber, MAX(C) as D FROM (SELECT
h.hotelNumber,type,COUNT(type) as C FROM booking b, hotel h, room r WHERE r.roomNumber =
b.roomNumber and b.hotelNumber=h.hotelNumber and r.hotelNumber=h.hotelNumber and city='Winston-
Salem' GROUP BY hotelNumber,type) AS Z GROUP BY hotelNumber) AS M NATURAL JOIN (SELECT
g.hotelNumber,type,COUNT(type) as E FROM booking f, hotel g, room l WHERE l.roomNumber =
f.roomNumber and f.hotelNumber=g.hotelNumber and l.hotelNumber=g.hotelNumber and city='Winston-
Salem' GROUP BY hotelNumber,type) AS N WHERE D = E;
```