SQL S7 Assessment Test 2

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-- THE EXERCISES AND DATA COME FROM:
-- https://www.udemy.com/course/the-complete-sql-bootcamp/

-- SOLUTIONS ARE MINE. I HAVE OCCASIONALLY ADDED ASPECTS OF SOLUTIONS
-- SUGGESTED BY THE COURSE LECTURER, JOSE PORTILLA, AS COMMENTS TO MY CODE

-- How can you retrieve all the information from
-- the cd.facilities table?

SELECT *
FROM cd.facilities
LIMIT 3; -- to make the query run faster

-- You want to print out a list of all of the facilities
-- and their cost to members. How would you retrieve
-- a list of only facility names and costs?

SELECT name, membercost
FROM cd.facilities
LIMIT 3; -- to make the query run faster

-- How can you produce a list of facilities that charge a
-- fee to members?

SELECT *
FROM cd.facilities
WHERE membercost != 0;

-- How can you produce a list of facilities that charge
-- a fee to members, and that fee is less than 1/50th of
-- the monthly maintenance cost? Return the facid,
-- facility name, member cost, and monthly maintenance
-- of the facilities in question.

SELECT facid, name, membercost, monthlymaintenance
FROM cd.facilities
WHERE membercost != 0
        AND membercost < monthlymaintenance/50;

-- How can you produce a list of all facilities with the
-- word 'Tennis' in their name?

SELECT *
FROM cd.facilities
WHERE name ILIKE '%tennis%';

-- How can you retrieve the details of facilities with
-- ID 1 and 5? Try to do it without using the OR operator.

SELECT *
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FROM cd.facilities
WHERE facid IN (1,5);

-- How can you produce a list of members who joined after
-- the start of September 2012? Return the memid, surname,
-- firstname, and joindate of the members in question.

SELECT memid, surname, firstname, joindate
FROM cd.members
WHERE joindate >= '2012-09-01';

-- How can you produce an ordered list of the
-- first 10 surnames in the members table?
-- The list must not contain duplicates.

SELECT DISTINCT surname
FROM cd.members
ORDER BY surname
LIMIT 10;

-- You'd like to get the signup date of your last member.
-- How can you retrieve this information?

SELECT MAX(joindate)
FROM cd.members;

-- Produce a count of the number of facilities that have
-- a cost to guests of 10 or more.

SELECT COUNT(*)
FROM cd.facilities
WHERE guestcost >= 10;

-- Produce a list of the total number of slots booked
-- per facility in the month of September 2012.
-- Produce an output table consisting of facility id and
-- slots, sorted by the number of slots.

SELECT facid, SUM(slots) AS total_slots
FROM cd.bookings
WHERE TO_CHAR(starttime, 'YYYY-MM') = '2012-09' -- Here, I could have also used: WHERE starttime
>= '2012-09-01' AND starttime < '2012-10-01'
GROUP BY facid
ORDER BY total_slots;

-- Produce a list of facilities with more than 1000
-- slots booked. Produce an output table consisting of
-- facility id and total slots, sorted by facility id.

SELECT facid, SUM(slots) AS total_slots
FROM cd.bookings
GROUP BY facid
HAVING SUM(slots) > 1000
ORDER BY facid;
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-- How can you produce a list of the start times for
-- bookings for tennis courts, for the date '2012-09-21'?
-- Return a list of start time and facility name pairings,
-- ordered by the time.

SELECT b.starttime, f.name
FROM cd.bookings AS b
INNER JOIN cd.facilities AS f
ON b.facid = f.facid
WHERE f.name ILIKE '%tennis%' AND -- Here I am distinguishing between tennis and table tennis
facilities
        f.name NOT ILIKE '%table%' AND
        TO_CHAR(b.starttime, 'yyyy-mm-dd') = '2012-09-21' -- alternatively here:
cd.bookings.starttime >= '2012-09-21' AND cd.bookings.starttime < '2012-09-22'
ORDER BY b.starttime;

-- I could have also used this information to detect 'tennis', and not 'table tennis'
facilities:

SELECT DISTINCT facid, name
FROM cd.facilities
ORDER BY facid; -- based on this, I would have known that tennis courts are represented by:
facid IN (0, 1)

-- How can you produce a list of the start times for
-- bookings by members named 'David Farrell'?

SELECT starttime
FROM cd.bookings AS c
INNER JOIN cd.members AS m
ON c.memid = m.memid
WHERE surname = 'Farrell' AND
        firstname = 'David';
```