This is the SQL Practice assignment, using the local database

In [1]:
```
%load_ext sql
```

In [2]:
```
%sql mysql+pymysql://user:passwd@localhost/country_club
```

Out[2]:
```
'Connected: root@country_club'
```

In [3]:
```
%sql USE country_club
```

```
 * mysql+pymysql://root:***@localhost/country_club
0 rows affected.
```

Out[3]:
```
[]
```

Q1: Some of the facilities charge a fee to members, but some do not. Please list the names of the facilities that do.

In [11]:
```
%%sql
SELECT name
FROM Facilities
WHERE membercost >0
```

```
 * mysql+pymysql://root:***@localhost/country_club
5 rows affected.
```

Out[11]:

name
Tennis Court 1
Tennis Court 2
Massage Room 1
Massage Room 2
Squash Court

Q2: How many facilities do not charge a fee to members?

In [13]:
```
%%sql
SELECT
  COUNT( * ) AS Num
FROM Facilities
WHERE membercost =0
```

```
 * mysql+pymysql://root:***@localhost/country_club
1 rows affected.
```

Out[13]:

Num
4

Q3: How can you produce a list of facilities that charge a fee to members, where the fee is

less than 20% of the facility's monthly maintenance cost? Return the facid, facility name, member cost, and monthly maintenance of the facilities in question.

In [14]:
```
%%sql
SELECT
  facid,
  name,
  membercost,
  monthlymaintenance
FROM Facilities
WHERE membercost < monthlymaintenance * 0.2
```

```
 * mysql+pymysql://root:***@localhost/country_club
9 rows affected.
```

Out[14]:

facid	name	membercost	monthlymaintenance
0	Tennis Court 1	5.0	200
1	Tennis Court 2	5.0	200
2	Badminton Court	0.0	50
3	Table Tennis	0.0	10
4	Massage Room 1	9.9	3000
5	Massage Room 2	9.9	3000
6	Squash Court	3.5	80
7	Snooker Table	0.0	15
8	Pool Table	0.0	15

Q4: How can you retrieve the details of facilities with ID 1 and 5? Write the query without using the OR operator.

In [15]:
```
%%sql
SELECT *
FROM Facilities
WHERE facid IN (1, 5)
```

```
 * mysql+pymysql://root:***@localhost/country_club
2 rows affected.
```

Out[15]:

facid	name	membercost	guestcost	initialoutlay	monthlymaintenance
1	Tennis Court 2	5.0	25.0	8000	200
5	Massage Room 2	9.9	80.0	4000	3000

Q5: How can you produce a list of facilities, with each labelled as 'cheap' or 'expensive', depending on if their monthly maintenance cost is more than $100? Return the name and monthly maintenance of the facilities in question.

In [16]:
```
%%sql
SELECT
  name,
  monthlymaintenance,
  (CASE WHEN monthlymaintenance >100 THEN 'expensive' ELSE 'cheap' END) AS label
FROM Facilities
```

```
 * mysql+pymysql://root:***@localhost/country_club
9 rows affected.
```

Out[16]:

name	monthlymaintenance	label
Tennis Court 1	200	expensive
Tennis Court 2	200	expensive
Badminton Court	50	cheap
Table Tennis	10	cheap
Massage Room 1	3000	expensive
Massage Room 2	3000	expensive
Squash Court	80	cheap
Snooker Table	15	cheap
Pool Table	15	cheap

Q6: You'd like to get the first and last name of the last member(s) who signed up. Do not use the LIMIT clause for your solution.

In [17]:
```
%%sql
SELECT
  firstname,
  surname
FROM Members
WHERE joindate IN (SELECT MAX( joindate ) FROM Members)
```

```
 * mysql+pymysql://root:***@localhost/country_club
1 rows affected.
```

Out[17]:

firstname	surname
Darren	Smith

Q7: How can you produce a list of all members who have used a tennis court? Include in your output the name of the court, and the name of the member formatted as a single column. Ensure no duplicate data, and order by the member name.

In [22]:
```
%%sql
SELECT DISTINCT sub.*
FROM (
SELECT
  CONCAT(m.firstname, ' ', m.surname) AS member_name,
  f.name
FROM Members m
INNER JOIN Bookings b
ON m.memid = b.memid
INNER JOIN Facilities f
ON f.facid = b.facid
WHERE LOWER(f.name) LIKE 'tennis court%'
) AS sub
ORDER BY sub.member_name
```

```
 * mysql+pymysql://root:***@localhost/country_club
46 rows affected.
```

Out[22]:

member_name	name
Anne Baker	Tennis Court 1
Anne Baker	Tennis Court 2
Burton Tracy	Tennis Court 2
Burton Tracy	Tennis Court 1
Charles Owen	Tennis Court 1
Charles Owen	Tennis Court 2
Darren Smith	Tennis Court 2
David Farrell	Tennis Court 2
David Farrell	Tennis Court 1
David Jones	Tennis Court 2
David Jones	Tennis Court 1
David Pinker	Tennis Court 1
Douglas Jones	Tennis Court 1
Erica Crumpet	Tennis Court 1
Florence Bader	Tennis Court 2
Florence Bader	Tennis Court 1
Gerald Butters	Tennis Court 2
Gerald Butters	Tennis Court 1
GUEST GUEST	Tennis Court 2
GUEST GUEST	Tennis Court 1
Henrietta Rumney	Tennis Court 2
Jack Smith	Tennis Court 2
Jack Smith	Tennis Court 1
Janice Joplette	Tennis Court 1

Janice Joplette	Tennis Court 2
Jemima Farrell	Tennis Court 1
Jemima Farrell	Tennis Court 2
Joan Coplin	Tennis Court 1
John Hunt	Tennis Court 1
John Hunt	Tennis Court 2
Matthew Genting	Tennis Court 1
Millicent Purview	Tennis Court 2
Nancy Dare	Tennis Court 2
Nancy Dare	Tennis Court 1
Ponder Stibbons	Tennis Court 2
Ponder Stibbons	Tennis Court 1
Ramnaresh Sarwin	Tennis Court 1
Ramnaresh Sarwin	Tennis Court 2
Tim Boothe	Tennis Court 2
Tim Boothe	Tennis Court 1
Tim Rownam	Tennis Court 2
Tim Rownam	Tennis Court 1
Timothy Baker	Tennis Court 2
Timothy Baker	Tennis Court 1
Tracy Smith	Tennis Court 2
Tracy Smith	Tennis Court 1

Q8: How can you produce a list of bookings on the day of 2012-09-14 which will cost the member (or guest) more than $30? Remember that guests have different costs to members (the listed costs are per half-hour 'slot'), and the guest user's ID is always 0. Include in your output the name of the facility, the name of the member formatted as a single column, and the cost. Order by descending cost, and do not use any subqueries.

In [19]:
```
%%sql
SELECT
  b.bookid AS booking_id,
  CONCAT( m.firstname, " ", m.surname ) AS name,
  CASE WHEN m.memid =0 THEN f.guestcost * b.slots ELSE f.membercost * b.slots END
  f.name AS facility_name,
  b.starttime AS TIME
FROM Bookings b
INNER JOIN Members m
ON b.memid = m.memid
INNER JOIN Facilities f
ON f.facid = b.facid
WHERE CAST( b.starttime AS DATE ) = CAST( '2012-09-14' AS DATE ) AND (CASE WHEN m
ORDER BY cost DESC
```

```
 * mysql+pymysql://root:***@localhost/country_club
12 rows affected.
```

Out[19]:

booking_id	name	cost	facility_name	TIME
2946	GUEST GUEST	320.0	Massage Room 2	2012-09-14 11:00:00
2937	GUEST GUEST	160.0	Massage Room 1	2012-09-14 09:00:00
2940	GUEST GUEST	160.0	Massage Room 1	2012-09-14 13:00:00
2942	GUEST GUEST	160.0	Massage Room 1	2012-09-14 16:00:00
2926	GUEST GUEST	150.0	Tennis Court 2	2012-09-14 17:00:00
2920	GUEST GUEST	75.0	Tennis Court 1	2012-09-14 16:00:00
2922	GUEST GUEST	75.0	Tennis Court 1	2012-09-14 19:00:00
2925	GUEST GUEST	75.0	Tennis Court 2	2012-09-14 14:00:00
2948	GUEST GUEST	70.0	Squash Court	2012-09-14 09:30:00
2941	Jemima Farrell	39.6	Massage Room 1	2012-09-14 14:00:00
2949	GUEST GUEST	35.0	Squash Court	2012-09-14 12:30:00
2951	GUEST GUEST	35.0	Squash Court	2012-09-14 15:00:00

Q9: This time, produce the same result as in Q8, but using a subquery.

In [20]:
```
%%sql
SELECT sub.*
FROM (
SELECT
  b.bookid AS booking_id,
  CONCAT( m.firstname, " ", m.surname ) AS name,
  CASE WHEN m.memid =0 THEN f.guestcost * b.slots ELSE f.membercost * b.slots END
  f.name AS facility_name,
  b.starttime AS TIME
FROM Bookings b
INNER JOIN Members m
ON b.memid = m.memid
INNER JOIN Facilities f
ON f.facid = b.facid
WHERE CAST( b.starttime AS DATE ) = CAST( '2012-09-14' AS DATE )
) sub
WHERE sub.cost > 30
ORDER BY sub.cost DESC
```

```
 * mysql+pymysql://root:***@localhost/country_club
12 rows affected.
```

Out[20]:

booking_id	name	cost	facility_name	TIME
2946	GUEST GUEST	320.0	Massage Room 2	2012-09-14 11:00:00
2937	GUEST GUEST	160.0	Massage Room 1	2012-09-14 09:00:00
2940	GUEST GUEST	160.0	Massage Room 1	2012-09-14 13:00:00
2942	GUEST GUEST	160.0	Massage Room 1	2012-09-14 16:00:00
2926	GUEST GUEST	150.0	Tennis Court 2	2012-09-14 17:00:00
2920	GUEST GUEST	75.0	Tennis Court 1	2012-09-14 16:00:00
2922	GUEST GUEST	75.0	Tennis Court 1	2012-09-14 19:00:00
2925	GUEST GUEST	75.0	Tennis Court 2	2012-09-14 14:00:00
2948	GUEST GUEST	70.0	Squash Court	2012-09-14 09:30:00
2941	Jemima Farrell	39.6	Massage Room 1	2012-09-14 14:00:00
2949	GUEST GUEST	35.0	Squash Court	2012-09-14 12:30:00
2951	GUEST GUEST	35.0	Squash Court	2012-09-14 15:00:00

Q10: Produce a list of facilities with a total revenue less than 1000. The output of facility name and total revenue, sorted by revenue. Remember that there's a different cost for guests and members!

In [21]:
```
%%sql
SELECT
  f.name
FROM Bookings b
INNER JOIN Facilities f
ON f.facid = b.facid
GROUP BY 1
HAVING SUM(CASE WHEN b.memid = 0 THEN f.guestcost*b.slots ELSE f.membercost*b.slo
ORDER BY SUM(CASE WHEN b.memid = 0 THEN f.guestcost*b.slots ELSE f.membercost*b.s
```

```
 * mysql+pymysql://root:***@localhost/country_club
3 rows affected.
```

Out[21]:

name
Table Tennis
Snooker Table
Pool Table

In [ ]: