

# Joins and subqueries

## 1. Retrieve the start times of members' bookings

**Query:** select bks.starttime from bookings bks inner join members mems on mems.memid = bks.memid where mems.firstname='David' and mems.surname='Farrell';

### SQLOUTPUT:

```
exercises=# select bks.starttime from bookings bks inner join members mems on mems.memid = bks.memid where mems.firstname='David' and mems.surname='Farrell';
starttime
-----
2012-09-18 09:00:00
2012-09-18 17:30:00
2012-09-18 13:30:00
2012-09-18 20:00:00
2012-09-19 09:30:00
2012-09-19 15:00:00
2012-09-19 12:00:00
2012-09-20 15:30:00
2012-09-20 11:30:00
2012-09-20 14:00:00
2012-09-21 10:30:00
2012-09-21 14:00:00
2012-09-22 08:30:00
2012-09-22 17:00:00
2012-09-23 08:30:00
2012-09-23 17:30:00
2012-09-23 19:00:00
2012-09-24 08:00:00
2012-09-24 16:30:00
2012-09-24 12:30:00
2012-09-25 15:30:00
2012-09-25 17:00:00
2012-09-26 13:00:00
2012-09-26 17:00:00
2012-09-27 08:00:00
2012-09-28 11:30:00
2012-09-28 09:30:00
2012-09-28 13:00:00
2012-09-29 16:00:00
2012-09-29 10:30:00
2012-09-29 13:30:00
2012-09-29 14:30:00
2012-09-29 17:30:00
2012-09-30 14:30:00
(34 rows)
```

## 2. Work out the start times of bookings for tennis courts

**Query:** select bks.starttime as start, facs.name as name from facilities facs inner join bookings bks on facs.facid = bks.facid where facs.name in ('Tennis Court 2','Tennis Court 1') and bks.starttime >= '2012-09-21' and bks.starttime < '2012-09-22' order by bks.starttime;

### SQLOUTPUT:

## 3. Produce a list of all members who have recommended another member

**Query:** select distinct recs.firstname as firstname, recs.surname as surname from members mems inner join cd.members recs on recs.memid = mems.recommendedby order by surname, firstname;

## SQLOUTPUT:

```
exercises=# select distinct recs.firstname as firstname, recs.surname as surname from members mems inner join cd.members recs on recs.memid = mems.recommendedby order by surname,
, firstname;
firstname | surname
-----
Florence  | Bader
Timothy   | Baker
Gerald    | Butters
Jemima    | Farrell
Matthew   | Genting
David     | Jones
Janice    | Joplette
Millicent | Purview
Tim       | Rownam
Darren    | Smith
Tracy     | Smith
Ponder    | Stibbons
Burton    | Tracy
(13 rows)
```

## 4. Produce a list of all members, along with their recommender

**Query:** select mems.firstname as memfname, mems.surname as memsname, recs.firstname as recfname, recs.surname as recsname from members mems left outer join members recs on recs.memid = mems.recommendedby order by memsname, memfname;

## SQLOUTPUT:

```
exercises=# select mems.firstname as memfname, mems.surname as memsname, recs.firstname as recfname, recs.surname as recsname from members mems left outer join members recs on r
ecs.memid = mems.recommendedby order by memsname, memfname;
memfname | memsname | recfname | recsname
-----
Florence  | Bader    | Ponder   | Stibbons
Anne      | Baker    | Ponder   | Stibbons
Timothy   | Baker    | Jemima   | Farrell
Tim       | Boothe   | Tim      | Rownam
Gerald    | Butters  | Darren   | Smith
Joan      | Coplin   | Timothy  | Baker
Erica     | Crumpet  | Tracy    | Smith
Nancy     | Dare     | Janice   | Joplette
David     | Farrell  |          |
Jemima    | Farrell  |          |
Matthew   | Genting  | Gerald   | Butters
David     | Jones    |          |
GUEST     | GUEST    |          |
John      | Hunt     | Millicent | Purview
David     | Jones    | Janice   | Joplette
Douglas   | Jones    | David    | Jones
Janice    | Joplette | Darren   | Smith
Anna      | Mackenzie | Darren   | Smith
Charles   | Owen     | Darren   | Smith
David     | Pinker   | Jemima   | Farrell
Millicent | Purview  | Tracy    | Smith
Tim       | Rownam   |          |
Henrietta | Runney   | Matthew  | Genting
Rammaresh | Sarwin   | Florence | Bader
Darren    | Smith    |          |
Darren    | Smith    |          |
Jack      | Smith    | Darren   | Smith
Tracy     | Smith    |          |
Ponder    | Stibbons | Burton   | Tracy
Burton    | Tracy    |          |
Hyacinth  | Tupperware |          |
Henry     | Worthington-Smyth | Tracy | Smith
(31 rows)
```

## 5. Produce a list of all members who have used a tennis court

**Query:** select distinct mems.firstname || ' ' || mems.surname as member, facts.name as facility from members mems inner join bookings bks on mems.memid = bks.memid inner join cd.facilities facts on bks.facid = facts.facid where facts.name in ('Tennis Court 2','Tennis Court 1') order by member, facility

**SQLOUTPUT:**

```
exercises=# select distinct mems.firstname || ' ' || mems.surname as member, facts.name as facility from members mems inner join bookings bks on mems.memid = bks.memid inner join
cd.facilities facts on bks.facid = facts.facid where facts.name in ('Tennis Court 2','Tennis Court 1') order by member, facility
exercises=# ;
```

member	facility
Anne Baker	Tennis Court 1
Anne Baker	Tennis Court 2
Burton Tracy	Tennis Court 1
Burton Tracy	Tennis Court 2
Charles Owen	Tennis Court 1
Charles Owen	Tennis Court 2
Darren Smith	Tennis Court 2
David Farrell	Tennis Court 1
David Farrell	Tennis Court 2
David Jones	Tennis Court 1
David Jones	Tennis Court 2
David Pinker	Tennis Court 1
Douglas Jones	Tennis Court 1
Erica Crummet	Tennis Court 1
Florence Bader	Tennis Court 1
Florence Bader	Tennis Court 2
Gerald Butters	Tennis Court 1
Gerald Butters	Tennis Court 2
GUEST GUEST	Tennis Court 1
GUEST GUEST	Tennis Court 2
Henrietta Rumney	Tennis Court 2
Jack Smith	Tennis Court 1
Jack Smith	Tennis Court 2
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 1
Nancy Dare	Tennis Court 2
Ponder Stibbons	Tennis Court 1
Ponder Stibbons	Tennis Court 2
Ramnaresh Sarwin	Tennis Court 1
Ramnaresh Sarwin	Tennis Court 2
Tim Boothe	Tennis Court 1
Tim Boothe	Tennis Court 2
Tim Rownam	Tennis Court 1
Tim Rownam	Tennis Court 2
Timothy Baker	Tennis Court 1
Timothy Baker	Tennis Court 2
Tracy Smith	Tennis Court 1
Tracy Smith	Tennis Court 2

(46 rows)

## 6. Produce a list of costly bookings

**Query:** select mems.firstname || ' ' || mems.surname as member, facts.name as facility, case when mems.memid = 0 then bks.slots\*facs.guestcost else bks.slots\*facs.membercost end as cost from members mems inner join bookings bks on mems.memid = bks.memid inner join facilities facts on bks.facid = facts.facid where bks.starttime >= '2012-09-14' and bks.starttime < '2012-09-15' and ( (mems.memid = 0 and bks.slots\*facs.guestcost > 30) or (mems.memid != 0 and bks.slots\*facs.membercost > 30) ) order by cost desc;

## SQLOUTPUT:

```
exercises=# select mems.firstname || ' ' || mems.surname as member, facs.name as facility, case when mems.memid = 0 then bks.slots*facs.guestcost else bks.slots*facs.membercost
end as cost from members mems inner join bookings bks on mems.memid = bks.memid inner join facilities facs on bks.facid = facs.facid where bks.starttime >= '2012-09-14' and bks.
starttime < '2012-09-15' and ( (mems.memid = 0 and bks.slots*facs.guestcost > 30) or (mems.memid != 0 and bks.slots*facs.membercost > 30) ) order by cost desc;
member | facility | cost
-----|-----|-----
GUEST GUEST | Massage Room 2 | 320
GUEST GUEST | Massage Room 1 | 160
GUEST GUEST | Massage Room 1 | 160
GUEST GUEST | Massage Room 1 | 160
GUEST GUEST | Tennis Court 2 | 150
Jemima Farrell | Massage Room 1 | 140
GUEST GUEST | Tennis Court 1 | 75
GUEST GUEST | Tennis Court 1 | 75
GUEST GUEST | Tennis Court 2 | 75
Ponder Stibbons | Massage Room 1 | 70
Jemima Farrell | Massage Room 1 | 70
Burton Tracy | Massage Room 1 | 70
Matthew Genting | Massage Room 1 | 70
Florence Bader | Massage Room 2 | 70
Jack Smith | Massage Room 1 | 70
GUEST GUEST | Squash Court | 70.0
GUEST GUEST | Squash Court | 35.0
GUEST GUEST | Squash Court | 35.0
(18 rows)
```

**7. Produce a list of all members, along with their recommender, using no joins.**

**Query:** select distinct mems.firstname || ' ' || mems.surname as member, (select recs.firstname || ' ' || recs.surname as recommender from members recs where recs.memid = mems.recommendedby ) from members mems order by member;

## SQLOUTPUT:

```
exercises=# select distinct mems.firstname || ' ' || mems.surname as member, (select recs.firstname || ' ' || recs.surname as recommender from members recs where recs.memid = me
ms.recommendedby ) from members mems order by member;
member | recommender
-----|-----
Anna Mackenzie | Darren Smith
Anne Baker | Ponder Stibbons
Burton Tracy | 
Charles Owen | Darren Smith
Darren Smith | 
David Farrell | 
David Jones | Janice Joplette
David Pinker | Jemima Farrell
Douglas Jones | David Jones
Erica Crummet | Tracy Smith
Florence Bader | Ponder Stibbons
Gerald Butters | Darren Smith
GUEST GUEST | 
Henrietta Rummy | Matthew Genting
Henry Worthington-Smyth | Tracy Smith
Hyacinth Tupperware | 
Jack Smith | Darren Smith
Janice Joplette | Darren Smith
Jemima Farrell | 
Joan Coplin | Timothy Baker
John Hunt | Millicent Purview
Matthew Genting | Gerald Butters
Millicent Purview | Tracy Smith
Nancy Dare | Janice Joplette
Ponder Stibbons | Burton Tracy
Ramaresh Sarwin | Florence Bader
Tim Boothe | Tim Rownam
Tim Rownam | 
Timothy Baker | Jemima Farrell
Tracy Smith | 
(30 rows)
```

**8. Produce a list of costly bookings, using a subquery**

**Query:** select member, facility, cost from ( select mems.firstname || ' ' || mems.surname as member, facs.name as facility, case when mems.memid = 0 then bks.slots\*facs.guestcost else bks.slots\*facs.membercost end as cost from members mems inner join bookings bks on mems.memid = bks.memid inner join facilities facs on bks.facid = facs.facid where bks.starttime >= '2012-09-14' and bks.starttime < '2012-09-15' ) as bookings where cost > 30 order by cost desc;

# SQLOUTPUT:

```
exercises=# select member, facility, cost from ( select mems.firstname || ' ' || mems.surname as member, facs.name as facility, case when mems.memid = 0 then bks.slots*facs.gues
tcost else bks.slots*facs.membercost end as cost from members mems inner join bookings bks on mems.memid = bks.memid inner join facilities facs on bks.facid = facs.facid where b
ks.starttime >= '2012-09-14' and bks.starttime < '2012-09-15' ) as bookings where cost > 30 order by cost desc;
 member      | facility      | cost
-----
GUEST GUEST   | Massage Room 2 | 320
GUEST GUEST   | Massage Room 1 | 160
GUEST GUEST   | Massage Room 1 | 160
GUEST GUEST   | Massage Room 1 | 160
GUEST GUEST   | Tennis Court 2 | 150
Jemima Farrell | Massage Room 1 | 140
GUEST GUEST   | Tennis Court 1 | 75
GUEST GUEST   | Tennis Court 1 | 75
GUEST GUEST   | Tennis Court 2 | 75
Ponder Stibbons | Massage Room 1 | 70
Jemima Farrell | Massage Room 1 | 70
Burton Tracy   | Massage Room 1 | 70
Matthew Genting | Massage Room 1 | 70
Florence Bader | Massage Room 2 | 70
Jack Smith     | Massage Room 1 | 70
GUEST GUEST   | Squash Court   | 70.0
GUEST GUEST   | Squash Court   | 35.0
GUEST GUEST   | Squash Court   | 35.0
(18 rows)
```