

New assignment: "SQL" - mani PostgreSQL exercises pgexercises.com/questions/basic/selectall.html

**cd.members**

memid	integer
surname	character varying(200)
firstname	character varying(200)
address	character varying(300)
zipcode	integer
telephone	character varying(20)
recommendedby	integer
joindate	timestamp

**cd.bookings**

facid	integer
memid	integer
starttime	timestamp
slots	integer

**cd.facilities**

facid	integer
name	character varying(100)
membercost	numeric
guestcost	numeric
initialoutlay	numeric
monthlymaintenance	numeric

**Expected Results**

facid	name	membercost	guestcost	initialoutlay	monthlymaintenance
0	Tennis Court 1	5	25	10000	200
1	Tennis Court 2	5	25	8000	200
2	Badminton Court	0	15.5	4000	50
3	Table Tennis	0	5	320	10
4	Massage Room 1	35	80	4000	3000
5	Massage Room 2	35	80	4000	3000
6	Squash Court	3.5	17.5	5000	80
7	Snooker Table	0	5	450	15
8	Pool Table	0	5	400	15

**Your Answer** Hint Help Save Run Query

```
select * from cd.facilities
```

New assignment: "SQL" - mani PostgreSQL exercises pgexercises.com/questions/basic/selectspecific.html

## Retrieve specific columns from a table

**Question**

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?

**cd.members**

memid	integer
surname	character varying(200)
firstname	character varying(200)
address	character varying(300)
zipcode	integer
telephone	character varying(20)
recommendedby	integer
joindate	timestamp

**cd.bookings**

facid	integer
memid	integer
starttime	timestamp
slots	integer

**cd.facilities**

facid	integer
name	character varying(100)
membercost	numeric
guestcost	numeric
initialoutlay	numeric
monthlymaintenance	numeric

**Expected Results**

name	membercost
Tennis Court 1	5
Tennis Court 2	5
Badminton Court	0

**Your Answer** Hint Help Save Run Query

```
select name,membercost from cd.facilities
```

New assignment: "SQL" - mani... PostgreSQL exercises

pgexercisec.com/questions/basic/where.html

## Control which rows are retrieved

Question

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

Schema reminder

memid	integer
surname	character varying(200)
firstname	character varying(200)
address	character varying(300)
zipcode	integer
telephone	character varying(20)
recommendedby	integer
joindate	timestamp

facid	integer
memid	integer
starttime	timestamp
slots	integer

facid	integer
name	character varying(100)
membercost	numeric
guestcost	numeric
initialoutlay	numeric
monthlymaintenance	numeric

Expected Results

facid	name	membercost	guestcost	initialoutlay	monthlymaintenance
0	Tennis Court 1	5	25	10000	200
1	Tennis Court 2	5	25	8000	200
4	Massage Room 1	35	90	4000	3000

Your Answer

```
select * from cd.facilities
where membercost>0
```

Hint Help Save Run Query

9:58 pm 03/11/2023

New assignment: "SQL" - mani... PostgreSQL exercises

pgexercisec.com/questions/basic/where2.html

## Question

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.

Schema reminder

memid	integer
surname	character varying(200)
firstname	character varying(200)
address	character varying(300)
zipcode	integer
telephone	character varying(20)
recommendedby	integer
joindate	timestamp

facid	integer
memid	integer
starttime	timestamp
slots	integer

facid	integer
name	character varying(100)
membercost	numeric
guestcost	numeric
initialoutlay	numeric
monthlymaintenance	numeric

Expected Results

facid	name	membercost	monthlymaintenance
4	Massage Room 1	35	3000
5	Massage Room 2	35	3000

Your Answer

```
select facid, name, membercost,monthlymaintenance from cd.facilities
where membercost>0 and (membercost < monthlymaintenance/50.0)
```

Hint Help Save Run Query

9:58 pm 03/11/2023

New assignment: "SQL" - mani... PostgreSQL exercises

pgexercisec.com/questions/basic/where3.html

## Basic string searches

Question

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

Schema reminder

memid	integer
surname	character varying(200)
firstname	character varying(200)
address	character varying(300)
zipcode	integer
telephone	character varying(20)
recommendedby	integer
joindate	timestamp

facid	integer
memid	integer
starttime	timestamp
slots	integer

facid	integer
name	character varying(100)
membercost	numeric
guestcost	numeric
initialoutlay	numeric
monthlymaintenance	numeric

Expected Results

facid	name	membercost	guestcost	initialoutlay	monthlymaintenance
0	Tennis Court 1	5	25	10000	200
1	Tennis Court 2	5	25	8000	200
3	Table Tennis	0	5	320	10

Your Answer

```
select facid,name,membercost,guestcost,initialoutlay,monthlymaintenance from
where name like '%Tennis%'
```

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New assignment: "SQL" - mani... PostgreSQL exercises

pgexercisec.com/questions/basic/where4.html

## Matching against multiple possible values

Question

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

Schema reminder

memid	integer
surname	character varying(200)
firstname	character varying(200)
address	character varying(300)
zipcode	integer
telephone	character varying(20)
recommendedby	integer
joindate	timestamp

facid	integer
memid	integer
starttime	timestamp
slots	integer

facid	integer
name	character varying(100)
membercost	numeric
guestcost	numeric
initialoutlay	numeric
monthlymaintenance	numeric

Expected Results

facid	name	membercost	guestcost	initialoutlay	monthlymaintenance
1	Tennis Court 2	5	25	8000	200
5	Massage Room 2	35	80	4000	3000

Your Answer

```
select * from cd.facilities
where facid in (1,5);
```

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New assignment: "SQL" - mani... PostgreSQL exercises

pgexercises.com/questions/basic/classify.html

## Classify results into buckets

Question

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.

Schema reminder

**cd.members**

memid	integer
surname	character varying(200)
firstname	character varying(200)
address	character varying(300)
zipcode	integer
telephone	character varying(20)
recommendedby	integer
joindate	timestamp

**cd.bookings**

facid	integer
memid	integer
starttime	timestamp
slots	integer

**cd.facilities**

facid	integer
name	character varying(100)
membercost	numeric
guestcost	numeric
initialoutlay	numeric
monthlymaintenance	numeric

Expected Results

name	cost
Tennis Court 1	expensive
Tennis Court 2	expensive
Badminton Court	cheap

Your Answer

```
select name,
       case when (monthlymaintenance > 100) then
         'expensive'
       else 'cheap'
       end as cost
from cd.facilities;
```

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New assignment: "SQL" - mani... PostgreSQL exercises

pgexercises.com/questions/basic/date.html

## Working with dates

Question

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.

Schema reminder

**cd.members**

memid	integer
surname	character varying(200)
firstname	character varying(200)
address	character varying(300)
zipcode	integer
telephone	character varying(20)
recommendedby	integer
joindate	timestamp

**cd.bookings**

facid	integer
memid	integer
starttime	timestamp
slots	integer

**cd.facilities**

facid	integer
name	character varying(100)
membercost	numeric
guestcost	numeric
initialoutlay	numeric
monthlymaintenance	numeric

Expected Results

memid	surname	firstname	joindate
24	Sarvin	Ramnaresh	2012-09-01 08:44:42
26	Jones	Douglas	2012-09-02 18:43:05
27	Rumney	Henrietta	2012-09-05 08:42:35

Your Answer

```
select memid, surname, firstname, joindate
from cd.members
where joindate >= '2012-09-01';
```

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New assignment: "SQL" - mani... PostgreSQL exercises pgexercis.com/questions/basic/unique.html

## Removing duplicates, and ordering results

Question

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

Schema reminder

cd.members				
memid	integer			
surname	character varying(200)			
firstname	character varying(200)			
address	character varying(300)			
zipcode	integer			
telephone	character varying(20)			
recommendedby	integer			
joindate	timestamp			

cd.bookings			
facid	integer		
memid	integer		
starttime	timestamp		
slots	integer		

cd.facilities			
facid	integer		
name	character varying(100)		
membercost	numeric		
guestcost	numeric		
initialoutlay	numeric		
monthlymaintenance	numeric		

Expected Results

surname
Bader
Baker
Boothe

Your Answer

```
select distinct surname
from cd.members
order by surname
limit 10;
```

Hint Help Save Run Query

9:59 pm 03/11/2023

New assignment: "SQL" - mani... PostgreSQL exercises pgexercis.com/questions/basic/union.html

## Combining results from multiple queries

Question

You, for some reason, want a combined list of all surnames and all facility names. Yes, this is a contrived example :-). Produce that list!

Schema reminder

cd.members				
memid	integer			
surname	character varying(200)			
firstname	character varying(200)			
address	character varying(300)			
zipcode	integer			
telephone	character varying(20)			
recommendedby	integer			
joindate	timestamp			

cd.bookings			
facid	integer		
memid	integer		
starttime	timestamp		
slots	integer		

cd.facilities			
facid	integer		
name	character varying(100)		
membercost	numeric		
guestcost	numeric		
initialoutlay	numeric		
monthlymaintenance	numeric		

Expected Results

surname
Tennis Court 2
Worthington-Smyth
Badminton Court

Your Answer

```
select surname
from cd.members
union
select name
from cd.facilities;
```

Hint Help Save Run Query

9:59 pm 03/11/2023

New assignment: "SQL" - mani... PostgreSQL exercises pgexercis.com/questions/basic/agg.html

## Simple aggregation

Question

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

Schema reminder

cd.members	
memid	integer
surname	character varying(200)
firstname	character varying(200)
address	character varying(300)
zipcode	integer
telephone	character varying(20)
recommendedby	integer
joindate	timestamp

cd.bookings	
facid	integer
memid	integer
starttime	timestamp
slots	integer

cd.facilities	
facid	integer
name	character varying(100)
membercost	numeric
guestcost	numeric
initialoutlay	numeric
monthlymaintenance	numeric

Expected Results

latest
2012-09-26 18:08:45

Your Answer

```
select max(joindate) as latest
from cd.members;
```

Hint Help Save Run Query

9:59 pm 03/11/2023

New assignment: "SQL" - mani... PostgreSQL exercises pgexercis.com/questions/basic/agg2.html

## More aggregation

Question

You'd like to get the first and last name of the last member(s) who signed up - not just the date. How can you do that?

Schema reminder

cd.members	
memid	integer
surname	character varying(200)
firstname	character varying(200)
address	character varying(300)
zipcode	integer
telephone	character varying(20)
recommendedby	integer
joindate	timestamp

cd.bookings	
facid	integer
memid	integer
starttime	timestamp
slots	integer

cd.facilities	
facid	integer
name	character varying(100)
membercost	numeric
guestcost	numeric
initialoutlay	numeric
monthlymaintenance	numeric

Expected Results

firstname	surname	joindate
Darren	Smith	2012-09-26 18:08:45

Your Answer

```
select firstname, surname, joindate
from cd.members
where joindate =
(select max(joindate)
from cd.members);
```

Hint Help Save Run Query

9:59 pm 03/11/2023

New assignment: "SQL" - mani... PostgreSQL exercises

pgexercises.com/questions/joins/simplejoin.html

## Retrieve the start times of members' bookings

Question

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

Schema reminder

memid	integer
surname	character varying(200)
firstname	character varying(200)
address	character varying(300)
zipcode	integer
telephone	character varying(20)
recommendedby	integer
joindate	timestamp

facid	integer
memid	integer
starttime	timestamp
slots	integer

facid	integer
name	character varying(100)
membercost	numeric
guestcost	numeric
initialoutlay	numeric
monthlymaintenance	numeric

Expected Results

starttime
2012-09-18 09:00:00
2012-09-18 17:30:00
2012-09-18 13:30:00

Your Answer

```
select bks.starttime
from
  cd.bookings bks
inner join cd.members mens
  on mens.memid = bks.memid
where
  mens.firstname='David'
  and mens.surname='Farrell';
```

Hint Help Save Run Query

New assignment: "SQL" - mani... PostgreSQL exercises

pgexercises.com/questions/joins/simplejoin2.html

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

Question

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.

Schema reminder

memid	integer
surname	character varying(200)
firstname	character varying(200)
address	character varying(300)
zipcode	integer
telephone	character varying(20)
recommendedby	integer
joindate	timestamp

facid	integer
memid	integer
starttime	timestamp
slots	integer

facid	integer
name	character varying(100)
membercost	numeric
guestcost	numeric
initialoutlay	numeric
monthlymaintenance	numeric

Expected Results

start	name
2012-09-21 08:00:00	Tennis Court 1
2012-09-21 08:00:00	Tennis Court 2
2012-09-21 09:30:00	Tennis Court 1

Your Answer

```
select bks.starttime as start, facs.name as name
from
  cd.facilities facs
inner join cd.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';
```

Hint Help Save Run Query



New assignment: "SQL" - mani: x PostgreSQL exercises x pgexercises.com/questions/joins/self.html

### Question

How can you output a list of all members who have recommended another member? Ensure that there are no duplicates in the list, and that results are ordered by (surname, firstname).

**Schema reminder**

memid	integer
surname	character varying(200)
firstname	character varying(200)
address	character varying(300)
zipcode	integer
telephone	character varying(20)
recommendedby	integer
joindate	timestamp

facid	integer
memid	integer
starttime	timestamp
slots	integer

facid	integer
name	character varying(100)
membercost	numeric
guestcost	numeric
initialoutlay	numeric
monthlymaintenance	numeric

**Expected Results**

firstname	surname
Florence	Bader
Timothy	Baker
Gerald	Butters

**Your Answer**

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

Hint Help Save Run Query

10:00 pm 03/11/2023

New assignment: "SQL" - mani: x PostgreSQL exercises x pgexercises.com/questions/joins/self2.html

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

### Question

How can you output a list of all members, including the individual who recommended them (if any)? Ensure that results are ordered by (surname, firstname).

**Schema reminder**

memid	integer
surname	character varying(200)
firstname	character varying(200)
address	character varying(300)
zipcode	integer
telephone	character varying(20)
recommendedby	integer
joindate	timestamp

facid	integer
memid	integer
starttime	timestamp
slots	integer

facid	integer
name	character varying(100)
membercost	numeric
guestcost	numeric
initialoutlay	numeric
monthlymaintenance	numeric

**Expected Results**

memname	memsname	recfname	recsname
Florence	Bader	Ponder	Stibbons
Anne	Baker	Ponder	Stibbons
Timothy	Baker	Jemima	Farrell

**Your Answer**

```
select mems.firstname as memname, mems.surname as memsname, recs.firstname as recfname, recs.su
from
  cd.members mems
  left outer join cd.members recs
    on recs.memid = mems.recommendedby
order by memsname, memname;
```

Hint Help Save Run Query

10:00 pm 03/11/2023



New assignment: "SQL" - mani: x PostgreSQL exercises x +

pgexercises.com/questions/joins/threejoin.html

### Question

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 followed by the facility name.

**Schema reminder**

cd.members		cd.bookings		cd.facilities	
memid	integer	facid	integer	facid	integer
surname	character varying(200)	memid	integer	name	character varying(100)
firstname	character varying(200)	starttime	timestamp	membercost	numeric
address	character varying(300)	slots	integer	guestcost	numeric
zipcode	integer			initialoutlay	numeric
telephone	character varying(20)			monthlymaintenance	numeric
recommendedby	integer				
joindate	timestamp				

**Expected Results**

member	facility
Anne Baker	Tennis Court 1
Anne Baker	Tennis Court 2
Burton Tracy	Tennis Court 1
Burton Tracy	Tennis Court 2

**Your Answer**

```

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

Hint Help Save Run Query

10:00 pm 03/11/2023

New assignment: "SQL" - mani: x PostgreSQL exercises x +

pgexercises.com/questions/joins/threejoin2.html

### Question

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 is always ID 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.

**Schema reminder**

cd.members		cd.bookings		cd.facilities	
memid	integer	facid	integer	facid	integer
surname	character varying(200)	memid	integer	name	character varying(100)
firstname	character varying(200)	starttime	timestamp	membercost	numeric
address	character varying(300)	slots	integer	guestcost	numeric
zipcode	integer			initialoutlay	numeric
telephone	character varying(20)			monthlymaintenance	numeric
recommendedby	integer				
joindate	timestamp				

**Expected Results**

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

**Your Answer**

```

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
  
```

Hint Help Save Run Query

10:01 pm 03/11/2023

New assignment: "SQL" - mani: PostgreSQL exercises pgexercisec.com/questions/joins/sub.html

### Question

How can you output a list of all members, including the individual who recommended them (if any), without using any joins? Ensure that there are no duplicates in the list, and that each first name + surname pairing is formatted as a column and ordered.

**Schema reminder**

memid	integer
surname	character varying(200)
firstname	character varying(200)
address	character varying(300)
zipcode	integer
telephone	character varying(20)
recommendedby	integer
joindate	timestamp

facid	integer
memid	integer
starttime	timestamp
slots	integer

facid	integer
name	character varying(100)
membercost	numeric
guestcost	numeric
initialoutlay	numeric
monthlymaintenance	numeric

**Expected Results**

member	recommender
Anna Mackenzie	Darren Smith
Anne Baker	Ponder Stibbons
Burton Tracy	

**Your Answer**

```

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

```

Hint Help Save Run Query

New assignment: "SQL" - mani: PostgreSQL exercises pgexercisec.com/questions/joins/tjsub.html

The **Produce a list of costly bookings** exercise contained some messy logic: we had to calculate the booking cost in both the **WHERE** clause and the **CASE** statement. Try to simplify this calculation using subqueries. For reference, the question was:

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 is always ID 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.

**Schema reminder**

memid	integer
surname	character varying(200)
firstname	character varying(200)
address	character varying(300)
zipcode	integer
telephone	character varying(20)
recommendedby	integer
joindate	timestamp

facid	integer
memid	integer
starttime	timestamp
slots	integer

facid	integer
name	character varying(100)
membercost	numeric
guestcost	numeric
initialoutlay	numeric
monthlymaintenance	numeric

**Expected Results**

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

**Your Answer**

```

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 cd.members mems
join cd.bookings bks
on mems.memid = bks.memid
join cd.facilities facs
on bks.facid = facs.facid
where bks.starttime <= '2012-09-14 00:00:00'
and bks.starttime >= '2012-09-14 00:00:00'
and cost > 30
)
order by cost desc;

```

Hint Help Save Run Query