

Date Working with Timestamps

1. Produce a timestamp for 1 a.m. on the 31st of August 2012

Query: select timestamp '2012-08-31 01:00:00';

SQLOUTPUT:

```
exercises=# select timestamp '2012-08-31 01:00:00';
           timestamp
-----
2012-08-31 01:00:00
(1 row)
```

2. Subtract timestamps from each other

Query: select timestamp '2012-08-31 01:00:00' - timestamp '2012-07-30 01:00:00' as interval;

SQLOUTPUT:

```
exercises=# select timestamp '2012-08-31 01:00:00' - timestamp '2012-07-30 01:00:00' as interval;
           interval
-----
32 days
(1 row)
```

3. Generate a list of all the dates in October 2012

Query: select generate_series(timestamp '2012-10-01', timestamp '2012-10-31', interval '1 day') as ts;

SQLOUTPUT:

```
exercises=# select generate_series(timestamp '2012-10-01', timestamp '2012-10-31', interval '1 day') as ts;
          ts
-----
2012-10-01 00:00:00
2012-10-02 00:00:00
2012-10-03 00:00:00
2012-10-04 00:00:00
2012-10-05 00:00:00
2012-10-06 00:00:00
2012-10-07 00:00:00
2012-10-08 00:00:00
2012-10-09 00:00:00
2012-10-10 00:00:00
2012-10-11 00:00:00
2012-10-12 00:00:00
2012-10-13 00:00:00
2012-10-14 00:00:00
2012-10-15 00:00:00
2012-10-16 00:00:00
2012-10-17 00:00:00
2012-10-18 00:00:00
2012-10-19 00:00:00
2012-10-20 00:00:00
2012-10-21 00:00:00
2012-10-22 00:00:00
2012-10-23 00:00:00
2012-10-24 00:00:00
2012-10-25 00:00:00
2012-10-26 00:00:00
2012-10-27 00:00:00
2012-10-28 00:00:00
2012-10-29 00:00:00
2012-10-30 00:00:00
2012-10-31 00:00:00
(31 rows)
```

4. Get the day of the month from a timestamp

Query: select extract(day from timestamp '2012-08-31');

SQLOUTPUT:

```
exercises=# select extract(day from timestamp '2012-08-31');
          extract
-----
              31
(1 row)
```

5. Work out the number of seconds between timestamps

Query: select extract(epoch from (timestamp '2012-09-02 00:00:00' - '2012-08-31 01:00:00'));

SQLOUTPUT:

```
exercises=# select extract(epoch from (timestamp '2012-09-02 00:00:00' - '2012-08-31 01:00:00'));
          extract
-----
169200.000000
(1 row)
```

6. Work out the number of days in each month of 2012

Query: select extract(month from cal.month) as month, (cal.month + interval '1 month') - cal.month as length from (select generate_series(timestamp '2012-01-01', timestamp '2012-12-01', interval '1 month') as month) cal order by month;

SQLOUTPUT:

```
exercises=# select extract(month from cal.month) as month, (cal.month + interval '1 month') - cal.month as length from ( select generate_series(timestamp '2012-01-01', timestamp '2012-12-01', interval '1 month') as month ) cal order by month;
 month | length
-----+-----
      1 | 31 days
      2 | 29 days
      3 | 31 days
      4 | 30 days
      5 | 31 days
      6 | 30 days
      7 | 31 days
      8 | 31 days
      9 | 30 days
     10 | 31 days
     11 | 30 days
     12 | 31 days
(12 rows)
```

7. Work out the number of days remaining in the month

Query: select (date_trunc('month',ts.testts) + interval '1 month') - date_trunc('day', ts.testts) as remaining from (select timestamp '2012-02-11 01:00:00' as testts) ts;

SQLOUTPUT:

```
exercises=# select (date_trunc('month',ts.testts) + interval '1 month') - date_trunc('day', ts.testts) as remaining from (select timestamp '2012-02-11 01:00:00' as testts) ts;
 remaining
-----
      19 days
(1 row)
```

8. Work out the end time of bookings

Query: select starttime, starttime + slots*(interval '30 minutes') endtime from cd.bookings order by endtime desc, starttime desc limit 10;

SQLOUTPUT:

```
exercises=# select starttime, starttime + slots*(interval '30 minutes') endtime from cd.bookings order by endtime desc, starttime desc limit 10;
 starttime | endtime
-----+-----
2013-01-01 15:30:00 | 2013-01-01 16:00:00
2012-09-30 19:30:00 | 2012-09-30 20:00:00
2012-09-30 19:00:00 | 2012-09-30 19:30:00
2012-09-30 19:30:00 | 2012-09-30 20:00:00
2012-09-30 19:00:00 | 2012-09-30 19:30:00
2012-09-30 19:00:00 | 2012-09-30 20:00:00
2012-09-30 19:00:00 | 2012-09-30 20:00:00
2012-09-30 18:30:00 | 2012-09-30 19:00:00
2012-09-30 18:30:00 | 2012-09-30 19:00:00
2012-09-30 19:00:00 | 2012-09-30 19:30:00
(10 rows)
```

9.Return a count of bookings for each month

Query: select date_trunc('month', starttime) as month, count(*) from cd.bookings group by month order by month;

SQLOUTPUT:

```
exercises=# select date_trunc('month', starttime) as month, count(*) from cd.bookings group by month order by month;
      month      | count
-----+-----
2012-07-01 00:00:00 |    658
2012-08-01 00:00:00 |   1472
2012-09-01 00:00:00 |   1913
2013-01-01 00:00:00 |     1
(4 rows)
```

10.Work out the utilisation percentage for each facility by month

Query: select name, month, round((100*slots)/ cast(25*(cast((month + interval '1 month') as date) - cast (month as date)) as numeric),1) as utilisation from (select facs.name as name, date_trunc('month', starttime) as month, sum(slots) as slots from cd.bookings bks inner join cd.facilities facs on bks.facid = facs.facid group by facs.facid, month) as inn order by name, month;

SQLOUTPUT:

```
exercises=# select name, month, round((100*slots)/ cast( 25*(cast((month + interval '1 month') as date) - cast (month as date)) as numeric),1) as utilisation from ( select facs.
name as name, date_trunc('month', starttime) as month, sum(slots) as slots from cd.bookings bks inner join cd.facilities facs on bks.facid = facs.facid group by facs.facid, mont
h ) as inn order by name, month;
      name      |      month      | utilisation
-----+-----+-----
Badminton Court | 2012-07-01 00:00:00 |    23.2
Badminton Court | 2012-08-01 00:00:00 |    59.2
Badminton Court | 2012-09-01 00:00:00 |    76.0
Massage Room 1  | 2012-07-01 00:00:00 |    34.1
Massage Room 1  | 2012-08-01 00:00:00 |    63.5
Massage Room 1  | 2012-09-01 00:00:00 |    86.4
Massage Room 2  | 2012-07-01 00:00:00 |     3.1
Massage Room 2  | 2012-08-01 00:00:00 |    10.6
Massage Room 2  | 2012-09-01 00:00:00 |    16.3
Pool Table      | 2012-07-01 00:00:00 |    15.1
Pool Table      | 2012-08-01 00:00:00 |    41.5
Pool Table      | 2012-09-01 00:00:00 |    62.8
Pool Table      | 2013-01-01 00:00:00 |     0.1
Snooker Table   | 2012-07-01 00:00:00 |    20.1
Snooker Table   | 2012-08-01 00:00:00 |    42.1
Snooker Table   | 2012-09-01 00:00:00 |    56.8
Squash Court    | 2012-07-01 00:00:00 |    21.2
Squash Court    | 2012-08-01 00:00:00 |    51.6
Squash Court    | 2012-09-01 00:00:00 |    72.0
Table Tennis    | 2012-07-01 00:00:00 |    13.4
Table Tennis    | 2012-08-01 00:00:00 |    39.2
Table Tennis    | 2012-09-01 00:00:00 |    56.3
Tennis Court 1  | 2012-07-01 00:00:00 |    34.8
Tennis Court 1  | 2012-08-01 00:00:00 |    59.2
Tennis Court 1  | 2012-09-01 00:00:00 |    78.8
Tennis Court 2  | 2012-07-01 00:00:00 |    26.7
Tennis Court 2  | 2012-08-01 00:00:00 |    62.3
Tennis Court 2  | 2012-09-01 00:00:00 |    78.4
(28 rows)
```