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IFC31W

P8 Practice Dates

Introduction

After setting up the database as we use to, we have to execute “mysql_tzinfo_to_sql /usr/share/zoneinfo | mysql -u root -p” to load the time zone table. It will prompt some warnings like these:

```
Warning: Unable to load '/usr/share/zoneinfo/leap-seconds.list' as time zone. Sk
ipping it.
Warning: Unable to load '/usr/share/zoneinfo/leapseconds' as time zone. Skipping
 it.
Warning: Unable to load '/usr/share/zoneinfo/tzdata.zi' as time zone. Skipping it.
```

To begin with I must say almost every function used in this practice was found on the official documentation and also here.

1. Select the last day of the present month.

First of all we proceed by selecting the actual date (“curdate()”), after that getting the last day (“last_day()”) of that month and finally getting only the day digit of the nested function (“day()”).

	last_day_of_month
1	31

```
select day(last_day(curdate())) as last_day_of_month;
```

2. Select the last day of the month three months before today.

Pretty similar to the previous exercise but with the difference of the rest of the 3 months interval, as it is possible to see below. Now we are in March so it will be retrieving December dates.

	last_day_of_3_months_ago
1	31

```
select day(last_day(curdate() - interval 3 month)) as
last_day_of_3_months_ago;
```

3. Show the date of exercise 2 with format “Name_of_month day, year with 2 digits”.

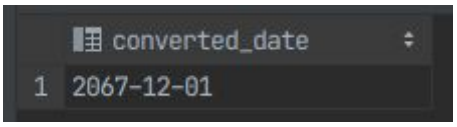
	last_day_of_3_months_ago
1	December 31,20

I set it using the function date_format, using %M %d, %y, as the second parameter. Date, month, year (by 2 digits) format.

```
select date_format(last_day(curdate() - interval 3 month),'%M
%d,%y') as last_day_of_3_months_ago;
```

4. Write a query to convert 680001 days in a date.

To execute this operation there exists a function called date that sets the two first digits as year, the following two as month and the last two as day.

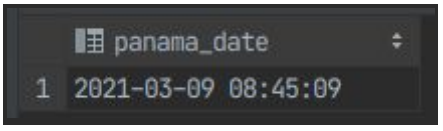


	converted_date
1	2067-12-01

```
select date(680001) as converted_date;
```

5. Use CONVERT_TZ to convert the current date/time (UTC) to Panama. Clue: Visit this link.

I have used this website to make sure the difference between locations is correct. Convert_tz function works by 3 parameters, first parameter the actual date and time, followed by starting and ending UTC datetime to be converted.

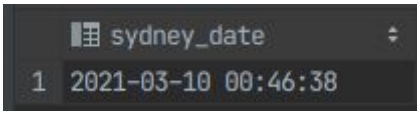


	panama_date
1	2021-03-09 08:45:09

```
select convert_tz(now(),'+1:00','-5:00') as panama_date;
```

6. Use CONVERT_TZ to convert the current date/time (UTC) to Sydney. Clue: Visit this link.

Basically the same as the exercise placed above.

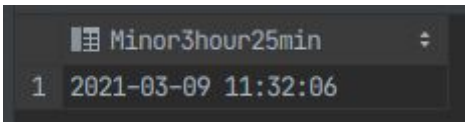


	sydney_date
1	2021-03-10 00:46:38

```
select convert_tz(now(),'+1:00','+11:00') as sydney_date;
```

7. Subtract 3 hours 25 minutes to the current date/time using DATE_SUB.

It works as the 3rd exercise but without using the “-” sign, the amount of time to reduce is just the 2nd parameter. In this case I set the total amount to minute because it is more practical than nesting two date_sub() functions. But we could be easily do that as:



	Minor3hour25min
1	2021-03-09 11:32:06

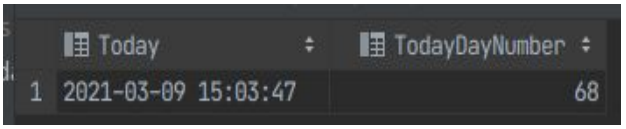
```
select date_sub(date_sub(now(), interval 3 hour), interval 25
minute ) as Minor3hour25min;
```

```
select date_sub(now(), interval 205 minute ) as Minor3hour25min;
```

8. Which day of the year (1, 2, 3, etc., 365) is today (example for 31-01-2019 not for today)?

The today column is as easy as now() function all alone, then by the day of the year there is a specific function called dayofyear that sums the last day of every month that preceded the actual month and the actual day of the month.

```
+---------------------+----------------+
| Today               | TodatDayNumber |
+---------------------+----------------+
| 2019-01-31 13:27:45 |             31 |
+---------------------+----------------+
```

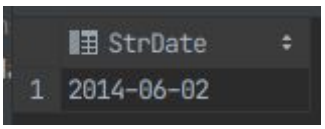


	Today	TodayDayNumber
1	2021-03-09 15:03:47	68

```
select now() as Today, dayofyear(now()) as TodayDayNumber;
```

9. Can you convert a String to a Date and/or Time? Write an example.

Yes of course you can, there is as always the function able to execute what is needed. It is called str_to_date(), where you set as the first parameter the string, and the second, the format of that string. See how it can be used on the link.

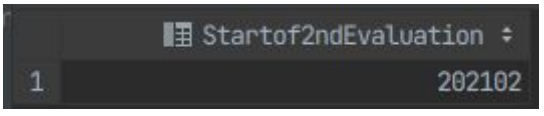


	StrDate
1	2014-06-02

```
select str_to_date('Wednesday, June 2, 2014', '%W, %M %e, %Y') as
StrDate;
```

10. Search on the Internet what's a period and make an example using the function PERIOD_ADD.

A period is another way to call for months as an amount of time, for example 3 months, that actually is a scholar evaluation period. Period_add() works by setting on the first parameter the 2 last digits of a year as well as 2 digits for a month, and the second parameter is the month that will be summed on the first period.



	Startof2ndEvaluation
1	202102

```
select period_add(2011,3) as Startof2ndEvaluation;
```

11. Difference in days between the employee who started in the first place and the employee who started in the last place.

This exercise is as simple as getting the max date and min date from employees and then rest them by finally passing the result to days. This can be done using the “datediff()” function.

```
+--------+
| MyDay  |
+--------+
|   5379 |
+--------+
```

	MyDay
1	5379

```
select datediff(max(start_date),min(start_date)) as MyDay from
EMPLOYEES;
```

12. Select the dates inside the field EMPLOYEES.start_date that are Tuesday.

We can select the employees where the start_date as name of the weekday is ‘Tuesday’, using date_format() and the ‘%W’ parameter.

```
+-----------+--------+------------+
| surname   | name   | start_date |
+-----------+--------+------------+
| GONZÁLEZ  | RAUL   | 2011-02-22 |
| GIL       | JAVIER | 2010-11-09 |
+-----------+--------+------------+
```

	surname	name	start_date
1	GONZÁLEZ	RAUL	2011-02-22
2	GIL	JAVIER	2010-11-09

```
select surname, name, start_date from EMPLOYEES
where 'Tuesday'=date_format(start_date,'%W');
```

13. Select the data of the older employee in the enterprise.

It is as easy as selecting everything from the min start_date column. First I select the min date and then I use that query as the parameter for the where start_date of the main query.

```
+------+---------+------+---------+------------+--------+------------+----------+-----------+
| num  | surname | name | manager | start_date | salary | commission | dept_num | occu_code |
+------+---------+------+---------+------------+--------+------------+----------+-----------+
| 1000 | PITT    | BRAD |    NULL | 2004-01-01 |   1040 |       NULL |       20 | NULL      |
+------+---------+------+---------+------------+--------+------------+----------+-----------+
```

	num	name	manager	start_date	surname	salary ▲ 1	commission	dept_num	occu_code
1	1000	BRAD	<null>	2004-01-01	PITT	1040	<null>	20	<null>

```
select * from EMPLOYEES
where start_date in (select min(start_date) from EMPLOYEES);
```

14. Select the employees' name, surname and years working in our enterprise (order by those years descendent).

This query is done by selecting the name, surname and a formatted date using the datediff() and from_days() function, as you can see.

Option 1:

```
+------------+------------+---------+
| name       | surname    | Years   |
+------------+------------+---------+
| BRAD       | PITT       | 15.9479 |
| MARTA      | ARROYO     |  9.8055 |
| JOSÉ       | CEREZO     |  9.5068 |
| JAVIER     | GIL        |  9.0877 |
| SERGIO     | SÁNCHEZ    |  8.9836 |
| RAUL       | GONZÁLEZ   |  8.8000 |
| ANTONIA    | MUÑOZ      |  3.8795 |
| ANA        | FERNÁNDEZ  |  3.0164 |
| ANTONIO    | BANDERAS   |  2.9151 |
| JUAN JOSÉ  | JIMÉNEZ    |  2.6877 |
| BARTOLOME  | GUASP      |  2.6082 |
| MONICA     | MARTÍN     |  2.1945 |
| XAVIER     | JIMENO     |  2.0164 |
| FERNANDA   | RUIZ       |  1.4986 |
| LUIS       | TOVAR      |  1.2521 |
| FERNANDO   | ALONSO     |  1.2110 |
+------------+------------+---------+
```

	name	surname	Years
1	BRAD	PITT	17.2000
2	MARTA	ARROYO	11.0575
3	JOSÉ	CEREZO	10.7589
4	JAVIER	GIL	10.3397
5	SERGIO	SÁNCHEZ	10.2356
6	RAUL	GONZÁLEZ	10.0521
7	ANTONIA	MUÑOZ	5.1315
8	ANA	FERNÁNDEZ	4.2685
9	ANTONIO	BANDERAS	4.1671
10	JUAN JOSÉ	JIMÉNEZ	3.9397
11	BARTOLOME	GUASP	3.8603
12	MONICA	MARTÍN	3.4466
13	XAVIER	JIMENO	3.2685
14	FERNANDA	RUIZ	2.7507
15	LUIS	TOVAR	2.5041
16	FERNANDO	ALONSO	2.4630

```
select name,surname,
datediff(curdate(),
start_date)/365 as Years from
EMPLOYEES
order by Years desc;
```

Option 2:

```
+------------+------------+--------------------------+
| name       | surname    | Years                    |
+------------+------------+--------------------------+
| BRAD       | PITT       | 15 years 12 months 09 days |
| MARTA      | ARROYO     | 09 years 10 months 19 days |
| JOSÉ       | CEREZO     | 09 years 07 months 02 days |
| JAVIER     | GIL        | 09 years 01 months 30 days |
| SERGIO     | SÁNCHEZ    | 08 years 12 months 23 days |
| RAUL       | GONZÁLEZ   | 08 years 10 months 17 days |
| ANTONIA    | MUÑOZ      | 03 years 11 months 17 days |
| ANA        | FERNÁNDEZ  | 03 years 01 months 06 days |
| ANTONIO    | BANDERAS   | 02 years 11 months 30 days |
| JUAN JOSÉ  | JIMÉNEZ    | 02 years 09 months 08 days |
| BARTOLOME  | GUASP      | 02 years 08 months 10 days |
| MONICA     | MARTÍN     | 02 years 03 months 12 days |
| XAVIER     | JIMENO     | 02 years 01 months 06 days |
| FERNANDA   | RUIZ       | 01 years 07 months 01 days |
| LUIS       | TOVAR      | 01 years 04 months 02 days |
| FERNANDO   | ALONSO     | 01 years 03 months 18 days |
+------------+------------+--------------------------+
```

	name	surname	Years
1	BRAD	PITT	17 years 03 months 09 days
2	MARTA	ARROYO	11 years 01 months 18 days
3	JOSÉ	CEREZO	10 years 10 months 01 days
4	JAVIER	GIL	10 years 05 months 01 days
5	SERGIO	SÁNCHEZ	10 years 03 months 24 days
6	RAUL	GONZÁLEZ	10 years 01 months 16 days
7	ANTONIA	MUÑOZ	05 years 02 months 15 days
8	ANA	FERNÁNDEZ	04 years 04 months 06 days
9	ANTONIO	BANDERAS	04 years 02 months 29 days
10	JUAN JOSÉ	JIMÉNEZ	03 years 12 months 08 days
11	BARTOLOME	GUASP	03 years 11 months 09 days
12	MONICA	MARTÍN	03 years 06 months 11 days
13	XAVIER	JIMENO	03 years 04 months 07 days
14	FERNANDA	RUIZ	02 years 09 months 30 days
15	LUIS	TOVAR	02 years 07 months 02 days
16	FERNANDO	ALONSO	02 years 06 months 17 days

```
select name,surname,
date_format(from_days(datediff(
curdate(), start_date)), '%y
years  %m months %d days') as
Years from EMPLOYEES
order by Years desc ;
```

15. Write a query to show EMPLOYEES.start_date in three columns: year, month and day.

I will be using the Year(), Month() and Day() function which extracts those parameters of a given date.

Year	Month	Day
2004	1	1
2010	12	17
2010	2	20
2011	2	22
2017	4	2
2017	9	29
2017	5	1
2010	6	9
2010	11	9
2018	9	8
2018	9	23
2017	12	3
2016	12	3
2016	1	23
2017	1	9
2018	6	10

```
select year(start_date) as Year, month(start_date) as Month,
day(start_date) as Day from EMPLOYEES;
```

16. Write a query to show the employees that joined the enterprise in June.

This exercise is similar to the Tuesday exercise done before so basically we get the string of the month in start_date and do a selection of the employees starting date in June.

surname	name	start_date
CEREZO	JOSÉ	2010-06-09
RUIZ	FERNANDA	2018-06-10

```
select surname, name, start_date from EMPLOYEES
where 'June'=date_format(start_date,'%M');
```

17. Write the date of exercise 16 in the next format:

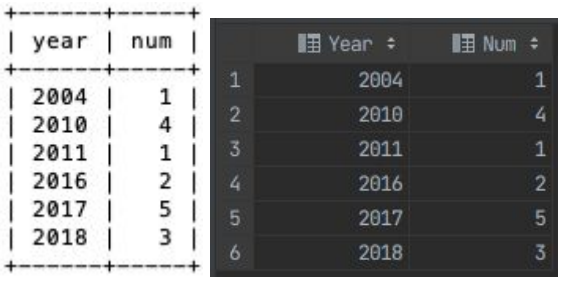
Same as before but adding a date_format() function.

surname	name	start_date
CEREZO	JOSÉ	Wednesday 9th June 2010 00:00:00
RUIZ	FERNANDA	Sunday 10th June 2018 00:00:00

```
select surname, name, date_format(start_date, '%W %D %M %Y
%H:%i:%S') as start_date from EMPLOYEES
where 'June'=date_format(start_date,'%M');
```

18. Write a query to get the year and number of employees who began working that year.

First of all it is needed a “group by” to make the count of the year.



year	num
2004	1
2010	4
2011	1
2016	2
2017	5
2018	3

	Year	Num
1	2004	1
2	2010	4
3	2011	1
4	2016	2
5	2017	5
6	2018	3

```
select year(start_date) as Year, count(year(start_date)) as Num
from EMPLOYEES
group by Year;
```

19. Write a query to get the maximum number of employees who started working in our enterprise in a year.

Select the max of the last query

max_num
5

	max_num
1	5

```
select max(Q.Num) as max_num from (
select year(start_date) as Year, count(year(start_date)) as Num
from EMPLOYEES
group by Year) as Q;
```

20. Write a query to get the year in which more employees joined our enterprise.

Pretty similar to the exercise 20 query but I decided to play a little bit with the order by and limit to get just the year of the 18th query.

year
2017

	Year
1	2017

```
select W.Year from (
select year(start_date) as Year, count(year(start_date)) as Num
from EMPLOYEES
group by Year order by Num desc limit 1) as W;
```

21. Show employees who are manager of other employees and the time in years that they are working in the enterprise.

First we need to know the managers so we select the manager id and select the employees that match with those id, then we execute the datediff() function as well as from_days() function and then we format it. By now I still don't know how to format like in the example.

```
+------+-----------+----------+---------+
| num  | name      | surname  | Years   |
+------+-----------+----------+---------+
| 1000 | BRAD      | PITT     | 15.9479 |
| 7698 | BARTOLOME | GUASP    |  2.6082 |
| 7782 | JOSÉ      | CEREZO   |  9.5068 |
| 7788 | JAVIER    | GIL      |  9.0877 |
| 8000 | ANTONIO   | BANDERAS |  2.9151 |
| 8001 | FERNANDA  | RUIZ     |  1.4986 |
+------+-----------+----------+---------+
```

	num	name	surname	Years
1	1000	BRAD	PITT	17.2000
2	7698	BARTOLOME	GUASP	3.8603
3	7782	JOSÉ	CEREZO	10.7589
4	7788	JAVIER	GIL	10.3397
5	8000	ANTONIO	BANDERAS	4.1671
6	8001	FERNANDA	RUIZ	2.7507

```
select num, name, surname, datediff(curdate(), start_date)/365 as
Years
from EMPLOYEES where num in (select manager from EMPLOYEES);
```

22. Show employees who are manager of other employees working in the enterprise for more than 5 years.

We need a where > 5 clause in the end of the previous query.

```
+------+--------+----------+
| num  | name   | surname  |
+------+--------+----------+
| 1000 | BRAD   | PITT     |
| 7782 | JOSÉ   | CEREZO   |
| 7788 | JAVIER | GIL      |
+------+--------+----------+
```

	num	name	surname
1	1000	BRAD	PITT
2	7782	JOSÉ	CEREZO
3	7788	JAVIER	GIL

```
select num, name, surname from (
select num, name, surname, datediff(curdate(), start_date)/365 as
Years
from EMPLOYEES where num in (select manager from EMPLOYEES)) as W
where W.Years>5;
```

23. Can you use BETWEEN keyword with dates. Write an example.

Sure. Just use the dates as always in between. I will select employees that started between 2000 and 2010.

	num	surname	name	manager	start_date	salary	commission	dept_num	occu_code
1	1000	PITT	BRAD	<null>	2004-01-01	1040	<null>	20	<null>

```
select * from EMPLOYEES where start_date between '2000-01-01' and
'2010-01-01' ;
```