SQL-06 | Date and Time Functions

Lecture Queries

Creation of datetime_demo table

```
CREATE TABLE farmers_market.datetime_demo AS
        (
SELECT market_date,
market_start_time,
market_end_time,
STR_TO_DATE(CONCAT(market_date, ' ', market_start_time), '%Y-%m-%d
%h:%i %p')
                    AS market_start_datetime,
                STR_TO_DATE(CONCAT(market_date, ' ', market_end_time), '%Y-%m-%d
%h:%i %p')
                    AS market_end_datetime
            FROM farmers_market.market_date_info
```

Question: From each market_start_datetime, extract the following:

- day of week,
- month of year,
- year,
- hour and
- minute from the timestamp

```
SELECT
        market_start_datetime,
    EXTRACT(DAY FROM
market_start_datetime) AS start_day,
    EXTRACT(YEAR FROM
market_start_datetime) AS date_year,
    EXTRACT(MONTH FROM
market_start_datetime) AS month_of_year,
    EXTRACT(HOUR FROM
market_start_datetime) AS hour_of_day,
    EXTRACT(MINUTE FROM
market_start_datetime) AS minute_of_time
FROM farmers_market.datetime_demo;
```

Weekday & other date&time functions:
https://www.w3schools.com/sql/func_mysql_weekday.asp

Question: Let's say you want to calculate how many sales occurred within the first 30 minutes after the farmer's market opened, how would you dynamically determine what cutoff time to use?

```
SELECT market_start_datetime,
    DATE_ADD(market_start_datetime, INTERVAL 30 MINUTE) AS mktstrt_date_
 plus_30min
 FROM farmers_market.datetime_demo
```

```
SELECT market_start_datetime, market_end_datetime,
    TIMESTAMPDIFF(HOUR, market_start_datetime,
market_end_datetime)
        AS market_duration_hours,
    TIMESTAMPDIFF(MINUTE, market_start_datetime,
market_end_datetime)
        AS market_duration_mins
  FROM farmers_market.datetime_demo
```

Question: Let's say we wanted to get a profile of each farmer's market customer's habits over time.

1. First purchase - date
2. Last purchase - date
3. Count of distinct purchases

```
SELECT customer_id,
    MIN(market_date) AS first_purchase,
    MAX(market_date) AS last_purchase,
    COUNT(DISTINCT market_date) AS count_of_purchase_dates,
    DATEDIFF(MAX(market_date), MIN(market_date)) AS days_between_first_
 last_purchase,
    DATEDIFF(CURDATE(), MAX(market_date)) AS days_since_last_purchase
 FROM farmers_market.customer_purchases
 GROUP BY customer_id
```

Question: Write a query that gives us the days between each purchase a customer makes.

```
SELECT
        customer_id,
    market_date,
    LAG(market_date, 1) OVER(PARTITION BY customer_id ORDER BY
market_date) AS last_prch,
    DATEDIFF(market_date, LAG(market_date, 1) OVER(PARTITION BY
customer_id ORDER BY market_date)) AS prch_after_days
FROM customer_purchases
GROUP BY customer_id, market_date
```

Question: Today’s date is May 31, 2019, and the marketing director of the farmer’s market wants to give infrequent customers(with only 1 purchase) an incentive to return to the market in April.

```
SELECT
        customer_id,
   COUNT(DISTINCT market_date) AS num_of_visit
FROM customer_purchases
WHERE market_date BETWEEN DATE_SUB("2019-05-31", INTERVAL 30 DAY) AND "2019-05-31"
GROUP BY customer_id
HAVING count(DISTINCT market_date) =1
```

Trips & Users - Calculate Cancellation Rate

```
select
t.Request_at Day,
round(sum(case when t.Status like 'cancelled_%' then 1 else 0 end)/count(*),2)  "Cancellation Rate"
from Trips t
inner join Users u
on t.Client_Id = u.Users_Id and u.Banned='No'
where t.Request_at between '2013-10-01' and '2013-10-03'
group by t.Request_at
```

Reference DateTime Functions

- https://dev.mysql.com/doc/refman/8.0/en/date-and-time-functions.html