SQL Live 05

SQL Code

```
SELECT
    invoicedate,
    -- STRing Format (Date)Time
    STRFTIME("%Y", invoicedate) AS year,
    STRFTIME("%m", invoicedate) AS month,
    STRFTIME("%d", invoicedate) AS day,
    STRFTIME("%Y-%m", invoicedate) AS monthid
FROM invoices
WHERE monthid = "2009-09"
```

Create table `eu_customers`

```
CREATE TABLE eu_customers AS
    SELECT firstname, country, email
    FROM customers
    WHERE country IN ('Belgium','France','Italy');


DROP TABLE eu_customers;
```

Aggregate Functions

```
-- aggregate functions
SELECT
    COUNT(*)   AS total_songs,
    ROUND(AVG(bytes),2) AS avg_bytes,
    ROUND(SUM(bytes/(1024*1024)),2) AS sum_mb,
    MIN(bytes) AS min_bytes,
    MAX(bytes) AS max_bytes
FROM tracks;
```

Clean `NULL` values

```
SELECT
    company,
    COALESCE(company, "B2C") AS clean_company,
```

```
      CASE
        WHEN company IS NULL THEN "B2C"
        ELSE "B2B"
      END AS segment
FROM customers;
```

Having vs. Where

```
SELECT
    CASE
      WHEN company IS NULL THEN "B2C"
      ELSE "B2B"
    END AS segment,
    country,
    COUNT(*) AS num_customers
FROM customers
WHERE country IN ("Belgium", "France", "Italy")
GROUP BY 1,2
HAVING num_customers > 1
```

JOIN Tables

```
-- join syntax
SELECT
    ar.name  AS artist_name,
    al.title AS album_name,
    tr.name  AS track_name
FROM artists       AS ar
INNER JOIN albums  AS al
  ON ar.artistid = al.artistid -- pk=fk
INNER JOIN tracks  AS tr
  ON tr.albumid = al.albumid;
```

Aggregate + JOIN

```
-- join syntax
-- virtual table (VIEW)
CREATE VIEW genre_stats AS
    SELECT
        ge.name,
        COUNT(*) as count_tracks,
        AVG(milliseconds) AS avg_milliseconds
```

```
    FROM artists     AS ar
        JOIN albums  AS al ON ar.artistid = al.artistid
        JOIN tracks  AS tr ON tr.albumid = al.albumid
        JOIN genres  AS ge ON ge.genreid = tr.genreid
    GROUP BY 1
    ORDER BY 3 DESC
    LIMIT 5;
```

Subqueries (Select ซ้อน Select)

- breakdown our long query into steps

```
-- subqueries
SELECT firstname, country
FROM (SELECT * FROM customers) AS sub
WHERE country = 'United Kingdom';

-- WITH : common table expression
WITH sub AS (SELECT * FROM customers)

SELECT firstname, country
FROM sub
WHERE country = 'United Kingdom';
```

Example subqueries + with clause

😛 Query `American` customers who purchase our products in 2009-10 (invoices)

```
-- basic query
SELECT
  firstname,
  lastname,
  email,
  COUNT(*) count_order
FROM customers c
JOIN invoices i ON c.customerid = i.customerid
WHERE c.country = 'USA' AND STRFTIME("%Y-%m",i.invoicedate) = "2009-10"
GROUP BY 1,2,3;

-- with clauses
WITH usa_customers AS (
  SELECT * FROM customers
```

```
   WHERE country = 'USA'
), invoice_2009 AS (
  SELECT * FROM invoices
  WHERE STRFTIME("%Y-%m",invoicedate) = "2009-10"
)

SELECT firstname, lastname, email, COUNT(*)
FROM usa_customers t1
JOIN invoice_2009  t2
ON t1.customerid = t2.customerid
GROUP BY 1,2,3;

-- standard subqueries
SELECT firstname, lastname, email, COUNT(*)
FROM  (
  SELECT * FROM customers
  WHERE country = 'USA'
) AS t1
JOIN (
  SELECT * FROM invoices
  WHERE STRFTIME("%Y-%m",invoicedate) = "2009-10"
) AS t2
ON t1.customerid = t2.customerid
GROUP BY 1,2,3;
```