Bike Store Analysis Project
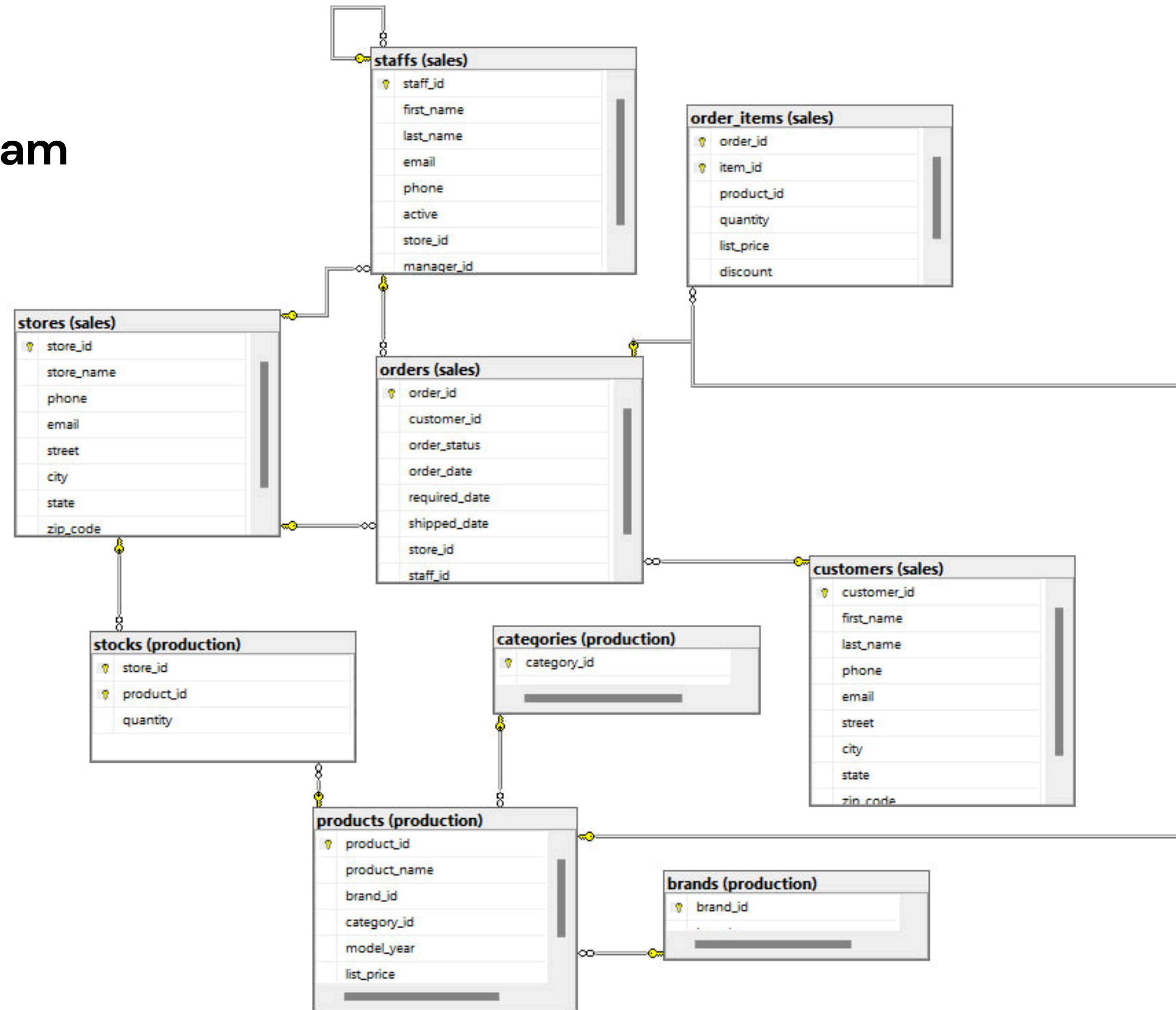## Analysis with SQL

By| Nourhan Elsabawy

Data Base Diagram

staffs (sales)
- staff_id
- first_name
- last_name
- email
- phone
- active
- store_id
- manager_id

order_items (sales)
- order_id
- item_id
- product_id
- quantity
- list_price
- discount

stores (sales)
- store_id
- store_name
- phone
- email
- street
- city
- state
- zip_code

orders (sales)
- order_id
- customer_id
- order_status
- order_date
- required_date
- shipped_date
- store_id
- staff_id

customers (sales)
- customer_id
- first_name
- last_name
- phone
- email
- street
- city
- state
- zip_code

stocks (production)
- store_id
- product_id
- quantity

categories (production)
- category_id

products (production)
- product_id
- product_name
- brand_id
- category_id
- model_year
- list_price

brands (production)
- brand_id

```sql
    ---Data Exploration --------------------
select * from production.products ;
select * from production.categories ;
select * from production.stocks ;
select * from production.brands ;
select * from sales.customers ;
select * from sales.orders ;
select * from sales.stores ;
select * from sales.staffs ;
select * from sales.order items ;
```

Business Questions :

```sql
-- 1) Which bike is most expensive? What could be the motive behind pricing this bike at the high price?
SELECT product_name, list_price AS most_expensive
FROM production.products
WHERE list_price = (SELECT MAX(list_price) FROM production.products);

--As for the motive behind pricing the bike high The bike might be made from high-quality materials
--or components that increase its manufacturing cost and, consequently, its selling price.
```

Results | Messages

product_name	most_expensive
1	Trek Domane SLR 9 Disc - 2018	11999.99

Business Questions :

```sql
--2)How many total customers does BikeStore have? Would you consider people with order status 3 as customers substantiate your answer?
-- Counting all unique customers
SELECT COUNT(DISTINCT customer_id) AS total_customers
FROM sales.customers;


-- If considering only those who already buy succeded orders (excluding status 3)
select count(distinct sc.customer_id) as total_customers
from sales.customers sc, sales.orders so
where sc.customer_id=so.customer_id and so.order_status != 3;
```

	Results	Messages

	total_customers
1	1445

	total_customers
1	1445

Business Questions :

```sql
--3)How many stores does BikeStore have?
select count(distinct store_id) as #stores
from  sales.stores


--4)What is the total price spent per order? Hint: total price = [list_price] *[quantity]*(1-[discount])
select order_id,sum(list_price *quantity*(1-discount)) as total_price
from sales.order_items
group by order_id
```

	#stores
1	3

	order_id	total_price
1	1	10231.0464
2	2	1697.9717
3	3	1519.9810
4	4	1349.9820
5	5	3900.0607
6	6	9442.5048
7	7	2165.0817
8	8	1372.4719

Business Questions :

```sql
--5)What's the sales/revenue per store? Hint: Sales revenue = ([list_price] *[quantity]*(1-[discount]))
select store_name,sum(list_price *quantity*(1-discount)) AS total_revenue
from sales.stores ss, sales.order_items  so ,sales.orders o
where ss.store_id=o.store_id and o.order_id=so.order_id
group by store_name
```

	store_name	total_revenue
1	Baldwin Bikes	5215751.2775
2	Santa Cruz Bikes	1605823.0365
3	Rowlett Bikes	867542.2436

```sql
--6)Which category is most sold?
select top(1) pc.category_id, pc.category_name ,SUM(so.quantity) as total_quantity
from production.categories pc ,production.products pp,sales.order_items so
where pc.category_id=pp.category_id and pp.product_id=so.product_id
group by pc.category_id, pc.category_name
ORDER BY total_quantity DESC
```

⊞ Results   **📄 Messages**

	category_id	category_name	total_quantity
1	3	Cruisers Bicycles	2063

```sql
--7)Which category rejected more orders?
SELECT top(1) c.category_name, COUNT(DISTINCT it.order_id) AS rejected_order_count
FROM production.categories c
JOIN production.products p ON c.category_id = p.category_id
JOIN sales.order_items it ON p.product_id = it.product_id
JOIN sales.orders o ON it.order_id = o.order_id
WHERE o.order_status = 3
GROUP BY c.category_name
```

	category_name	rejected_order_count
1	Cruisers Bicycles	31

Business Questions :

```sql
--8)Which bike is the least sold?

--BY less quantity sold
SELECT top(1)p.product_name,SUM(oi.quantity) AS total_quantity_sold
FROM sales.order_items oi , production.products p where oi.product_id = p.product_id
GROUP BY p.product_name
ORDER BY total_quantity_sold ASC

--BY less sales
SELECT top(1) product_name,SUM(oi.list_price * oi.quantity * (1 - oi.discount)) AS total_sales
FROM sales.order_items oi ,production.products p
where oi.product_id = p.product_id
GROUP BY product_name
ORDER BY total_sales asc
```

Results | Messages

	product_name	total_quantity_sold
1	Electra Amsterdam Royal 8i - 2017/2018	1

	product_name	total_sales
1	Trek Precaliber 16 Boy's - 2018	199.4905

Business Questions :

```sql
--9)What's the full name of a customer with ID 259?
select first_name+' '+last_name as fullname
from sales.customers
where customer_id=259
--10)What did the customer on question 9 buy and when? What's the status of this order?
select product_name,quantity,order_status,order_date
from sales.customers c ,production.products p, sales.orders o ,sales.order_items it
where  c.customer_id=o.customer_id and it.product_id=p.product_id and it.order_id=o.order_id and
```

	fullname
1	Johnathan Velazquez

	product_name	quantity	order_status	order_date
1	Electra Townie Original 7D EQ - Women's - 2016	1	4	2016-01-01
2	Trek Remedy 29 Carbon Frameset - 2016	2	4	2016-01-01
3	Surly Straggler - 2016	2	4	2016-01-01
4	Electra Townie Original 7D EQ - 2016	2	4	2016-01-01
5	Trek Fuel EX 8 29 - 2016	1	4	2016-01-01

Business Questions :

```sql
--11)Which staff processed the order of customer 259? And from which store?
select st.staff_id,st.first_name+' '+st.last_name as fullname,store_name
from sales.staffs st ,sales.stores s,sales.customers c ,sales.orders orr
where c.customer_id=259 and  st.staff_id=s.store_id  and c.customer_id=orr.customer_id and st.staff_id=orr.staff_id

--12)How many staff does BikeStore have? Who seems to be the lead Staff at BikeStore?

-- Number of staff
SELECT COUNT(distinct staff_id) AS total_staff
FROM sales.staffs;

-- Lead staff
SELECT top(1)s.staff_id, COUNT(distinct o.order_id) AS orders_processed
FROM sales.staffs s ,sales.orders o
where s.staff_id = o.staff_id
GROUP BY s.staff_id
ORDER BY orders_processed DESC
```

⊞ Results   ▦ Messages

	staff_id	fullname	store_name
1	2	Mireya Copeland	Baldwin Bikes

	total_staff
1	10

	staff_id	orders_processed
1	6	553

Business Questions :

```sql
--13)Which brand is the most liked?

select top(1)b.brand_name, COUNT(distinct o.order_id) AS order_count
FROM production.brands b
JOIN production.products p ON b.brand_id = p.brand_id
JOIN sales.order_items oi ON p.product_id = oi.product_id
JOIN sales.orders o ON oi.order_id = o.order_id
GROUP BY b.brand_name
ORDER BY order_count DESC
```

Results | **Messages**

	brand_name	order_count
1	Electra	1096

Business Questions :

```sql
--14)How many categories does BikeStore have, and which one is the least liked?
select count(distinct category_id) as total_categories
from production.categories
--and which one is the least liked?
SELECT top(1)c.category_name, COUNT(o.order_id) AS order_count
FROM production.categories c
JOIN production.products p ON c.category_id = p.category_id
JOIN sales.order_items oi ON p.product_id = oi.product_id
JOIN sales.orders o ON oi.order_id = o.order_id
GROUP BY c.category_name
ORDER BY order_count ASC
```

▦ Results   ▦ Messages

	total_categories
1	7

	category_name	order_count
1	Electric Bikes	212

Business Questions :

```sql
--15)Which store still have more products of the most liked brand?
-->the most liked brand
    SELECT top(1) b.brand_id, b.brand_name, COUNT(o.order_id) AS order_count
    FROM production.brands b
    JOIN production.products p ON b.brand_id = p.brand_id
    JOIN sales.order_items oi ON p.product_id = oi.product_id
    jOIN sales.orders o ON oi.order_id = o.order_id
    GROUP BY b.brand_id, b.brand_name
    ORDER BY order_count DESC


    --store have more products of the most liked brand
    SELECT top(1) store_name ,count(distinct p.product_id) as total_products
    from sales.stores s ,production.products p ,production.stocks ss ,production.brands ps
     where s.store_id=ss.store_id and ss.product_id=p.product_id and p.brand_id=ps.brand_id and brand_name='Electra'
     group by store_name
     order by total_products desc
```

	brand_id	brand_name	order_count
1	1	Electra	1729

	store_name	total_products
1	Rowlett Bikes	116

Business Questions :

```sql
-- 16) Which state is doing better in terms of sales?
SELECT top(1) s.state,SUM(oi.list_price * oi.quantity * (1 - oi.discount)) AS total_sales
FROM sales.stores s
JOIN sales.orders o ON s.store_id = o.store_id
JOIN sales.order_items oi ON o.order_id = oi.order_id
GROUP BY s.state
ORDER BY total_sales DESC


--17)What's the discounted price of product id 259?
select discount
from sales.order_items
where product_id=259
```

Results | **Messages**

	state	total_sales
1	NY	5215751.2775

	discount
1	0.07
2	0.20

Business Questions :

```sql
--18)What's the product name, quantity, price,
--category, model year and brand name of product number 44?
select product_name , quantity ,p.list_price,
category_name ,brand_name , model_year
FROM production.products p
JOIN sales.order_items oi ON p.product_id = oi.product_id
JOIN production.categories c ON p.category_id = c.category_id
JOIN production.brands b ON p.brand_id = b.brand_id
WHERE p.product_id = 44;


--19)What's the zip code of CA?
select zip_code
from sales.stores
where state='CA'
```

	product_name	quantity	list_price	category_name	brand_name	model_year
1	Haro SR 1.1 - 2017	2	539.99	Mountain Bikes	Haro	2017
2	Haro SR 1.1 - 2017	2	539.99	Mountain Bikes	Haro	2017
3	Haro SR 1.1 - 2017	1	539.99	Mountain Bikes	Haro	2017
4	Haro SR 1.1 - 2017	1	539.99	Mountain Bikes	Haro	2017
5	Haro SR 1.1 - 2017	1	539.99	Mountain Bikes	Haro	2017
6	Haro SR 1.1 - 2017	2	539.99	Mountain Bikes	Haro	2017
7	Haro SR 1.1 - 2017	1	539.99	Mountain Bikes	Haro	2017
8	Haro SR 1.1 - 2017	1	539.99	Mountain Bikes	Haro	2017

	zip_code
1	95060

Business Questions :

```sql
--20)How many states does BikeStore operate in?
select count(distinct state) as total_states
from sales.stores

-- 21) How many bikes under the children category were sold in the last 8 months?
SELECT SUM(so.quantity) AS total_quantity_sold
FROM sales.order_items so ,production.products pp ,production.categories pc ,sales.orders soo
 where so.product_id = pp.product_id and pp.category_id = pc.category_id and soo.order_id=so.order_id
 and pc.category_name = 'Children' and soo.order_date >= DATEADD(MONTH, -8, GETDATE());
```

Business Questions :

```sql
--22)What's the shipped date for the order from customer 523
select shipped_date
from sales.orders
where customer_id=523
--23)How many orders are still pending?
SELECT COUNT(distinct order_id) AS pending_orders
FROM sales.orders
WHERE order_status = 1;


--24)What's the names of category and brand does "Electra white water 3i - 2018" fall under?
select brand_name,category_name
FROM production.products p , production.categories c ,production.brands b
where  p.category_id = c.category_id and p.brand_id = b.brand_id and p.product_name = 'Electra White Water 3i - 2018';
```

▦ Results 🗏 Messages

	shipped_date
1	2016-01-03

	pending_orders
1	62

	brand_name	category_name
1	Electra	Cruisers Bicycles

Thank you!

Have a great day ahead.