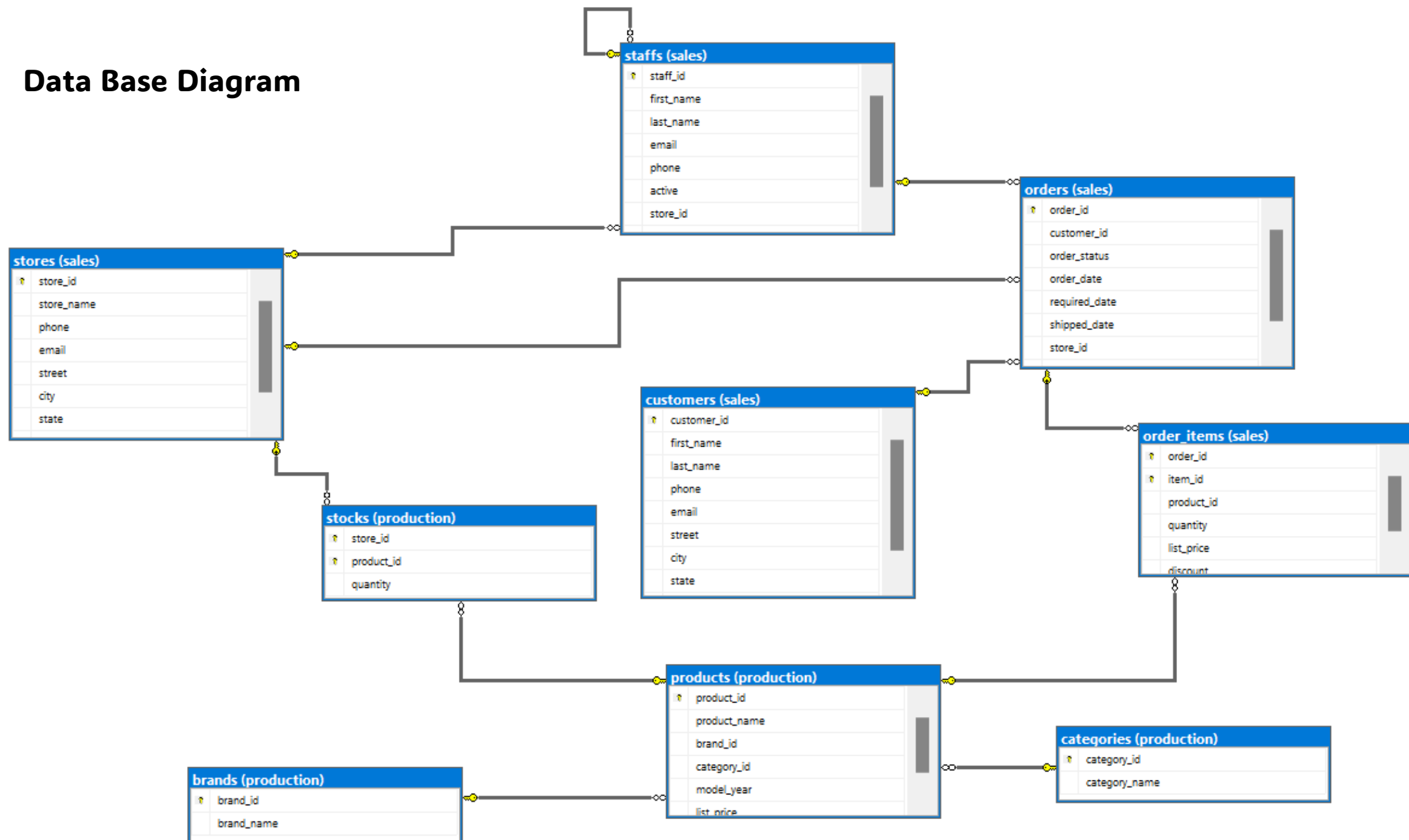


# **Bike Store Analysis Project Analysis with SQL**




# Data Base Diagram



## Explore data

```
---Explore Data---
```

```
 select * from production.products;  
select * from production.stocks;  
select * from production.brands;  
select * from production.categories;  
select * from sales.customers;  
select * from sales.orders;  
select * from sales.staffs;  
select * from sales.stores;  
select * from sales.order_items;
```

# Business Questions

## 1. Product and Category Performance

```
--1-What are the top-selling categories and brands?  
select top 10 category_name ,brand_name,sum(oi.quantity) as'total sold'  
from sales.order_items oi  
join production.products p on oi .product_id=p.product_id  
join production.categories c on c.category_id=p.category_id  
join production.brands b on b.brand_id=p.brand_id  
group by category_name,brand_name  
order by 'total sold' desc;
```

Results Messages			
	category_name	brand_name	total sold
1	Cruisers Bicycles	Electra	1329
2	Mountain Bikes	Trek	752
3	Children Bicycles	Electra	747
4	Mountain Bikes	Surly	526
5	Comfort Bicycles	Electra	524
6	Road Bikes	Trek	482
7	Cruisers Bicycles	Pure Cycles	376
8	Cruisers Bicycles	Sun Bicycles	358
9	Cyclocross Bicy...	Surly	305
10	Comfort Bicycles	Sun Bicycles	289

--2- Which products have the highest sales volumes across all stores?

```
select top 10 p.product_name ,sum(oi.quantity) as 'total sold'
from sales.order_items oi
join production.products p on oi.product_id=p.product_id
group by p.product_name
order by 'total sold' desc;
```



Results Messages		
	product_name	total sold
1	Electra Cruiser 1 (24-Inch) - 2016	296
2	Electra Townie Original 7D EQ - 2016	290
3	Electra Townie Original 21D - 2016	289
4	Electra Girl's Hawaii 1 (16-inch) - 2015/2016	269
5	Surly Ice Cream Truck Frameset - 2016	167
6	Electra Girl's Hawaii 1 (20-inch) - 2015/2016	154
7	Trek Slash 8 27.5 - 2016	154
8	Surly Straggler 650b - 2016	151
9	Electra Townie Original 7D - 2015/2016	148
10	Surly Straggler - 2016	147

```
--3-What is the average price of products sold in each category?  
select c.category_name ,avg(p.list_price) as 'average_price'  
from production.categories c  
join production.products p on c.category_id=p.category_id  
group by category_name  
order by avg(p.list_price) desc;
```

Results Messages			
	category_name	average_price	
1	Electric Bikes	3281.656666	
2	Road Bikes	3175.357333	
3	Cyclocross Bicycles	2542.793000	
4	Mountain Bikes	1649.757333	
5	Cruisers Bicycles	730.412307	
6	Comfort Bicycles	682.123333	
7	Children Bicycles	287.786610	

✓ Query executed successfully.

```
--4--which category rejected more orders?  
select top 1 c.category_name ,count(distinct oi.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 oi on oi.product_id =p.product_id  
join sales.orders o on o.order_id =oi.order_id  
where o.order_status = 3  
group by c.category_name  
order by rejected_order_count desc;
```

 Results  Messages		
	category_name	rejected_order_count
1	Cruisers Bicycles	31

## 2. Customer Insights

--1-Which customers have made the most purchases (top 10)?

```
select top 10 concat(c.first_name,',',c.last_name)as 'Customer Name',  
count( o.order_id) as 'Total Orders' from sales.customers c  
join sales.orders o on c.customer_id =o.customer_id  
group by c.first_name,c.last_name  
order by 'Total Orders' desc;
```

	Customer Name	Total Orders
1	ElinoreAguilar	3
2	JamaalAlbert	3
3	GenovevaBaldwin	3
4	LyndseyBean	3
5	LorrieBecker	3
6	MonikaBerg	3
7	CleotildeBooth	3
8	LinnieBranch	3
9	KeriBridges	3
10	DelorisBurke	3

--2-How many unique cities and states are represented by customers?

```
select count(distinct city) number_of_cities ,  
count(distinct state) as number_of_state  
from sales.customers
```

	number_of_cities	number_of_state
1	195	3



--3-What is the geographical distribution of customers?

```
select top 15 city,state,count(customer_id) as 'total customers'
from sales.customers
group by city,state
order by 'total customers' desc;
```

Results		Messages	
	city	state	total customers
1	Mount Vernon	NY	20
2	Ballston Spa	NY	17
3	Scarsdale	NY	17
4	Canandaigua	NY	14
5	Floral Park	NY	13
6	Ossining	NY	13
7	Longview	TX	13
8	Canyon Country	CA	12
9	Astoria	NY	12
10	Howard Beach	NY	12
11	Merrick	NY	12
12	Richmond Hill	NY	12
13	Ronkonkoma	NY	12
14	Smithtown	NY	12
15	Sunnyside	NY	12

--4-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 oi.order_id=o.order_id
group by s.state
order by total_sales desc;
```

	state	total_sales
1	NY	5215751.2775

```
--5-What are the most common customer order statuses?  
select order_status, count(order_id) as 'Total Orders'  
from sales.orders  
group by order_status  
order by order_status ;
```

	order_status	Total Orders
1	1	62
2	2	63
3	3	45
4	4	1445

the order statuses:

- (1=Pending): The order has been placed but is not yet processed.
- (2=Processing): The order is currently being handled, such as preparing or shipping items.
- (3=Rejected): The order has been rejected, possibly due to issues like payment failure or out-of-stock items.
- (4=Completed): The order has been successfully fulfilled and completed.

### 3.Sales and Revenue Trends

```
--1-What is the total sales volume over time (monthly)?  
select datepart(year,order_date) as order_year,  
       datepart(month,order_date)as order_month,sum(oi.quantity) as total_sales  
from sales.orders o join sales.order_items oi  
on o.order_id=oi.order_id  
GROUP BY datepart(year,order_date),  
         datepart(month,order_date)  
ORDER BY order_year, order_month;
```

```
--2-What is the total revenue generated by each store?  
-- revenue =list_price*quantity*(1-discount)  
select s.store_name,sum(oi.list_price*oi.quantity*(1-oi.discount)) as total_revenue  
from sales.orders o  
join sales.order_items oi on o.order_id=oi.order_id  
join sales.stores s on o.store_id=s.store_id  
group by s.store_name  
order by total_revenue desc;
```

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

	order_year	order_month	total_sales
11	2016	11	181
12	2016	12	229
13	2017	1	229
14	2017	2	263
15	2017	3	296
16	2017	4	248
17	2017	5	241
18	2017	6	296
19	2017	7	249
20	2017	8	287
21	2017	9	237
22	2017	10	296
23	2017	11	241
24	2017	12	216
25	2018	1	241
26	2018	2	160
27	2018	3	290
28	2018	4	580
29	2018	6	1
30	2018	7	11
31	2018	8	9
32	2018	9	4
33	2018	10	8
34	2018	11	8
35	2018	12	4

✓ Query executed successfully.

--3-What is the total discount given across all orders?

```
select sum(discount) as total_discount_given  
from sales.order_items
```

Results Messages	
	total_discount_given
1	497.57

--4-What is the average revenue per order for completed orders?

```
select avg (items_count) as 'average revenue per order'  
from(  
  select o.order_id ,sum(oi.quantity* oi.list_price *(1-oi.discount)) as items_count  
  from sales.orders o join sales.order_items oi on o.order_id=oi.order_id  
  where o.order_status=4  
  group by o.order_id  
) as order_revenues;
```

Results Messages	
	average revenue per order
1	4610.806397

--5-What is the total revenue generated from completed orders?

```
select sum(oi.quantity * oi.list_price *(1-oi.discount)) as 'Total Revenue'  
from sales.orders o join sales.order_items oi  
on o.order_id=oi.order_id  
where o.order_status = 4; -- 4 is completed
```

Results Messages	
	Total Revenue
1	6662615.2441

```
--6- stores are available in the database  
select distinct store_name from sales.stores;
```

Results		Messages
	store_name	
1	Baldwin Bikes	
2	Rowlett Bikes	
3	Santa Cruz Bikes	

```
--7-Which store has the highest average order value?  
select s.store_name, avg(oi.list_price*oi.quantity*(1-oi.discount)) as average_order_value  
from sales.orders o  
join sales.order_items oi on o.order_id=oi.order_id  
join sales.stores s on o.store_id=s.store_id  
group by s.store_name  
order by average_order_value desc;
```

	store_name	average_order_value
1	Rowlett Bikes	1665.148260
2	Baldwin Bikes	1632.473013
3	Santa Cruz Bikes	1596.245563

## 4-Staff Performance and Store Management

--1-Which staff member has processed the most orders?

```
select s.first_name + ' ' + s.last_name as full_name,  
       count(o.order_id) as total_orders  
from sales.staffs s  
join sales.orders o on s.staff_id = o.staff_id  
group by s.first_name, s.last_name  
order by total_orders DESC;
```

	full_name	total_orders
1	MarceleneBoyer	553
2	VenitaDaniel	540
3	GennaSerrano	184
4	MireyaCopeland	164
5	KaliVargas	88
6	LaylaTerrell	86

--2-What is the performance comparison between stores?

```
select store_name ,count(o.order_id) as total_orders  
from sales.stores s join sales.orders o on s.store_id=o.store_id  
group by store_name  
order by total_orders desc;
```

	store_name	total_orders
1	Baldwin Bikes	1093
2	Santa Cruz Bikes	348
3	Rowlett Bikes	174

```
--3-Which store has the largest inventory stock for each product?
select top 3 s.store_name,p.product_name,sk.quantity
from sales.stores s
join production.stocks sk on s.store_id=sk.store_id
join production.products p on sk.product_id=p.product_id
where sk.quantity =(
-- correlated nested query to find the max quantity for each product
SELECT MAX(quantity) FROM production.stocks WHERE product_id = p.product_id)
ORDER BY sk.quantity DESC;
```

	store_name	product_name	quantity
1	Rowlett Bikes	Electra Townie Commute 27D - 2018	30
2	Santa Cruz Bikes	Electra Sweet Ride 3i (20-inch) - Girls' - 2018	30
3	Baldwin Bikes	Electra Relic 3i - 2018	30

--4-What percentage of staff members are currently active?

```
select (sum(case when active =1 then 1 else 0 end)*100 / count(staff_id)) as active_staff_percentage  
from sales.staffs;
```

Results Messages

	active_staff_percentage
1	100

--5-Which stores have the most active staff?

```
select store_name ,count(s.staff_id) as active_staff_count  
from sales.stores st join sales.staffs s  
on st.store_id=s.store_id  
where s.active =1  
group by st.store_name  
order by count(s.staff_id) desc;
```

Results Messages

	store_name	active_staff_count
1	Santa Cruz Bikes	4
2	Baldwin Bikes	3
3	Rowlett Bikes	3



## 5.Order Insights

```
--1-What is the average order size by store?  
select s.store_name ,avg(oi.quantity) as average_order_size  
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.store_name;
```

	Results	Messages
	store_name	average_order_size
1	Santa Cruz Bikes	1
2	Rowlett Bikes	1
3	Baldwin Bikes	1

```
--2-What is the percentage of orders that were shipped on time?  
select (sum(case when o.shipped_date <= o.required_date then 1 else 0 end)* 100.00 / count(o.order_id))  
as required_date from sales.orders o;
```

	Results	Messages
	required_date	
1	61.1145510835913	

--3-Which products are most frequently discounted, and how does that affect sales?

```
select product_name ,count(oi.order_id) as total_sales,avg(oi.discount) as avg_aiscount
from sales.order_items oi
join production.products p on oi.product_id=p.product_id
where oi.discount>0
group by p.product_name
order by total_sales desc;
```

## Conclusion

**offering moderate discounts in the range of 9% to 11% proves to be the most effective strategy for maximizing sales. This balanced approach not only encourages customers to make purchases but also helps maintain healthier profit margins compared to both higher and lower discount levels.**

Results		Messages	
	product_name	total_sales	avg_aiscount
1	Electra Cruiser 1 (24-Inch) - 2016	193	0.098860
2	Electra Townie Original 21D - 2...	193	0.098808
3	Electra Townie Original 7D EQ -...	185	0.104918
4	Electra Girl's Hawaii 1 (16-inch) ...	180	0.110500
5	Surly Ice Cream Truck Framese...	110	0.103000
6	Trek Conduit+ - 2016	101	0.104158
7	Trek Slash 8 27.5 - 2016	101	0.099207
8	Electra Girl's Hawaii 1 (20-inch) ...	100	0.110500
9	Electra Townie Original 7D - 20...	98	0.101428
10	Surly Straggler - 2016	97	0.107525
11	Trek Fuel EX 8 29 - 2016	97	0.112577
12	Surly Straggler 650b - 2016	97	0.111030
13	Pure Cycles Vine 8-Speed - 2016	91	0.096043
14	Heller Shagamaw Frame - 2016	91	0.112307
15	Electra Moto 1 - 2016	91	0.101538
16	Pure Cycles Western 3-Speed -...	89	0.101123
17	Surly Wednesday Frameset - 2...	86	0.105581
18	Trek Remedy 29 Carbon Frame...	85	0.098470
19	Electra Townie Original 7D EQ -...	84	0.113571
20	Pure Cycles William 3-Speed - 2...	78	0.106794
21	Ritchey Timberwolf Frameset - ...	77	0.107792
22	Electra Girl's Hawaii 1 16" - 2017	49	0.097959
23	Sun Bicycles Cruz 3 - 2017	46	0.098260
24	Electra Townie Original 7D - 2017	45	0.101111
25	Sun Bicycles Lil Bolt Type-R - 2...	35	0.103142
26	Sun Bicycles Cruz 3 - 2017	34	0.098617

✓ Query executed successfully.

## 6.Inventory and Stock Management

```
--1-Which products are out of stock at multiple stores?  
select p.product_name ,s.store_id,count(st.quantity) as 'out_of_stock_stores'  
from production.products p  
join production.stocks st on p.product_id=st.product_id  
join sales.stores s on st.store_id=s.store_id  
where st.quantity=0  
group by product_name,s.store_id  
Having count(s.store_id)>1;
```

Results Messages			
	product_name	store_id	out_of_stock_stores
1	Electra Townie Commute Go! - 2018	2	2

when you write `Having count(s.store_id)>1`

**"Only show me the products that are out of stock in more than one store".**

```
--2-Which stores have the highest stock levels for the most in-demand products?
select s.store_name,p.product_name,sk.quantity
from production.products p
join production.stocks sk on p.product_id=sk.product_id
join sales.stores s on sk.store_id=s.store_id
where sk.quantity =
(select max(quantity) from production.stocks where product_id=p.product_id)
order by sk.quantity desc;
```

Results	Messages		
	store_name	product_name	quantity
1	Rowlett Bikes	Surly Straggler 650b - 2016	30
2	Rowlett Bikes	Electra Townie Original 21D - 2016	30
3	Santa Cruz Bikes	Surly Ice Cream Truck Frameset - 2017	30
4	Rowlett Bikes	Haro Flightline One ST - 2017	30
5	Santa Cruz Bikes	Trek Powerfly 8 FS Plus - 2017	30
6	Santa Cruz Bikes	Electra Townie Original 7D - 2017	30
7	Baldwin Bikes	Electra Townie Original 7D - 2017	30
8	Santa Cruz Bikes	Sun Bicycles Cruz 3 - 2017	30
9	Baldwin Bikes	Sun Bicycles Atlas X-Type - 2017	30
10	Santa Cruz Bikes	Sun Bicycles Cruz 3 - 2017	30
11	Santa Cruz Bikes	Sun Bicycles Cruz 7 - Women's - 2017	30
12	Rowlett Bikes	Trek Marlin 7 - 2017/2018	30
13	Baldwin Bikes	Trek X-Caliber Frameset - 2018	30
14	Baldwin Bikes	Trek Emonda ALR 6 - 2018	30
15	Baldwin Bikes	Surly Pack Rat - 2018	30
16	Rowlett Bikes	Trek CrossRip+ - 2018	30
17	Santa Cruz Bikes	Trek XM700+ Lowstep - 2018	30
18	Santa Cruz Bikes	Trek Lift+ - 2018	30
19	Rowlett Bikes	Trek Powerfly 5 FS - 2018	30
20	Rowlett Bikes	Electra Tiger Shark 3i - 2018	30
21	Santa Cruz Bikes	Electra Moto 3i - 2018	30
22	Baldwin Bikes	Electra Cruiser 1 Tall - 2016/2018	30
23	Baldwin Bikes	Electra Relic 3i - 2018	30
24	Santa Cruz Bikes	Electra Sweet Ride 3i (20-inch) - Girls...	30
25	Rowlett Bikes	Electra Townie Commute 27D - 2018	30
26	Rowlett Bikes	Electra Townie Original 21D - 2018	30

.....

	store_name	product_name	quantity
307	Baldwin Bikes	Surly Wednesday - 2017	10
308	Rowlett Bikes	Surly Wednesday - 2017	10
309	Santa Cruz Bikes	Electra Townie Original 21D Ladies' - ...	10
310	Santa Cruz Bikes	Electra Townie Commute 8D Ladies' - ...	10
311	Baldwin Bikes	Electra Townie Original 3i EQ Ladies' ...	10
312	Rowlett Bikes	Electra Townie Commute Go! - 2018	10
313	Rowlett Bikes	Trek Domane ALR 4 Disc - 2018	9
314	Rowlett Bikes	Trek Domane SLR 6 - 2018	9
315	Santa Cruz Bikes	Sun Bicycles Biscayne Tandem 7 - 20...	9
316	Santa Cruz Bikes	Trek Precaliber 24 (21-Speed) - Girls - ...	8
317	Rowlett Bikes	Trek Precaliber 24 (21-Speed) - Girls - ...	8
318	Santa Cruz Bikes	Trek Domane SL 6 - 2017	8
319	Rowlett Bikes	Trek Boone Race Shop Limited - 2017	8
320	Baldwin Bikes	Trek Silque SLR 8 Women's - 2017	8
321	Rowlett Bikes	Electra Amsterdam Original 3i Ladies'...	7
322	Santa Cruz Bikes	Sun Bicycles Streamway 7 - 2017	7
323	Baldwin Bikes	Trek Powerfly 7 FS - 2018	7
324	Santa Cruz Bikes	Electra Koa 3i Ladies' - 2018	7
325	Baldwin Bikes	Electra Cruiser 1 Ladies' - 2018	6
326	Rowlett Bikes	Trek Domane AL 3 Women's - 2018	6
327	Baldwin Bikes	Electra Amsterdam Original 3i - 2015/...	6
328	Rowlett Bikes	Electra Townie Original 1 - 2018	6
329	Baldwin Bikes	Electra Townie Original 1 - 2018	6
330	Baldwin Bikes	Electra Superbolt 1 20" - 2018	5
331	Rowlett Bikes	Trek Domane SLR Frameset - 2018	3

✓ Query executed successfully.

## 7.Order Fulfillment and Customer Satisfaction

--1-What is the average time taken to fulfill and ship an order?

```
select avg(datediff(day,order_date,shipped_date))as average_fulfillment_time
from sales.orders
where shipped_date is not null;
```

Results		Messages
	average_fulfillment_time	
1	1	

--2-How many orders have been rejected or are pending?

```
select order_status ,count(order_id) as total_orders
from sales.orders
where order_status in (3,1)-- 3 = Rejected, 1 = Pending
group by order_status
```

Results			Messages
	order_status	total_orders	
1	1	62	
2	3	45	

--1-What percentage of orders were Completed

```
SELECT (SUM(CASE WHEN order_status = 4 THEN 1 ELSE 0 END) * 100.0 / COUNT(order_id)) AS Complete_percentage
FROM sales.orders;
```

Results		Messages
	Complete_percentage	
1	89.473684210526	

## 8.Product Details and Performance

--1-What are the top 5 most expensive products?

```
select top 5 product_name,list_price
from production.products
order by list_price desc;
```

	product name	list price
1	Trek Domane SLR 9 Disc - 2018	11999.99
2	Trek Domane SLR 8 Disc - 2018	7499.99
3	Trek Silque SLR 8 Women's - 2017	6499.99
4	Trek Domane SL Frameset - 2018	6499.99
5	Trek Domane SL Frameset Women's - 2018	6499.99

--2-Which products have the lowest stock levels across all stores?

```
select top 10 p.product_name , sum(sk.quantity ) as total_stock
from production.products p
join production.stocks sk on p.product_id=sk.product_id
group by p.product_name
order by total_stock asc;
```

	product name	total stock
1	Trek Domane SLR Frameset - 2018	5
2	Electra Superbolt 1 20" - 2018	9
3	Electra Cruiser 1 Ladies' - 2018	10
4	Electra Amsterdam Original 3i - 2015/2017	11
5	Sun Bicycles Streamway 7 - 2017	11
6	Electra Amsterdam Original 3i Ladies' - 2017	12
7	Electra Koa 3i Ladies' - 2018	12
8	Electra Townie Original 1 - 2018	12
9	Trek Silque SLR 8 Women's - 2017	12
10	Trek Remedy 29 Carbon Frameset - 2016	13



## 9.Customer Demographics and Preferences

--1- How Many total customers does BikeStore have?

```
SELECT count(distinct customer_id ) as total_customers
FROM sales.customers;
```

Results Messages	
	total_customers
1	1445

--2-who already buy succeeded orders?

```
SELECT count(distinct s.customer_id ) as total_customers
FROM sales.customers s join sales.orders o
on s.customer_id=o.customer_id
where order_status != 3;
```

Results Messages	
	total_customers
1	1445

--3-What are the most popular product categories among customers?

```
select c.category_name ,count(o.order_id) as total_orders
from sales.orders o
join sales.order_items oi on o.order_id=oi.order_id
join production.products p on oi.product_id =p.product_id
join production.categories c on p.category_id=c.category_id
group by category_name
order by count(o.order_id) desc;
```

Results Messages		
	category_name	total_orders
1	Cruisers Bicycles	1378
2	Mountain Bikes	1183
3	Children Bicycles	782
4	Comfort Bicycles	537
5	Road Bikes	374
6	Cyclocross Bicycles	256
7	Electric Bikes	212

Most liked

least liked

## 10.Inventory Management

--1-How many products are available across all stores?

```
select count(distinct product_id) as total_products_available
from production.stocks
where quantity >0;
```

Results		Messages	
		total_products_available	
1		313	

--2-Which stores have products with stock levels lower than 5? ?

```
select top 10 s.store_name ,p.product_name,sk.quantity
from production.products p
join production.stocks sk on p.product_id=sk.product_id
join sales.stores s on sk.store_id=s.store_id
where sk.quantity <5 ---- Stock threshold
```

Results		Messages	
	store_name	product_name	quantity
1	Santa Cruz Bikes	Surly Ice Cream Truck Frameset - 2016	0
2	Santa Cruz Bikes	Trek Remedy 29 Carbon Frameset - 2016	0
3	Santa Cruz Bikes	Electra Moto 1 - 2016	3
4	Santa Cruz Bikes	Electra Townie Original 7D EQ - 2016	4
5	Santa Cruz Bikes	Pure Cycles Vine 8-Speed - 2016	2
6	Santa Cruz Bikes	Pure Cycles William 3-Speed - 2016	4
7	Santa Cruz Bikes	Surly Wednesday - 2017	2
8	Santa Cruz Bikes	Trek Farley Alloy Frameset - 2017	0
9	Santa Cruz Bikes	Trek Session DH 27.5 Carbon Framese...	2
10	Santa Cruz Bikes	Trek Stache 5 - 2017	2



## 11.Customer Order Patterns

```
--1-What is the average number of items per order?  
select avg(items_per_order) as average_items_per_order --Outer Query  
from(  
  select o.order_id, count(oi.item_id) as items_per_order --Inner Query  
  from sales.orders o join sales.order_items oi  
  on o.order_id=oi.order_id  
  group by o.order_id  
)as order_item_counts;
```

Results		Messages	
		average_items_per_order	
1		2	

```
--2-What is the total quantity of products ordered by each customer?  
select top 10 concat(c.first_name , '' ,c.last_name)as full_name ,  
sum(oi.quantity)as total_quantity_ordered  
from sales.customers c  
join sales.orders o on c.customer_id=o.customer_id  
join sales.order_items oi on o.order_id =oi.order_id  
group by concat(c.first_name , '' ,c.last_name)  
order by total_quantity_ordered desc;
```

	full_name	total_quantity_ordered
1	EmmittSanchez	19
2	TamekaFisher	19
3	PameliaNewman	18
4	DebraBurks	17
5	ElinoreAguilar	17
6	MozelleCarter	17
7	BridgetteGuerra	16
8	CoreneWall	16
9	DamienDorsey	16
10	LyndseyBean	16

--3-what did the customer with id 250 buy and when ? what is the status of this order?

```
SELECT first_name +' '+last_name as full_name ,p.product_name,oi.quantity,o.order_date,o.order_status
from sales.customers s
join sales.orders o on s.customer_id =o.customer_id
join sales.order_items oi ON o.order_id = oi.order_id
join production.products p ON oi.product_id = p.product_id
WHERE o.customer_id = 250;
```

Results Messages					
	full_name	product_name	quantity	order_date	order_status
1	IvonneYang	Surly Steamroller - 2017	2	2017-01-28	4
2	IvonneYang	Haro Flightline One ST - 2017	2	2017-01-28	4

```
--4-What is the distinct product name, quantity sold, list price, category, model year, and brand name
--for the product with product_id = 40?
select distinct p.product_name, oi.quantity, p.list_price, c.category_name, p.model_year, b.brand_name
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 = 40;
```

Results Messages						
	product_name	quantity	list_price	category_name	model_year	brand_name
1	Trek Fuel EX 9.8 29 - 2017	1	4999.99	Mountain Bikes	2017	Trek
2	Trek Fuel EX 9.8 29 - 2017	2	4999.99	Mountain Bikes	2017	Trek