

1. Top Selling Products

Identify the top 5 best-selling products based on the total quantity sold.

```
SELECT P.product_name, SUM(OI.quantity) AS total_sold
FROM order_items OI
JOIN products P
ON OI.product_id = P.product_id
GROUP BY 1
ORDER BY 2 DESC
LIMIT 5
```

OUTPUT:

product_name	total_sold
Electra Cruiser 1 (24-Inch) - 2016	296
Electra Townie Original 7D EQ - 2016	290
Electra Townie Original 21D - 2016	289
Electra Girl's Hawaii 1 (16-inch) - 2015/2016	269
Surly Ice Cream Truck Frameset - 2016	167

2.Sales by Year

Calculate total sales for each year.

```
SELECT YEAR(O.order_date) AS year, ROUND(SUM(OI.quantity * OI.list_price * (1-OI.discount)),2) AS total_sales
FROM orders O
JOIN order_items OI
ON O.order_id = OI.order_id
GROUP BY YEAR(O.order_date)
ORDER BY year DESC
```

OUTPUT:

year	total_sales
2018	1814529.79
2017	3447208.24
2016	2427378.53

3. Staff Performance Based on Product Categories Sold:

Assessing staff performance by evaluating the sales of different product categories

```
select S.staff_id, S.first_name, S.last_name, C.category_name, round(sum(I.quantity*I.list_price*(1-I.discount)),2) as Sales
from orders O
join staffs S
on O.staff_id = S.staff_id
join order_items I
on O.order_id = I.order_id
join products P
on I.product_id = P.product_id
join categories C
on P.category_id = C.category_id
group by 1,2,3,4
order by 5 desc
limit 10
```

OUTPUT:

staff_id	first_name	last_name	category_name	Sales
6	Marcelene	Boyer	Mountain Bikes	930168.36
7	Venita	Daniel	Mountain Bikes	906223.86
6	Marcelene	Boyer	Road Bikes	576487.09
7	Venita	Daniel	Road Bikes	563990.13
7	Venita	Daniel	Cruisers Bicycles	343295.12
6	Marcelene	Boyer	Cruisers Bicycles	338500.65
7	Venita	Daniel	Electric Bikes	310725.67
6	Marcelene	Boyer	Electric Bikes	292104.11
3	Genna	Serrano	Mountain Bikes	284387.97
2	Mireya	Copeland	Mountain Bikes	277859.67

4. Average Discount Given by Product Category:

Calculating the average discount given for different product categories.

```
select C.category_name, round(avg(I.discount*100),3) as Average_discount_by_Product_Category
from products P
join categories C
on P.category_id = C.category_id
join order_items I
on P.product_id = I.product_id
group by 1
order by 2 desc;
```

OUTPUT:

category_name	Average_discount_by_Product_Category
Cydocross Bicycles	11.133
Children Bicycles	10.79
Road Bikes	10.556
Electric Bikes	10.514
Mountain Bikes	10.504
Cruisers Bicycles	10.436
Comfort Bicycles	10.214

5.Best-Selling Brands

Identify which brands have the highest sales.

```
SELECT B.brand_name, ROUND(SUM(OI.quantity * OI.list_price * (1-OI.discount)),2) AS total_sales
FROM order_items OI
JOIN products P
ON oi.product_id = P.product_id
JOIN brands B
ON P.brand_id = B.brand_id
GROUP BY 1
ORDER BY 2 DESC;
```

OUTPUT:

brand_name	total_sales
Trek	4602754.35
Electra	1205320.82
Surly	949507.06
Sun Bicycles	341994.93
Haro	185384.55
Heller	171459.08
Pure Cycles	149476.34
Ritchey	78898.95
Strider	4320.48

6.Orders by Customer Region

Analyze orders by customers' state to determine the most active regions.

```
SELECT C.state, COUNT(O.order_id) AS order_count
FROM customers C
JOIN orders O
ON C.customer_id = O.customer_id
GROUP BY 1
ORDER BY 2 DESC;
```

OUTPUT:

state	order_count
NY	1093
CA	348
TX	174

7.Total Sales per Store

Calculate the total sales for each store

```
SELECT S.store_name, ROUND(SUM(OI.quantity * OI.list_price * (1-OI.discount)),2) AS total_sales
FROM orders O
JOIN stores S
ON O.store_id = S.store_id
JOIN order_items OI
ON O.order_id = OI.order_id
GROUP BY 1
ORDER BY 2 DESC;
```

OUTPUT:

	store_name	total_sales
▶	Baldwin Bikes	5215751.28
	Santa Cruz Bikes	1605823.04
	Rowlett Bikes	867542.24

8.Customer with Most Orders

Find the customer who has placed the most orders.

```
SELECT C.first_name, C.last_name, COUNT(O.order_id) AS order_count
FROM customers C
JOIN orders O
ON C.customer_id = O.customer_id
GROUP BY C.customer_id, 1, 2
ORDER BY 3 DESC
LIMIT 1;
```

OUTPUT:

first_name	last_name	order_count
Ronna	Butler	3

9.Average Order Value by Store

Calculate the average order value for each store.

```
SELECT S.store_name, ROUND(AVG(OI.quantity * OI.list_price),2) AS avg_order_value
FROM orders O
JOIN stores S
ON O.store_id = S.store_id
JOIN order_items OI
ON O.order_id = OI.order_id
GROUP BY 1
ORDER BY 2 DESC;
```

OUTPUT:

store_name	avg_order_value
Rowlett Bikes	1847.6
Baldwin Bikes	1823.55
Santa Cruz Bikes	1779.47

10. Most Common Product Pairs Purchased Together

Identify the most common pairs of products that are purchased together in the same order.

```
SELECT p1.product_name AS product_1, p2.product_name AS product_2, COUNT(*) AS times_bought_together
FROM order_items oi1
JOIN order_items oi2
ON oi1.order_id = oi2.order_id AND oi1.product_id < oi2.product_id
JOIN products p1
ON oi1.product_id = p1.product_id
JOIN products p2 ON oi2.product_id = p2.product_id
GROUP BY 1, 2
ORDER BY 3 DESC
LIMIT 5;
```

OUTPUT:

product_1	product_2	times_bought_together
Electra Cruiser 1 (24-Inch) - 2016	Electra Girl's Hawaii 1 (16-inch) - 2015/2016	27
Electra Townie Original 21D - 2016	Electra Cruiser 1 (24-Inch) - 2016	22
Trek Slash 8 27.5 - 2016	Electra Townie Original 21D - 2016	22
Electra Girl's Hawaii 1 (16-inch) - 2015/2016	Electra Girl's Hawaii 1 (20-inch) - 2015/2016	22
Electra Cruiser 1 (24-Inch) - 2016	Electra Girl's Hawaii 1 (20-inch) - 2015/2016	21