JENSON USA

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Data Analysis using Advanced SQL

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Introduction

Jenson USA is a U.S.-based bicycle retailer specializing in bikes, parts, apparel, and accessories, selling through its online store and retail locations in California. Founded in 1994 as a rider-owned business, it has grown into a well-known mid-sized company serving cyclists across the country.

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Background Project

Current scenario:

As a data analyst at Jensen's, craft SQL queries to derive insights on customer behavior, staff performance, inventory management, and store operations.

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SQL Essentials

Foundational Insight Queries

Core metrics and essential business overviews

Strategic Performance Queries

Trend analysis, rankings, efficiency and performance measurement

Advanced logic & optimization Queries

Existence checks, set coverage, and complex relational logic

Foundational Insight Queries

1. Find the total number of products sold by each store along with the store name.

```sql
select stores.store_id , sum(order_items.quantity), stores.store_name
from stores left join orders using(store_id) inner join order_items using(order_id)
group by stores.store_id, stores.store_name;
```

2. Find the highest-priced product for each category name.

```sql
#5. Find the highest-priced product for each category name.
with ranked_products as (select c.category_id, c.category_name, p.product_name, p.list_price,
row_number() over (partition by c.category_id order by p.list_price desc) as rn
from categories c join products p on c.category_id = p.category_id)
select category_id, category_name, product_name, list_price from ranked_products where rn = 1;
```

Foundational Insight Queries

3. Find the median value of the price list.

```sql
with a as(select list_price, row_number() over(order by list_price) as rn, count(*) over() as n from products)
select
    case
        when n%2 = 0 then (select avg(list_price) from a where rn in ((n/2), (n/2)+1))
        else (select list_price from a where rn = (n+1)/2)
    end as median
from a
limit 1;
```

These queries provide foundational business insights by summarizing store sales, identifying top-priced products by category, and determining the median product price.

Strategic Performance Queries

1. Calculate the cumulative sum of quantities sold for each product over time.

```
select  orders.order_date, products.product_id, products.product_name, order_items.quantity,
sum(order_items.quantity) over(partition by products.product_id order by orders.order_date) as cumulative_sum
from products left join order_items using(product_id) inner join orders using(order_id);
```

2. Find the product with the highest total sales (quantity * price) for each category.

```
from (select c.category_id, c.category_name, p.product_id, p.product_name, sum(oi.quantity * oi.list_price) as total_sales
row_number() over (partition by c.category_id order by sum(oi.quantity * oi.list_price) desc) as rn
from products p join categories c on p.category_id = c.category_id join order_items oi on p.product_id = oi.product_id
group by c.category_id, c.category_name, p.product_id, p.product_name
) x
```

Strategic Performance Queries

3. Find the customer who spent the most money on orders.

```sql
select c.customer_id, c.first_name, c.last_name, sum(oi.quantity * oi.list_price) as total_sales
from customers c join orders o on c.customer_id = o.customer_id join order_items oi on o.order_id = oi.order_id
group by c.customer_id, c.first_name, c.last_name order by total_sales desc limit 1;
```

4. Find the total number of orders placed by each customer per store.

```sql
select c.customer_id, c.first_name, c.last_name, s.store_id, s.store_name, count(o.order_id) as total_orders
from customers c join orders o on c.customer_id = o.customer_id join stores s on o.store_id = s.store_id
group by c.customer_id, c.first_name, c.last_name, s.store_id, s.store_name order by c.customer_id, s.store_id;
```

5. Find the top 3 most sold products in terms of quantity.

```sql
select p.product_name, sum(oi.quantity) as total_sales
from products p join order_items oi on p.product_id = oi.product_id
group by p.product_name order by total_sales desc limit 3
```

Strategic Performance Queries

6. List the names of staff members who have made more sales than the average number of sales by all staff members.

```
with staff_sales as (select s.staff_id, concat(s.first_name,'', s.last_name) as full_name,
coalesce(sum(oi.quantity * oi.list_price),0) as total_sales
from staffs s left join orders o using(staff_id) left join order_items oi using(order_id)
group by s.staff_id, s.first_name, s.last_name)
select * from staff_sales where total_sales > (select avg(total_sales) from staff_sales);
```

These queries deliver strategic performance insights by tracking sales trends, identifying top-selling products, analyzing customer spending, evaluating order activity, and comparing staff performance against organizational averages.

Advanced logic & Optimization Queries

1. List all products that have never been ordered (use EXISTS).

```
select p.product_name, p.product_id
from products p
where not exists (select oi.order_id from order_items oi where oi.product_id = p.product_id);
```

2. Find the names of staff members who have not made any sales.

```
select s.staff_id, s.first_name, s.last_name, o.order_id
from staffs s left join orders o using(staff_id) where o.order_id is null;
```

Advanced logic & Optimization Queries

3. Identify the customers who have ordered all types of products (i.e., from every category).

```
select c.customer_id, concat(c.first_name, c.last_name) as full_name,
count(p.category_id) as product_count_per_category
from customers c join orders o using(customer_id) join order_items oi
using(order_id) join products p using(product_id)
group by c.customer_id
having count(distinct p.category_id) = (select count(category_id) from categories);
```

These queries uncover gaps in sales activity and identify products, staff, and customers based on advanced existence and coverage checks.

Conclusion

Together, these queries provide a complete view of business performance—from basic insights to advanced analysis—highlighting sales trends, top performers, activity gaps, and overall operational patterns.

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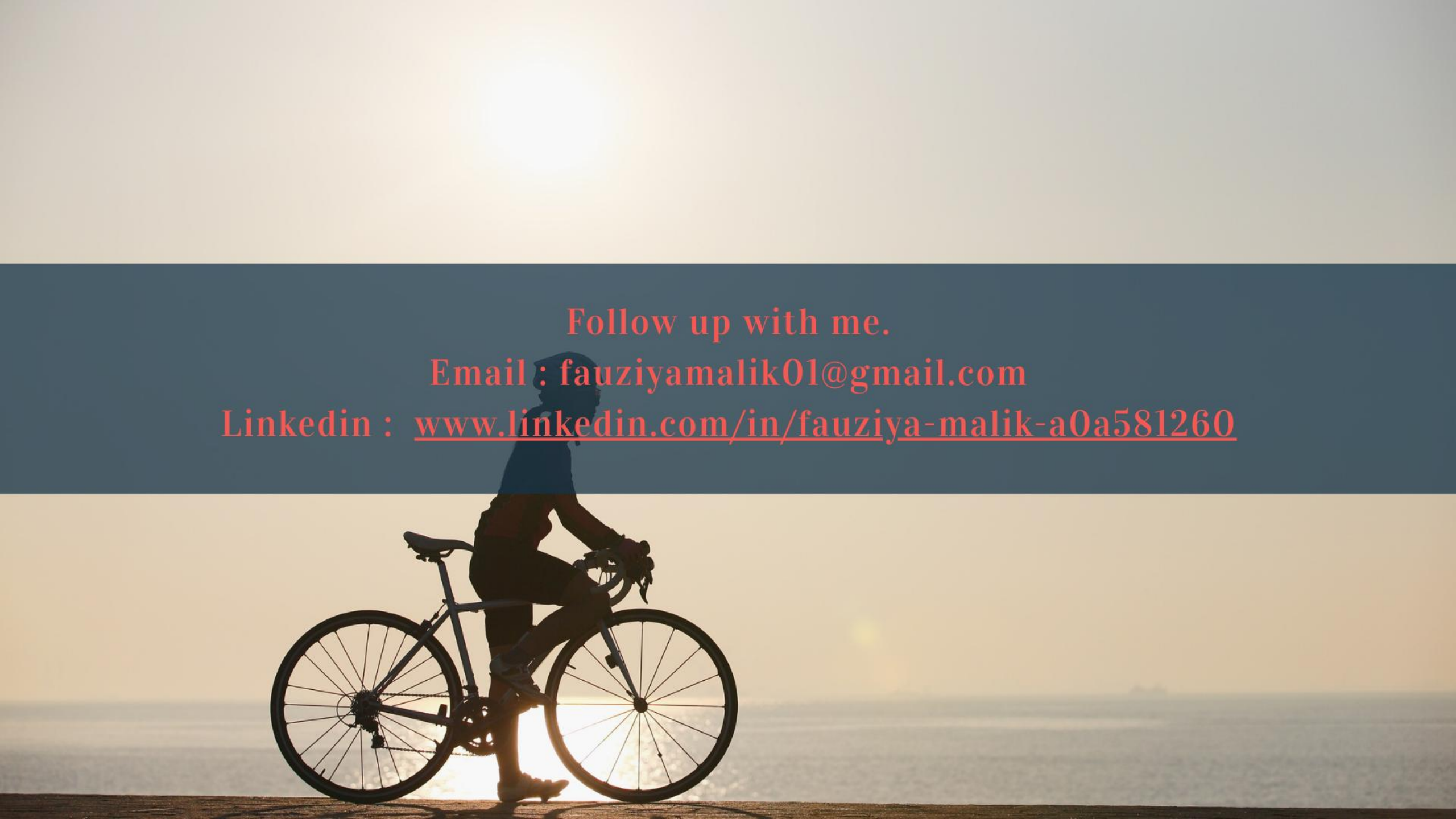

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