Unveiling Data Insights: A Journey Through SQL Analytics

This presentation explores key data insights using SQL, focusing on data exploration, measures, dimensional analysis, and ranking metrics within a data warehouse environment.

# Data Exploration: Uncovering Database Structures
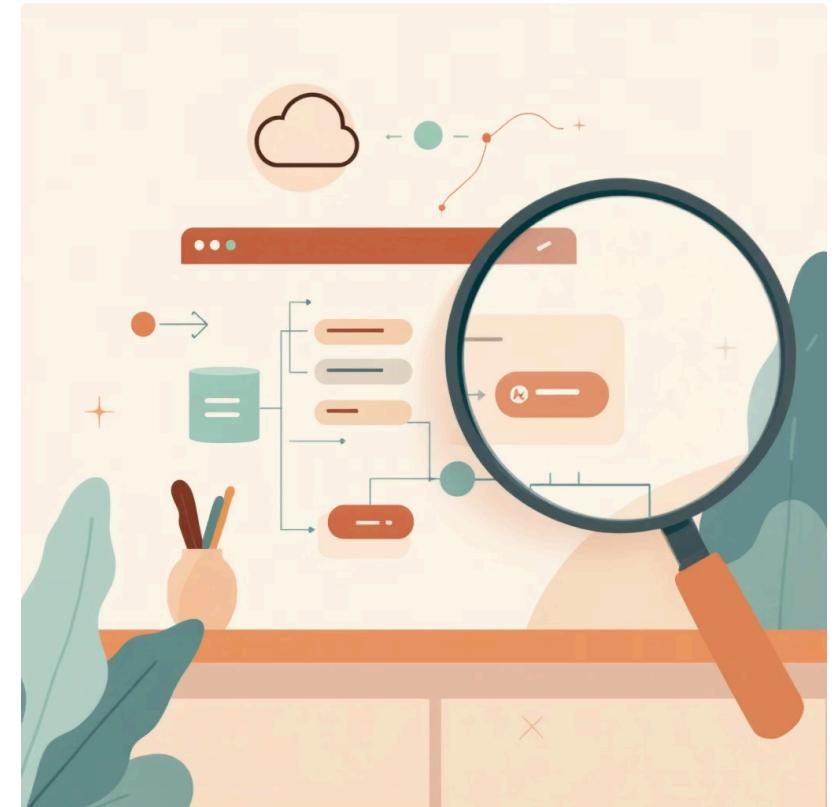
Exploring Database Objects

We begin by examining all available tables within the DataWarehouseAnalytics database to understand its foundational structure.

```
SELECT * FROM INFORMATION_SCHEMA.TABLES
```

Output:

- DataWarehouseAnalytics gold dim_customers BASE TABLE
- DataWarehouseAnalytics gold dim_products BASE TABLE
- DataWarehouseAnalytics gold fact_sales BASE TABLE

Deep Dive: Column and Customer Demographics

Understanding the details of our customer data is crucial for targeted analysis.

Column Exploration

Investigating the columns within the dim_customers table helps us grasp available attributes for each customer.
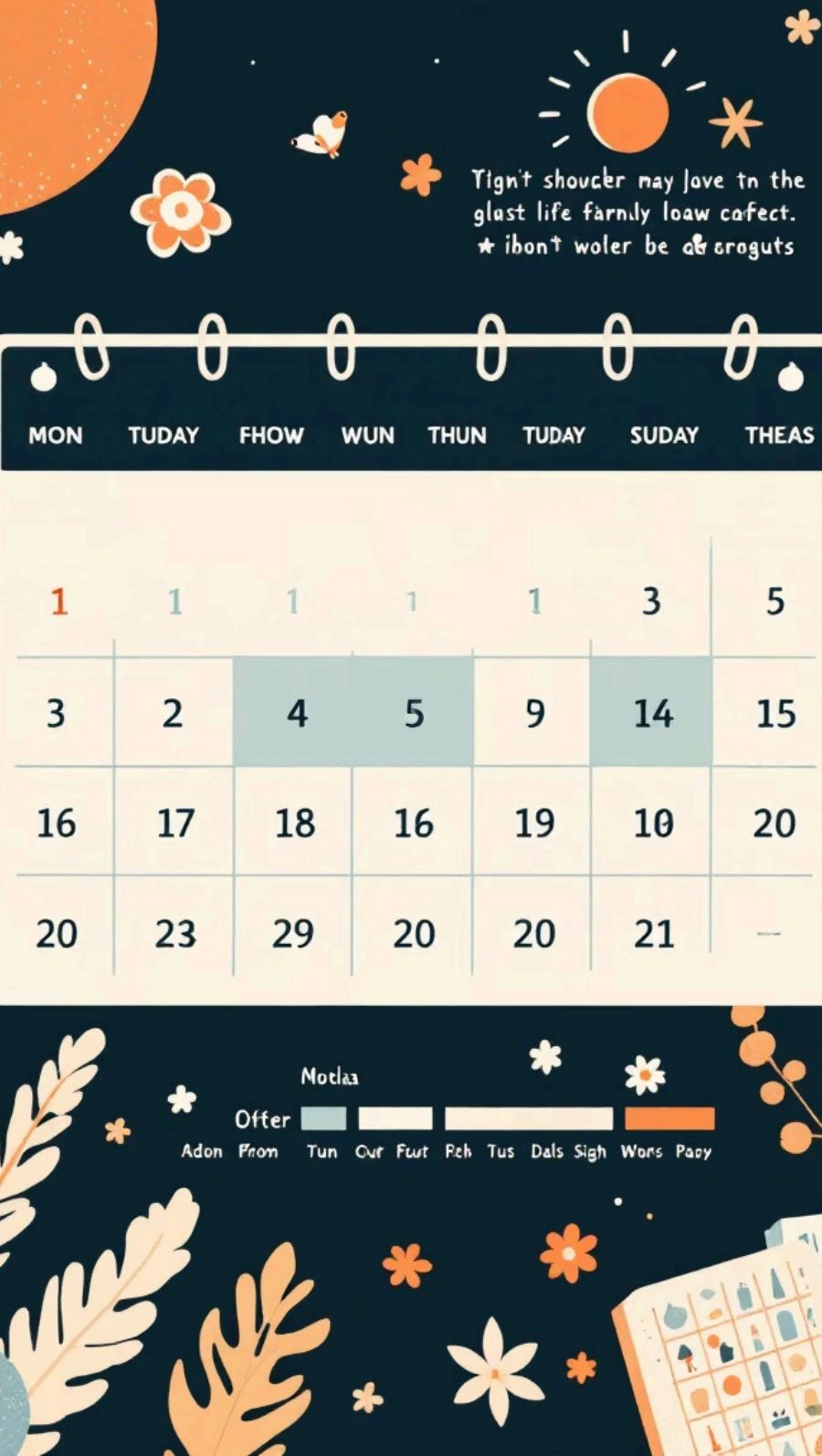
```
SELECT * FROM INFORMATION_SCHEMA.COLUMNS WHERE
TABLE_NAME = 'dim_customers'
```

Customer Origins

Identifying the distinct countries our customers originate from provides valuable geographical context.

```
SELECT DISTINCT country FROM gold.dim_customers WHERE
country IS NOT NULL
```

Output: Germany, United States, Australia, United Kingdom, Canada, France

Product Landscape & Sales Timeline

A clear understanding of our product categories and sales history sets the stage for performance analysis.

Product Categories

Distinct product categories reveal the major divisions of our offerings.

```
SELECT DISTINCT category
FROM gold.dim_products
WHERE category IS NOT NULL
```

Output: Accessories, Bikes, Clothing, Components

Sales Period Overview

Analyzing the first and last order dates gives us the span of our sales data.

```
SELECT MIN(order_date) AS
"First Order Date" ,
MAX(order_date) AS "Last
Order Date" FROM
gold.fact_sales
```

Output: 2010-12-29 to 2014-01-28

This indicates a sales history spanning **4 years**.

Key Business Measures: Quantifying Performance

A consolidated view of essential business metrics provides a high-level performance snapshot.

29.36M
Total Sales
Overall revenue generated across all transactions.

60K
Items Sold
Total number of products sold.

486
Avg. Price
Average selling price per item.

27.6K
Total Orders
Total unique customer orders processed.

295
### Products
Distinct products available.
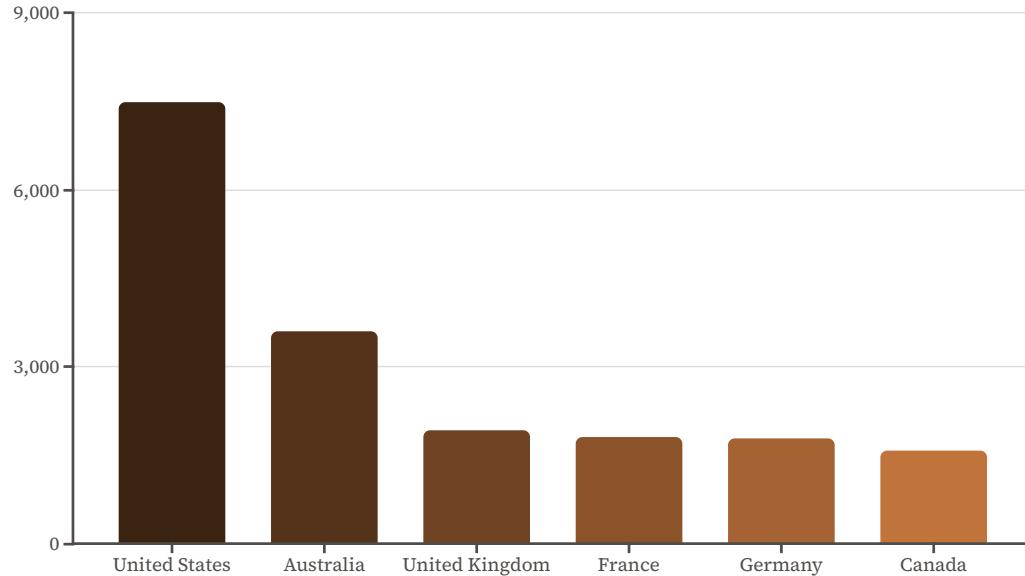
18.4K
Customers
Total unique customers.

These figures demonstrate the scale of our operations over the analyzed period.
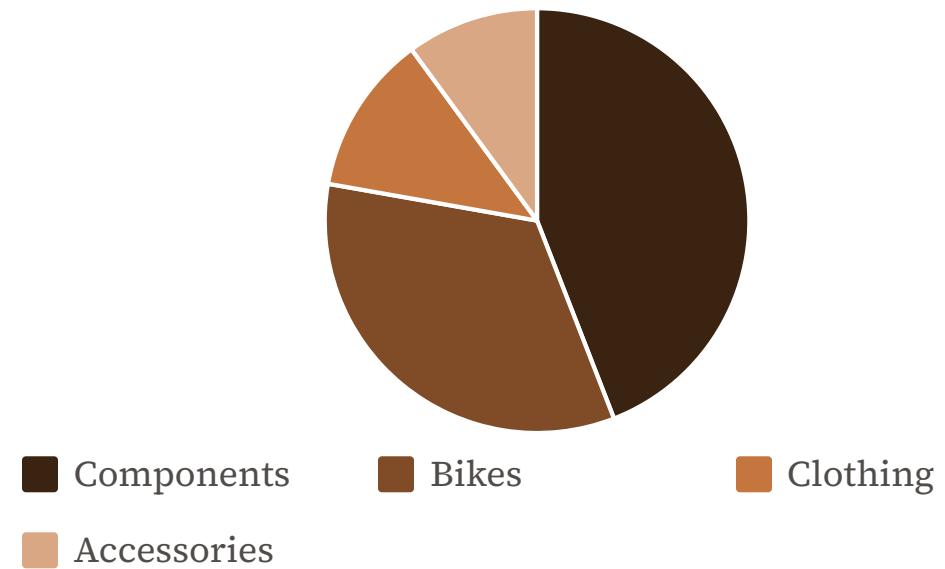
Customer & Product Segmentation

Understanding the distribution of customers and products across various dimensions provides deeper insights.

Customers by Country

The United States leads in customer count, indicating a primary market focus.

Products by Category

Components and Bikes represent the largest segments of our product catalog.

Revenue Drivers: Categories and Countries

Identifying where revenue is generated and how products contribute to sales is vital for strategic planning.

Revenue by Product Category

Bikes are the dominant revenue driver, followed by Accessories and Clothing.

Bikes: $28,316,272
Accessories: $700,262
Clothing: $339,716

Average Cost per Category

Bikes also have the highest average cost, influencing overall revenue.

Bikes: $949
Components: $264
Clothing: $24
Accessories: $13
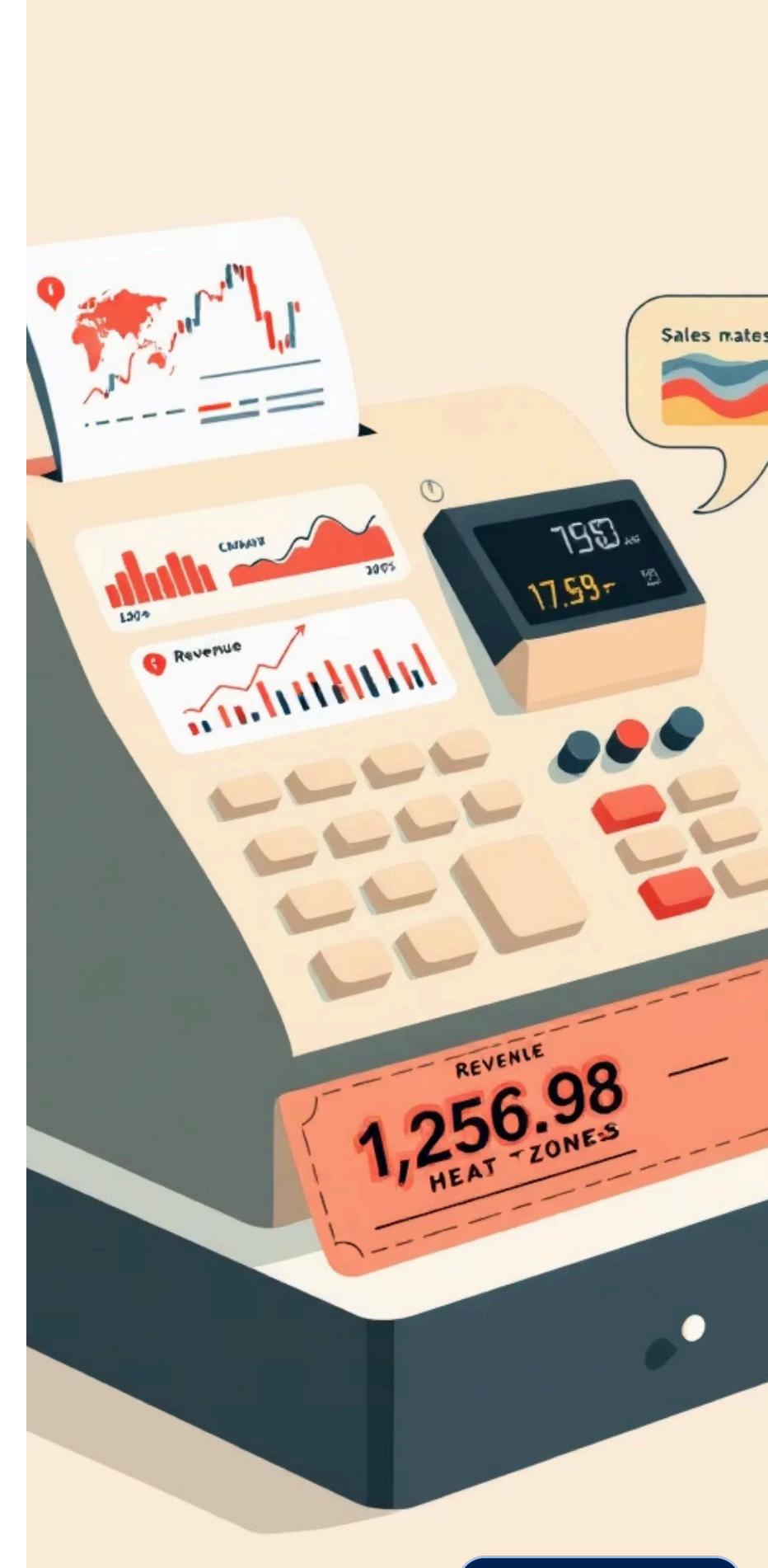
Items Sold by Country

The distribution of items sold largely mirrors the customer base, with the US leading.

United States: 20481
Australia: 13346
Canada: 7630

Top Performing Products & Subcategories

Pinpointing our highest-earning products and subcategories helps in optimizing inventory and marketing efforts.

1

Top 5 Products by Revenue

Mountain-200 series products consistently generate the highest revenue.

- Mountain-200 Black- 46
- Mountain-200 Black- 42
- Mountain-200 Silver- 38
- Mountain-200 Silver- 46
- Mountain-200 Black- 38

2

Top 5 Subcategories by Revenue

Road Bikes and Mountain Bikes are the leading subcategories in terms of revenue.

- Road Bikes
- Mountain Bikes
- Touring Bikes
- Tires and Tubes
- Helmets

Identifying Underperforming Areas

Understanding what isn't selling well is as important as knowing what is. This helps in strategic adjustments.

Worst 5 Products by Revenue

Low-value accessories and specific bike maintenance items show the lowest revenue figures.

- Racing Socks- L: $2430
- Racing Socks- M: $2682
- Patch Kit/8 Patches: $6382
- Bike Wash - Dissolver: $7272
- Touring Tire Tube: $7440

Worst 5 Subcategories by Revenue

Socks and Cleaners are the lowest-performing subcategories, suggesting areas for review.

- Socks: $5112
- Cleaners: $7272
- Caps: $19710
- Gloves: $34320
- Vests: $36160

Customer Loyalty: Top & Bottom Performers

Identifying both high-value and low-value customers provides actionable insights for customer relationship management and marketing strategies.

Top 10 Customers by Revenue

These customers are our highest revenue generators, crucial for retention strategies.

- Kaitlyn Henderson
- Nichole Nara
- Margaret He
- Randall Dominguez
- Adriana Gonzalez

Top 10 Customers by Orders

Customers with the highest number of distinct orders, indicating strong engagement.

- Dalton Perez
- Mason Roberts
- Ashley Henderson
- Jason Griffin
- Hailey Patterson

Bottom 3 Customers by Orders

Customers with only one order, indicating a need for strategies to encourage repeat purchases.

- Chloe Young
- Wyatt Hill
- Jordan King

Bottom 3 Customers by Revenue

Customers with minimal spending, potentially targets for re-engagement campaigns.

- Cody Sanders
- Abigail Morris
- Melanie Peterson