Bee Cycle

A SQL Analysis of a Cycling Company

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Project Summary

Project Summary

About: Opening in July 2017, Bee Cycle is a fictitious cycling company that sells a range of cycling products in stores across the globe.

Problem: Since the COVID-19 pandemic, Bee Cycle has started to suffer a decline in profits.

Objective: Bee Cycle has asked you, a data analyst, to provide data driven insights to help inform Bee Cycle's marketing strategy, with the aim of increasing company profits.

Skills	Tools
➢ Sorting and Filtering ➢ Data Cleaning and Wrangling ➢ Data Quality Assurance ➢ Exploratory Data Analysis ➢ Queries, Subqueries, and Common Table Expressions ➢ Joining Data from Relational Datasets	**BigQuery** 
➢ Data Visualisations	**Tableau** 

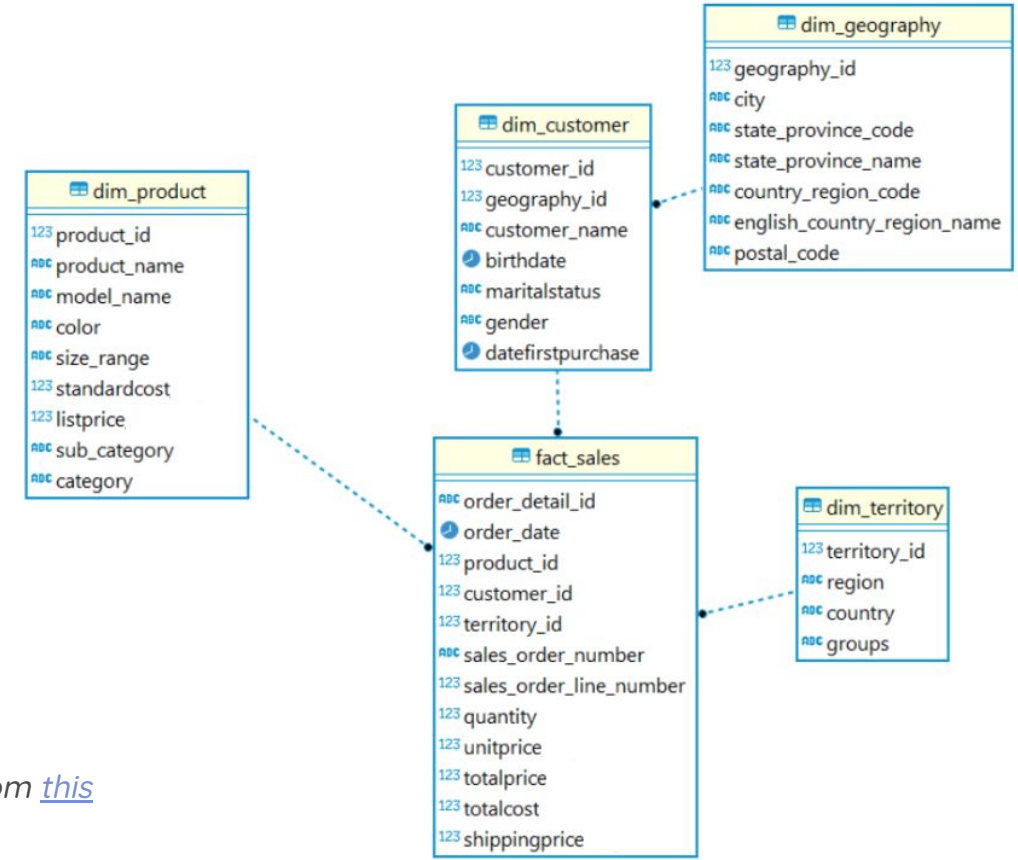
Data

Data

Bee Cycle provided you with **5 datasets*** to analyse.

Relations between datasets are summarised in this entity relationship diagram:

A data dictionary is also available to view here.



*All data is fictitious and was retrieved from this public repository.

Evaluation of the Data

- The dataset is **comprehensive** in that it includes information on a range of variables including locations, demographics, product colours and sizes, and transactions since store opening.
  - However, additional granularity such as the time an order was placed, whether purchases were in-store or online, or more detailed product features may provide further insights to help answer the business questions.

- The data can be considered **reliable**, in that it is first-party data that is complete and consistent and generally free from outliers, duplicates or invalid values.
  - However, the data is **not wholly up to date**, as it only provides sales data until June 2022. More current data could therefore further enhance reliability.

Project Process

Project Process

1. **Upload data (5 CSV files) to BigQuery**

2. **Initial inspection of the data**
   - ➢ Assessed each variable, checked their data types, and number of rows/columns in each table
   - ➢ Assessed table relations and primary and foreign keys
   - ➢ Created a data dictionary

Project Process

3 **Data cleaning, wrangling and analysis using SQL queries**

- ➢ Sorted and filtered the data
- ➢ Checked and handled null, outlying and impossible values, as well as any spelling errors or misfielded values.
- ➢ Used queries such as aggregate, window, string, conversion, conditional, and date and time functions, as well as join statements.
- ➢ Used subqueries and common table expressions to answer complex questions.

4 **Create data visualisations in Tableau**

Analysis

Key Questions

We will focus our analysis on the following questions:

1) **Which products are most profitable?**
2) **Which months are most profitable?**
3) **Which regions are most profitable?**
4) **What type of customer generates the most profit?**
5) **Which customers spend the most money?**
6) **a. Which cities are most profitable?**
   b. What are the most popular products within these cities?
   c. In what colours?

Data Overview

1360

customers

119

products available

6

countries with stores

5954

total orders

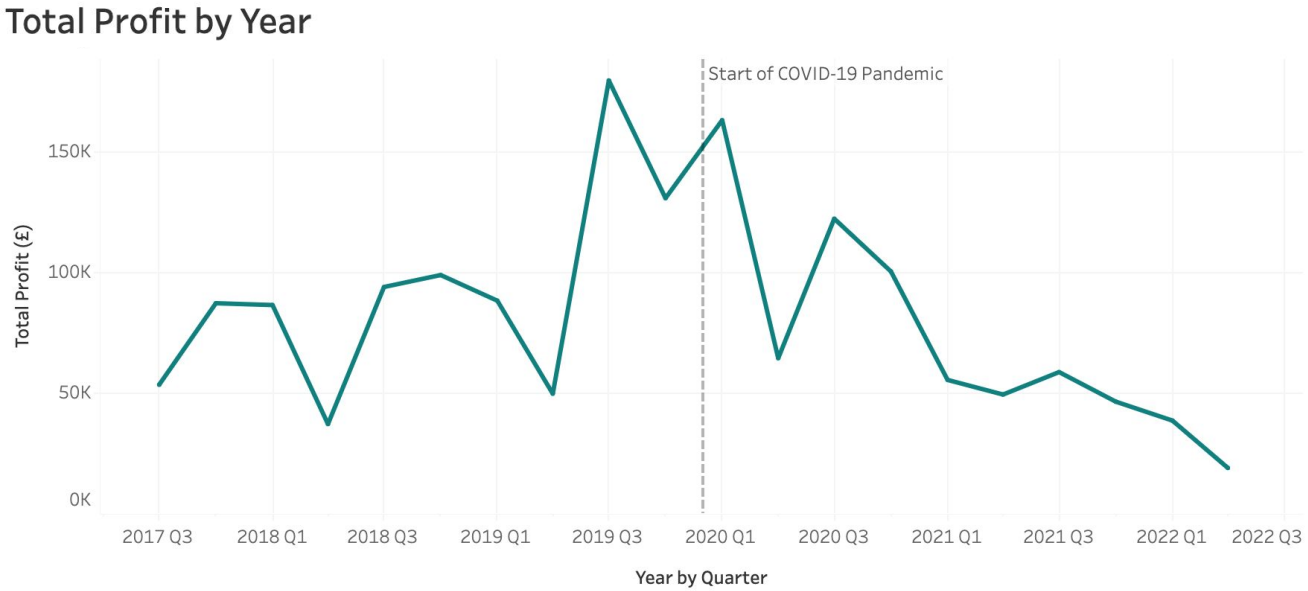
£3,862,950.25

total revenue

£1,621,608.21

total profits

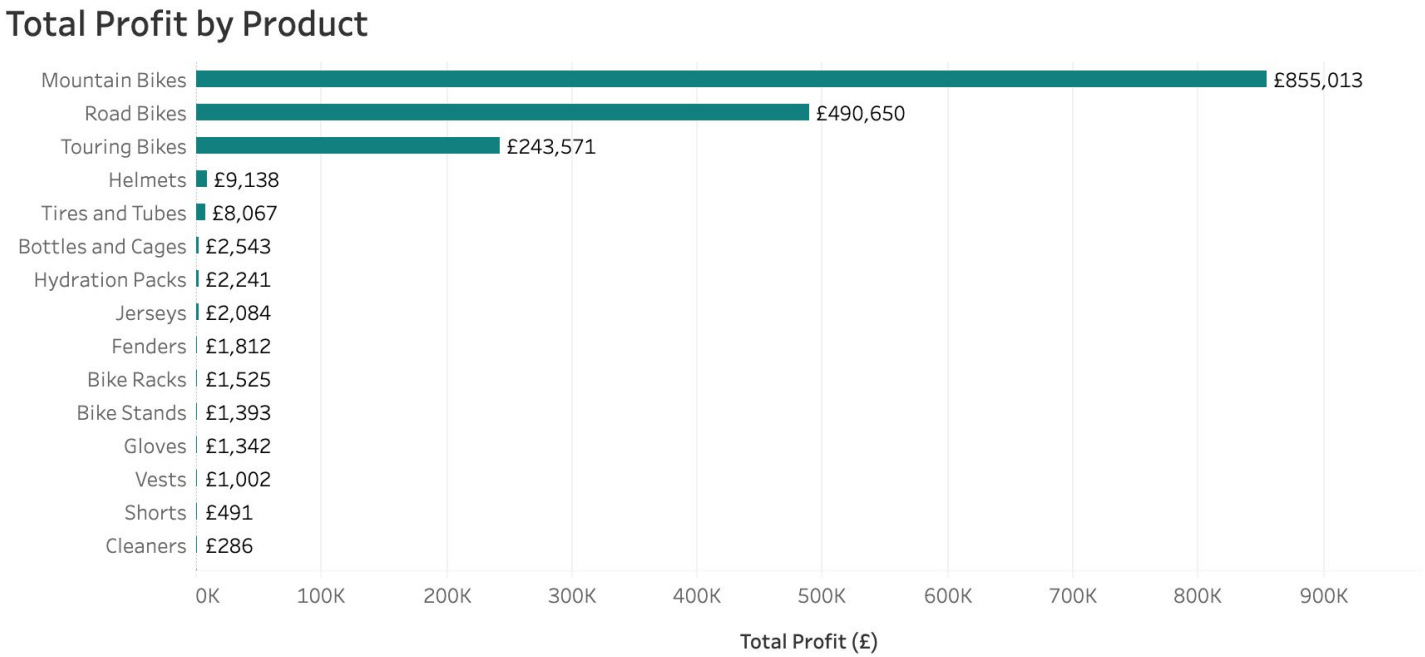
Data Overview



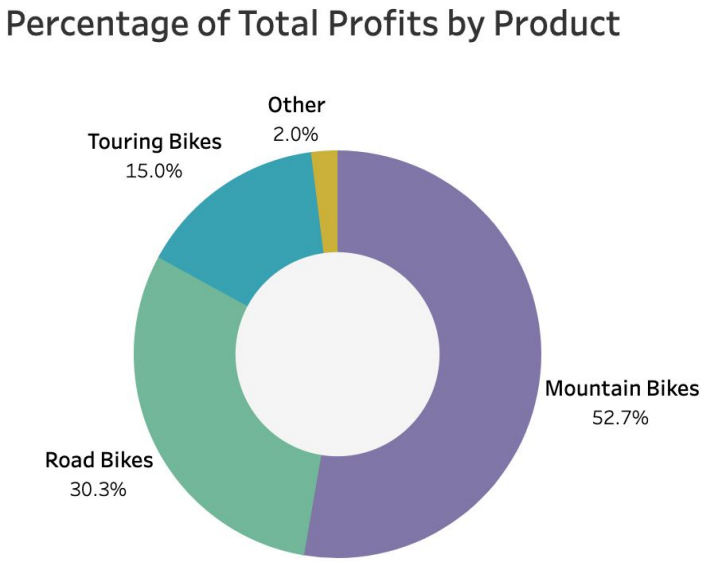
There was a sharp decline in profits shortly after the COVID-19 pandemic began in Dec 2019.

Profits briefly increased but have **continued to decline again since the end of Q3 2020**.

Most Profitable Products



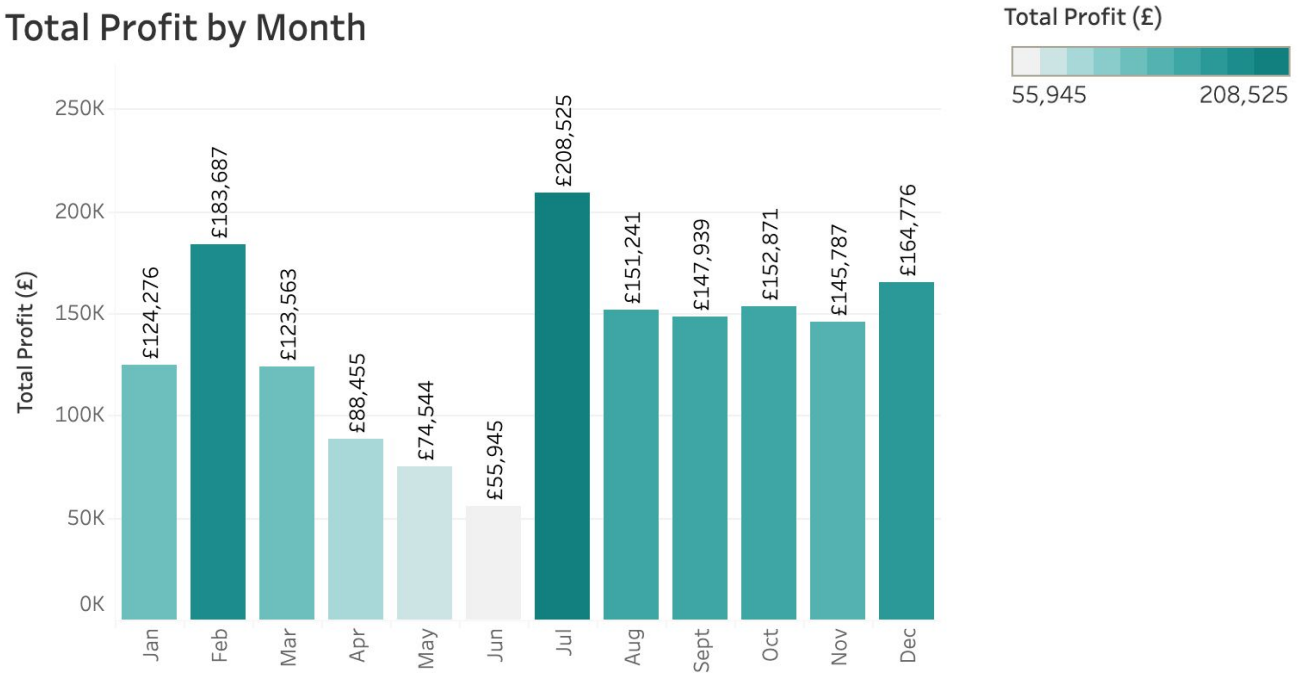
Most Profitable Products



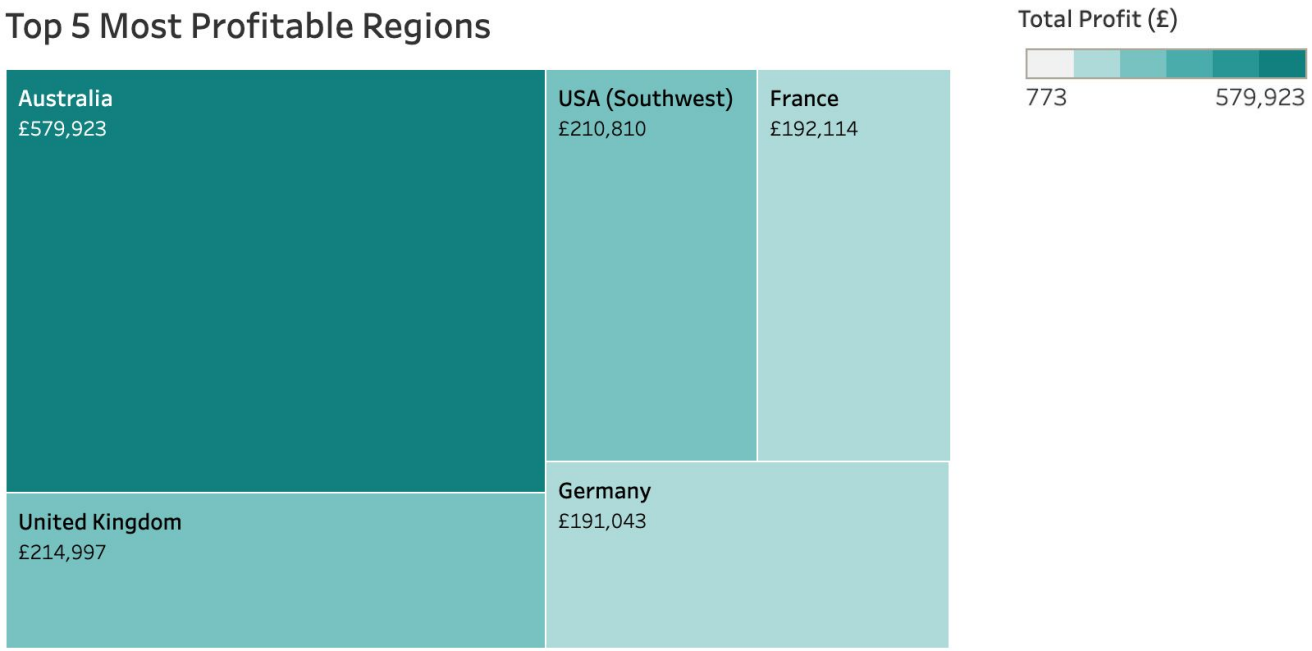
As seen from the current and previous slide, the most profitable products are:

1) **Mountain Bikes**
2) **Road Bikes**
3) **Touring Bikes**

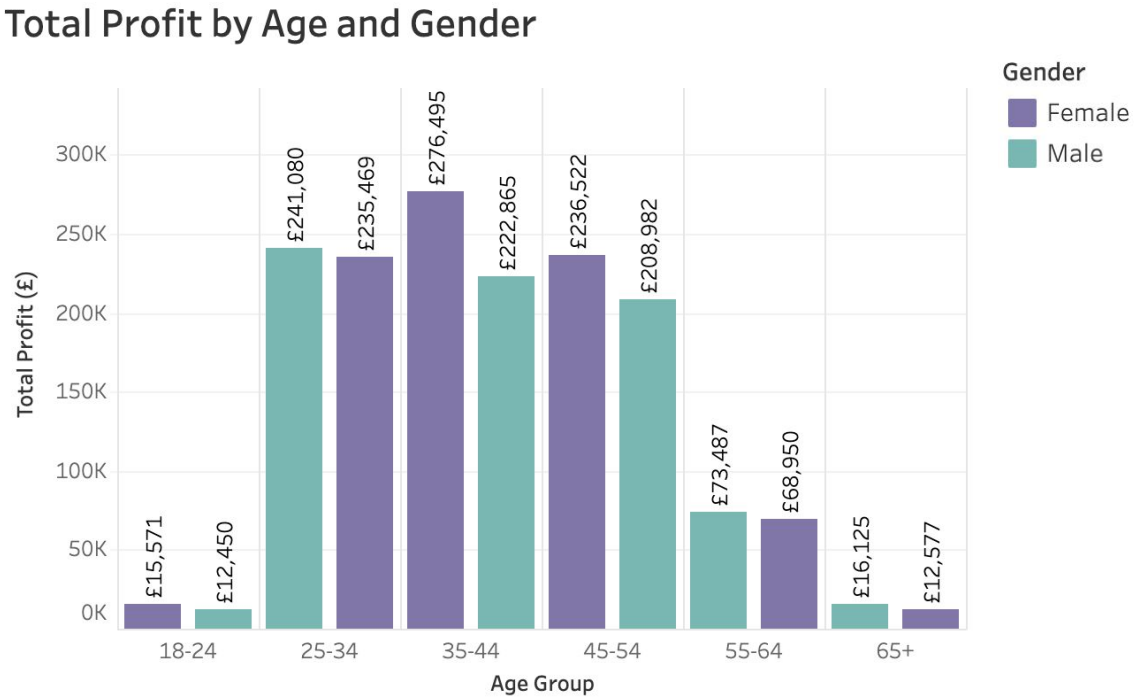
Most Profitable Months



Top 5 Most Profitable Regions



Most Profitable Customer Type



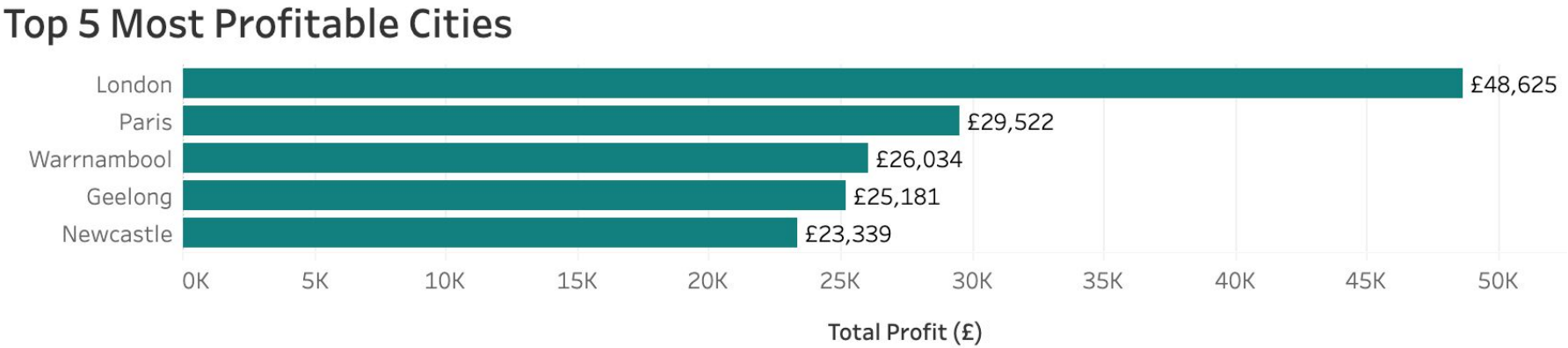
Customers generating the most profit are **men/women aged 25-54.**

The single most profitable customer type is **women aged 35-44.**

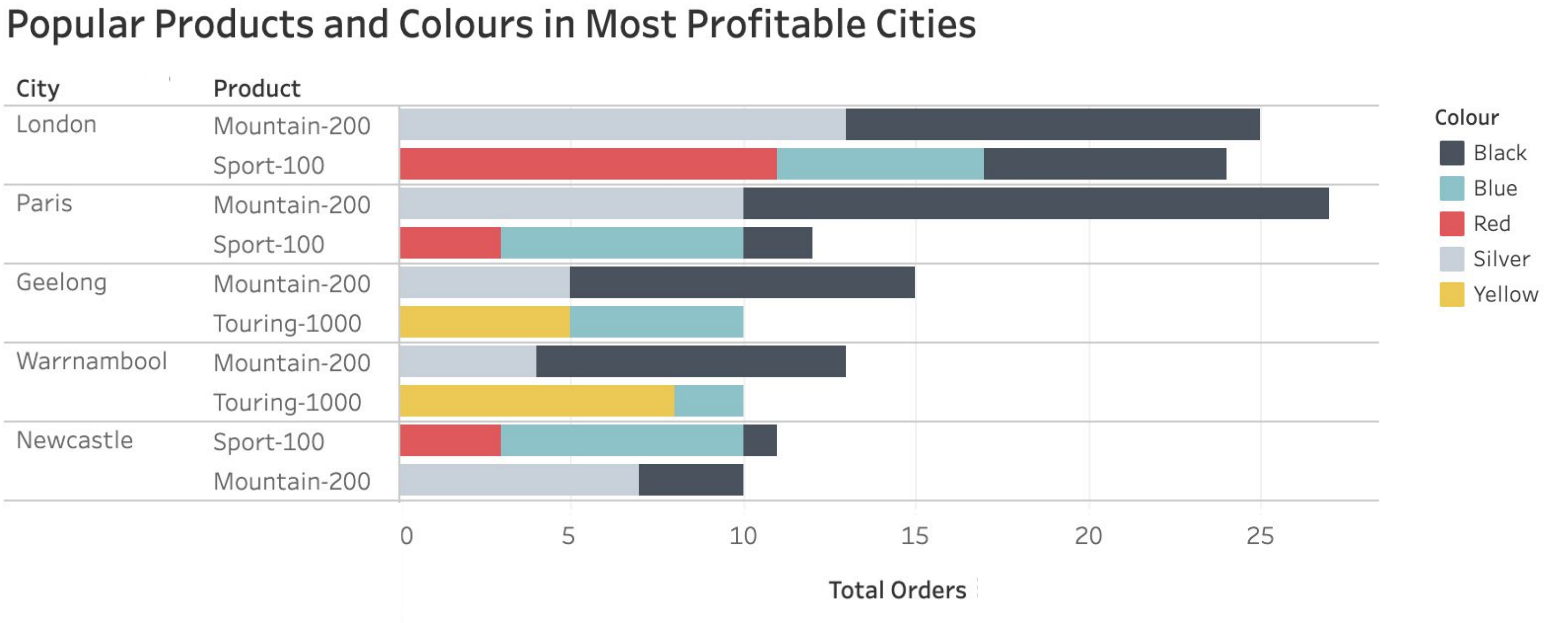
Top 10 Highest Spending Customers

Name	Total Spent
Nichole Nara	£9307
Kaitlyn Henderson	£9306
Margaret He	£9288
Randall Dominguez	£9286
Adriana Gonzalez	£9270
Rosa Hu	£9251
Brandi Gill	£9237
Brad She	£9221
Francisco Sara	£9215
Kate Anand	£7610

Top 5 Most Profitable Cities



Top 2 Most Popular Products in Most Profitable Cities



Actions

Recommendations

1. Focus marketing on promoting products that generate the most profit: **mountain bikes, road bikes, and touring bikes**.

2. Schedule marketing campaigns during **July** (the most profitable month). Consider sponsoring cycling events and competitions that take place during July such as the **Tour de France.**

3. Increase marketing in regions that generate the most profit: **Australia, UK, Southwest USA, France and Germany.**

Recommendations

4 Target marketing towards customer profiles that generate the most profit: **men/women aged 25-54** and specifically **women aged 35-44**.

5 Consider implementing a **loyalty scheme** that provides rewards and discounts to high spenders. This will maintain good relations and encourage spending.

6 Develop billboards in the top 5 most profitable cities: **London, Paris, Warrnambool, Geelong, and Newcastle**.

Ensure billboards display the top 2 most popular products for that particular city and in the most popular colours.

Next Steps

- Monitor and evaluate the effectiveness of implemented recommendations. For example, assess whether profits have increased since loyalty schemes were introduced.

- Gather additional data sources, such as more up-to-date sales data, customer feedback, product features, and competitor information, to enrich the analysis and gain deeper insights into customer behavior and market dynamics.

Please click here to view SQL queries on GitHub