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# 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
<ul style="list-style-type: none"><li>➤ Sorting and Filtering</li><li>➤ Data Cleaning and Wrangling</li><li>➤ Data Quality Assurance</li><li>➤ Exploratory Data Analysis</li><li>➤ Queries, Subqueries, and Common Table Expressions</li><li>➤ Joining Data from Relational Datasets</li></ul>	<p><b>BigQuery</b></p> 
<ul style="list-style-type: none"><li>➤ Data Visualisations</li></ul>	<p><b>Tableau</b></p> 



# Data



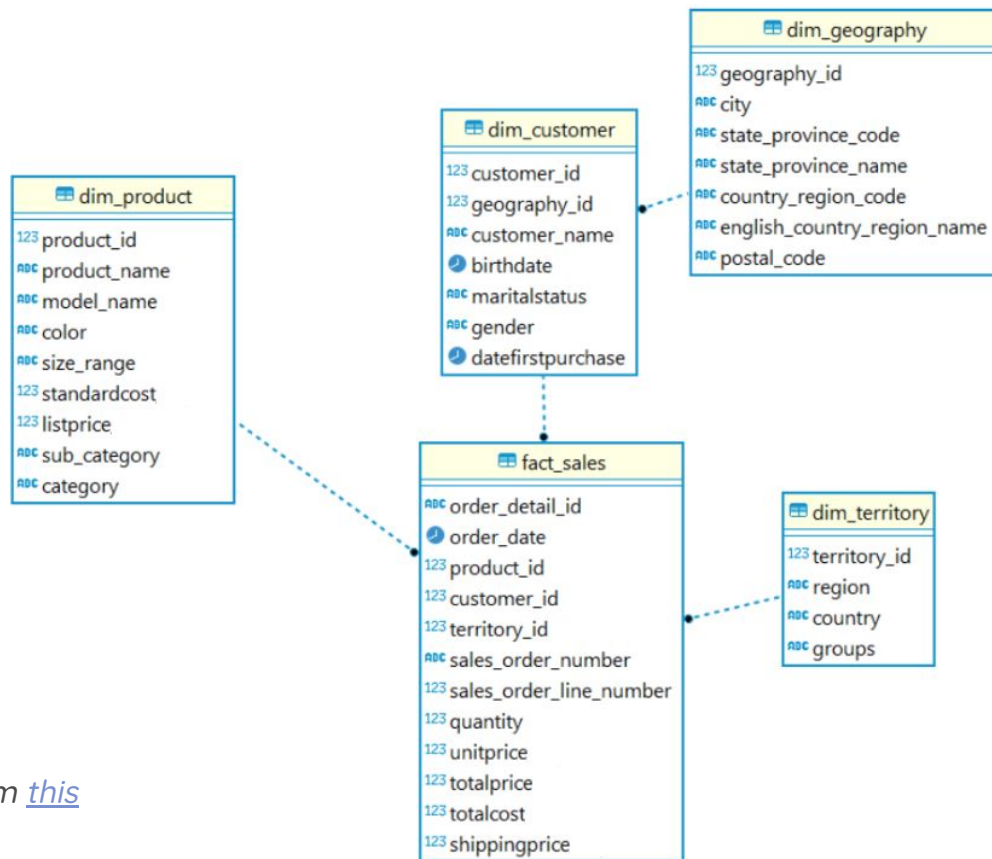
# Data

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.



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# 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

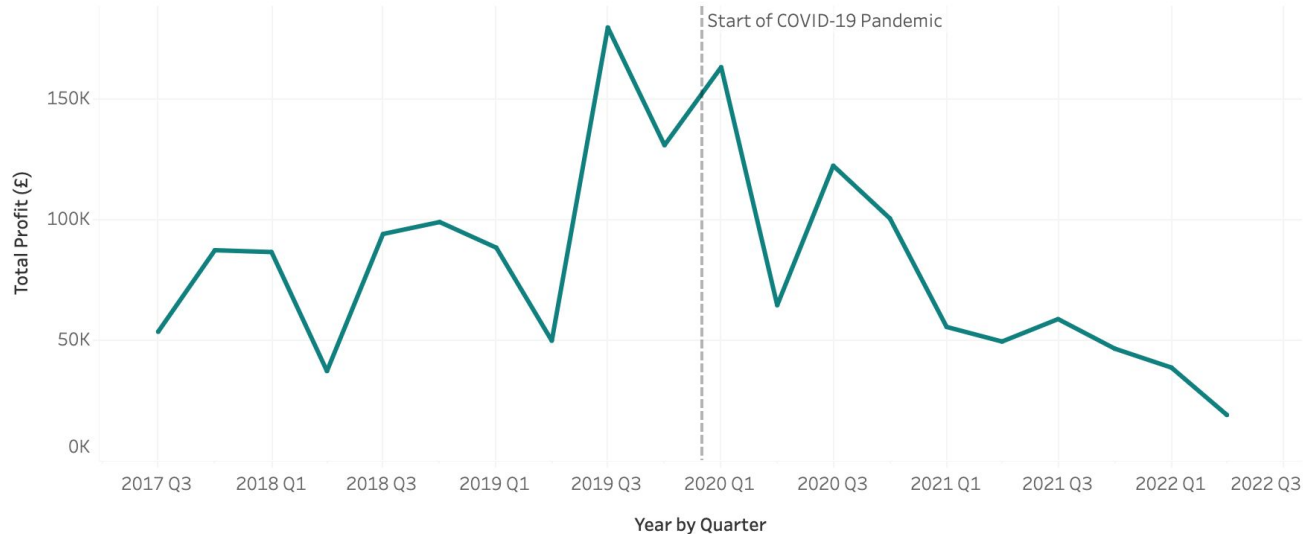
total revenue

£1,621,608.21

total profits

# Data Overview

Total Profit by Year

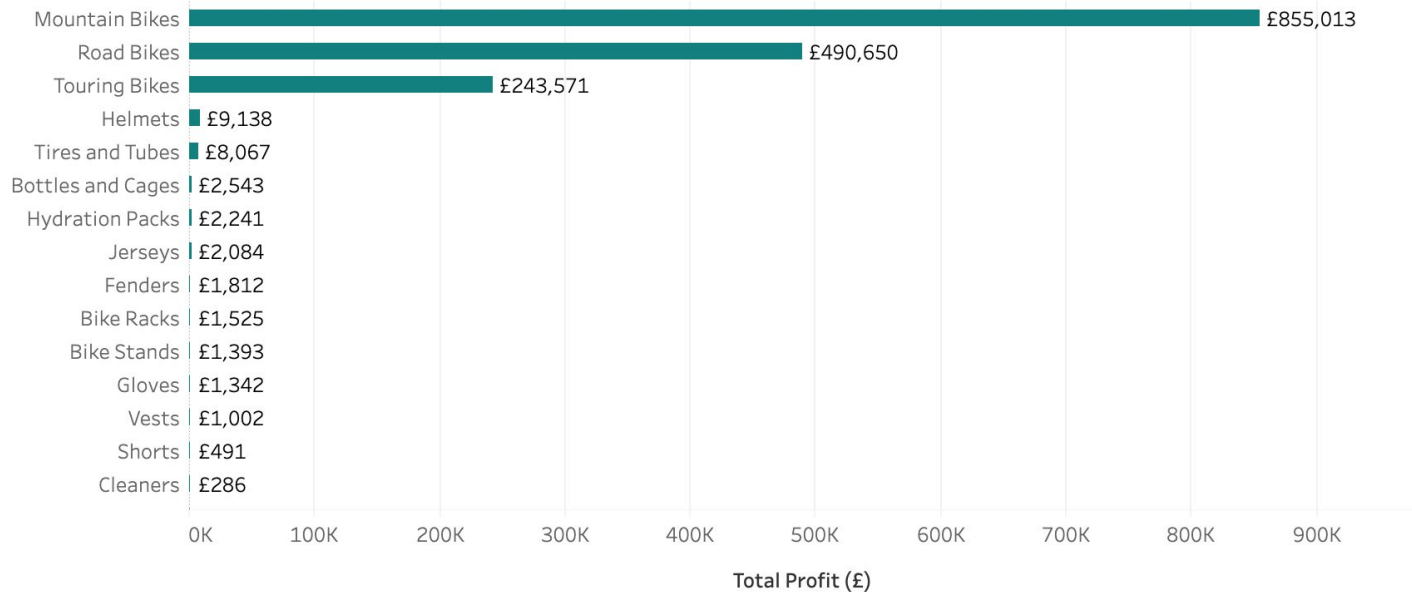


There was a sharp decline in profits shortly after the COVID-19 pandemic began in Dec 2019.

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

# Most Profitable Products

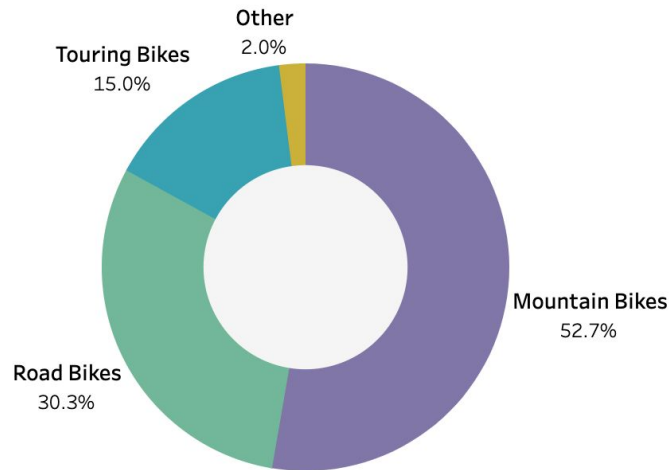
## Total Profit by Product





# Most Profitable Products

Percentage of Total Profits by Product

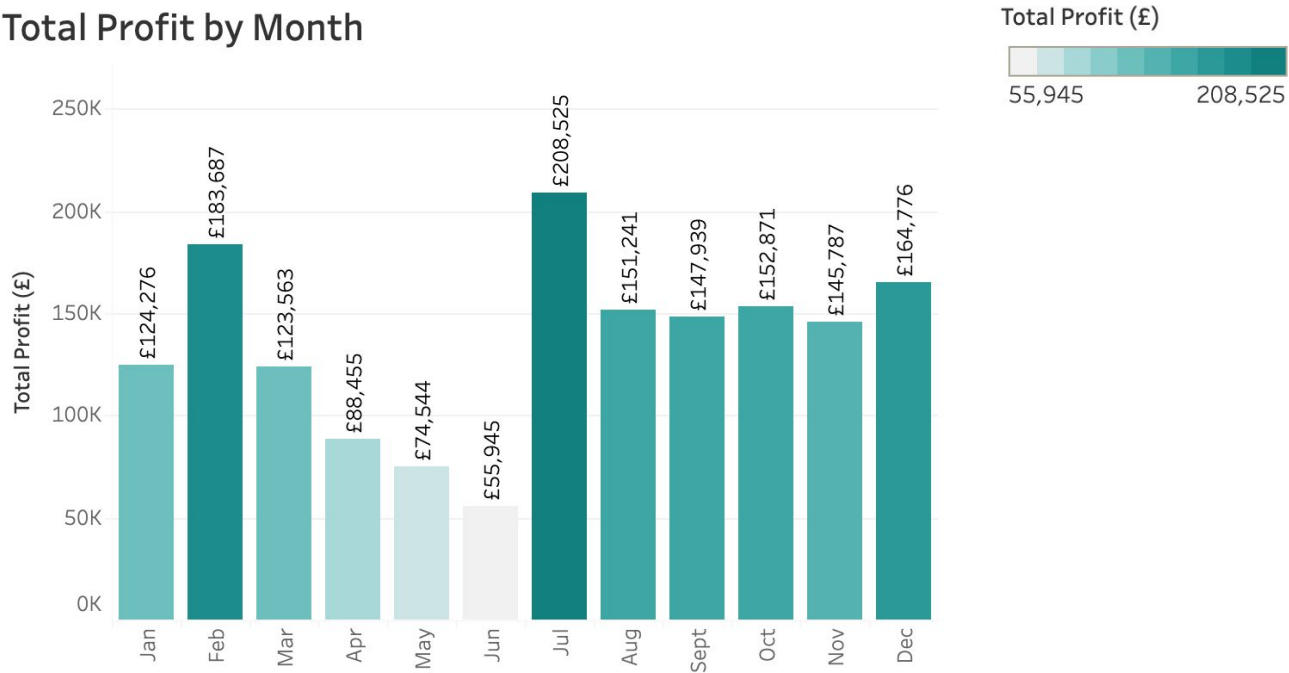


As seen from the current and previous slide, the most profitable products are:

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

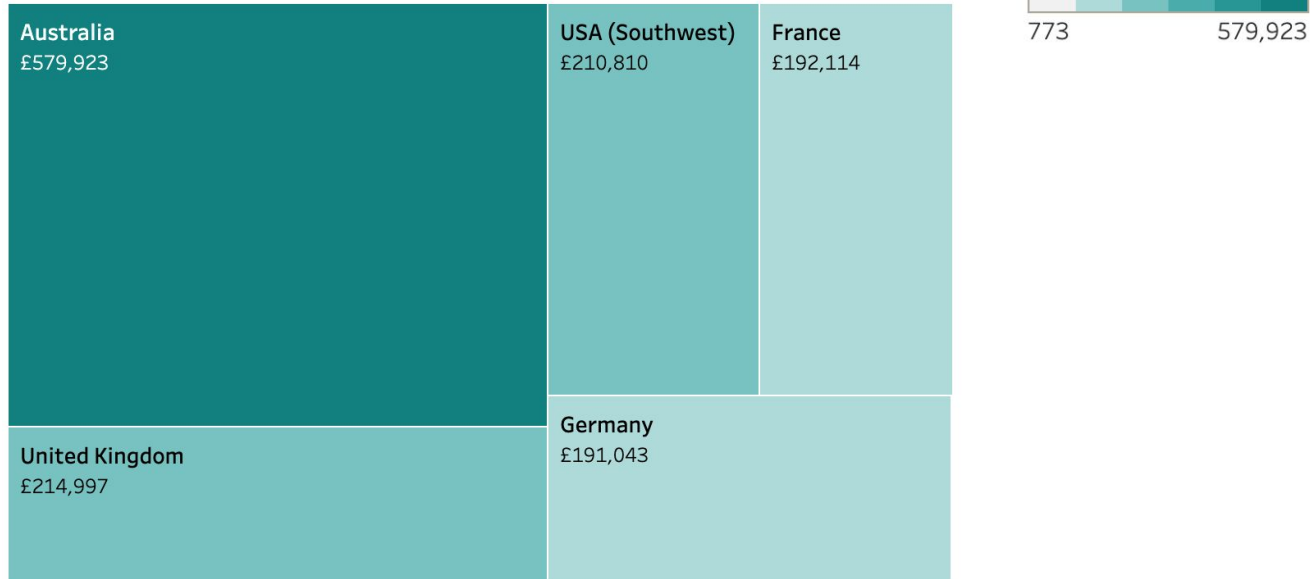
# Most Profitable Months

Total Profit by Month



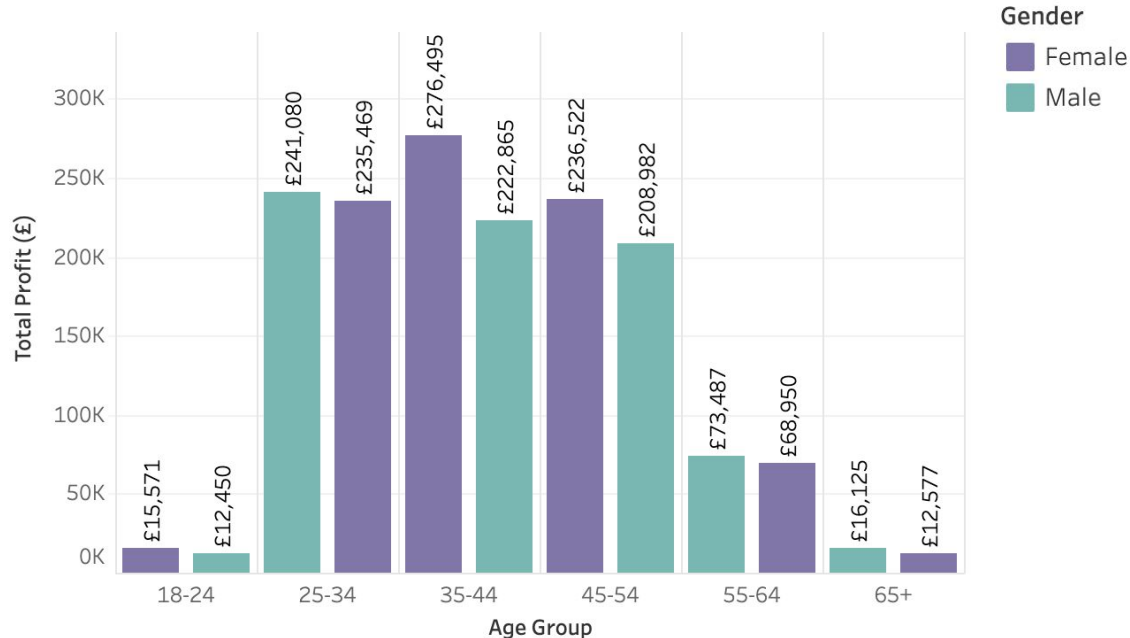
# Top 5 Most Profitable Regions

Top 5 Most Profitable Regions



# Most Profitable Customer Type

Total Profit by Age and Gender



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

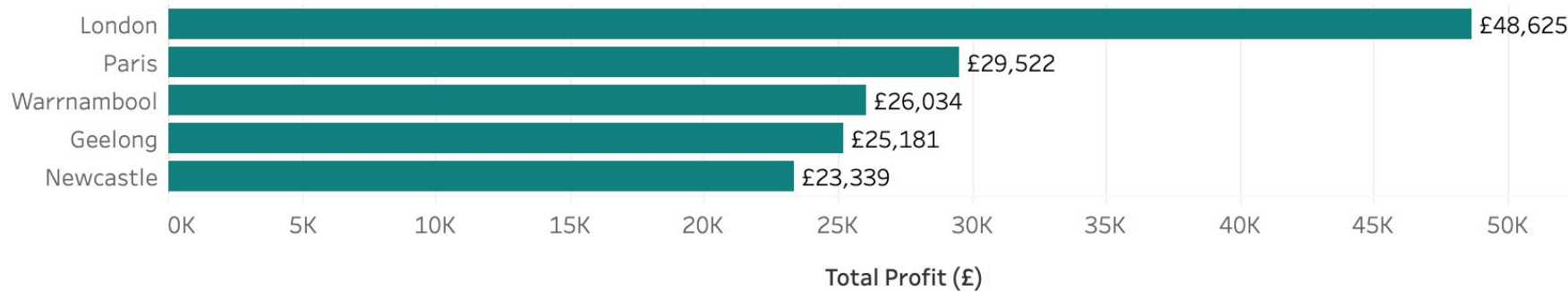
The single most profitable customer type is **women aged 35-44**.

# 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

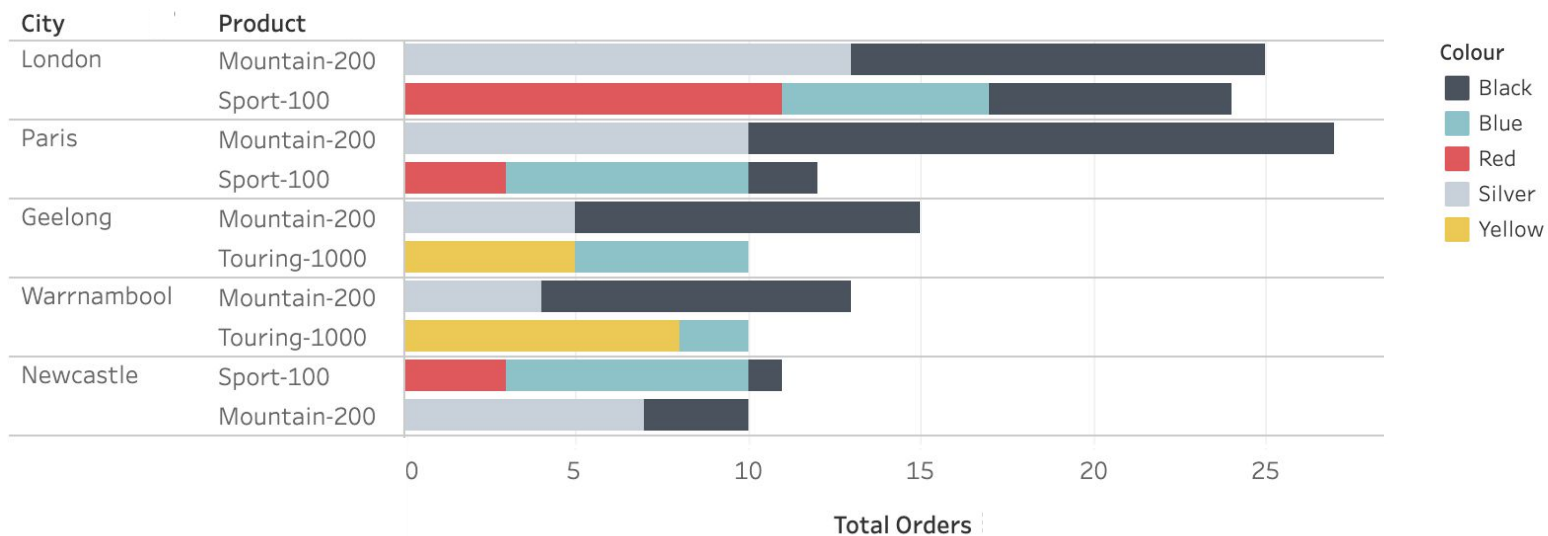
# Top 5 Most Profitable Cities

## Top 5 Most Profitable Cities



# Top 2 Most Popular Products in Most Profitable Cities

Popular Products and Colours 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

