Case Study 1

**Case Study: How an ethical company Struggles to insure the integrity of its Supply chain?**

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# Introduction

Welcome to the Cadbury supply chain case study! In this case study, you will perform many real-world tasks of a junior data analyst. You will work for a ﬁctional company, marketing department, and meet diﬀerent characters and team members. In order to answer the key business questions, you will follow the steps of the data analysis process: **ask**, **prepare**, **process**, **analyze**, **share**, and **act**. Along the way, the **Case Study Roadmap** tables — including guiding questions and key tasks — will help you stay on the right path.

# Scenario

You are a junior data analyst working in the marketing analyst team at Cadbury, a bike-share company in Uxbridge ,London.

Marketing and supply chain are an integral part of business relay on . The director of marketing believes the company’s future success depends on maximizing the number of annual memberships. Therefore, your team wants to understand how casual riders and annual members use Cyclistic bikes diﬀerently. From these insights, your team will design a new marketing strategy to convert casual riders into annual members. But ﬁrst, Cyclistic executives must approve your recommendations, so they must be backed up with compelling data insights and professional data visualizations.

# Characters and teams

* **Supply chain :** Cadbury, the iconic British chocolate company owned by Mondelez, is one of many global food companies that must rethink their supply chain strategies in order to remain profitable in the future in a more isolated macroeconomic environment.inventory requirements to cover bottlenecks and delays in purchases, and a drop in the pound could ruin a business. The extent of these changes is serious. A hard Brexit could lead to a shift to standard WTO tariffs (2% to 13%) on all imports and exports, which will increase labor costs in the UK by 10% and 20% of the value of the British pound.The combination of these factors will significantly increase production costs and undermine already poor profitability (MaRS, 2019).
* **Product Development** :The marketing team in an organization has multiple functions and also works with the product development team to provide quality products to customers. The marketing team decides to distribute the product to consumers because if the company cannot get its product into the hands of the buyer, the marketing strategy will fail.
* **Planning and Research**: The Cadbury Marketing Group collects target customer information and provides detailed descriptions of the company's products.

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* **Marketing Activities**: The role of the marketer at Cadbury is to manage the marketing resources of the company. Marketers are responsible for the effective and efficient delivery of promotional activities.

# About the company

Cadbury, formerly Cadbury's and Cadbury Schweppes, is a British multinational confectionery company owned by Mondelez International (originally Kraft Foods) since 2010. It is the second largest confectionery brand in the world after Mars. Cadbury is internationally headquartered in Greater London, and operates in more than 50 countries worldwide. It is known for its Dairy Milk chocolate, the Creme Egg and Roses selection box, and many other confectionery products. One of the best-known British brands, in 2013 The Daily Telegraph named Cadbury among Britain's most successful exports.

Cadbury was founded in 1824 in Birmingham, England, by John Cadbury (1801–1889), a Quaker who sold tea, coffee and drinking chocolate. Cadbury developed the business with his brother Benjamin, followed by his sons Richard and George. George developed the Bournville estate, a model village designed to give the company's workers improved living conditions. Dairy Milk chocolate, introduced by George Jr in 1905, used a higher proportion of milk in the recipe than rival products.

# Ask

Three questions will guide the future marketing program:

1. How the supply chain plays vital role in Cadbury company’s success?
2. How the Cadbury different from other company’s supply chain process?
3. How the Cadbury overcome their failures ?



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| **Case Study Roadmap - Ask** |
| **Guiding questions**   * What is the problem you are trying to solve? * How can your insights drive business decisions? |
| **Key tasks**   1. Identify the business task 2. Consider key stakeholders |
| **Deliverable**  A clear statement of the business task |

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# Prepare

1. You will use Cyclistic’s historical trip data to analyze and identify trends. ..[annual report.txt](annual%20report.txt) for the purposes of this case study, the datasets are appropriate and will enable you to answer the business questions. The data has been made available by Motivate International Inc. under this [license](https://www.divvybikes.com/data-license-agreement).) This is public data that you can use to explore how diﬀerent customer types are using Cadbury.

Now, prepare your data for analysis using the following Case Study Roadmap as a guide:

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| **Case Study Roadmap - Prepare** |
| **Guiding questions**   * Where is your data located? * How is the data organized? * Are there issues with bias or credibility in this data? [Does your data ROCCC?](https://www.coursera.org/learn/data-preparation/lecture/lHirM/what-is-bad-data) * How are you addressing licensing, privacy, security, and accessibility? * How did you verify the data’s integrity? * How does it help you answer your question? * Are there any problems with the data? |
| **Key tasks**   1. Download data and store it appropriately. 2. Identify how it’s organized. 3. Sort and ﬁlter the data. |



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| 4. Determine the credibility of the data. |
| **Deliverable**  A description of all data sources used |

# Process

Then, process your data for analysis using the following Case Study Roadmap as a guide:

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| **Case Study Roadmap - Process** |
| **Guiding questions**   * What tools are you choosing and why? * Have you ensured your data’s integrity? * What steps have you taken to ensure that your data is clean? * How can you verify that your data is clean and ready to analyze? * Have you documented your cleaning process so you can review and share those results? |
| **Key tasks**   1. Check the data for errors. 2. Choose your tools. 3. Transform the data so you can work with it eﬀectively. 4. Document the cleaning process. |
| **Deliverable**  Documentation of any cleaning or manipulation of data |

## Follow these steps:

1. ..[annual report.txt](annual%20report.txt)
2. Unzip the ﬁles.
3. Create a folder on your desktop or Drive to house the ﬁles. Use appropriate ﬁle-naming conventions.
4. Create subfolders for the .CSV ﬁle and the .XLS or Sheets ﬁle so that you have a copy of the original data. Move the downloaded ﬁles to the appropriate subfolder.
5. Follow these instructions for either Excel (a) or Google Sheets (b):
   1. Launch Excel, open each ﬁle, and choose to Save As an Excel Workbook ﬁle. Put it in the subfolder you created for .XLS ﬁles.
   2. Open each .CSV ﬁle in Google Sheets and save it to the appropriate subfolder.
6. Open your spreadsheet and create a column called “finance” Calculate the length of each ride by subtracting the column “started\_at” from the column “ended\_at” (for example, =D2-C2) and format as HH:MM:SS using Format > Cells > Time > 37:30:55.
7. Create a column called “day\_of\_week,” and calculate the day of the week that each ride started using the “WEEKDAY” command (for example, =WEEKDAY(C2,1)) in each ﬁle. Format as General or as a number with no decimals, noting that 1 = Sunday and 7 = Saturday.
8. Proceed to the analyze step.

If you like, continue working with the data to better familiarize yourself and perhaps even identify new approaches to answering the business questions.

# Analyze

Now that your data is stored appropriately and has been prepared for analysis, start putting it to work. Use the following Case Study Roadmap as a guide:

**Case Study Roadmap - Analyze**

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| **Guiding questions**   * How should you organize your data to perform analysis on it? * Has your data been properly formatted? * What surprises did you discover in the data? * What trends or relationships did you ﬁnd in the data? * How will these insights help answer your business questions? |
| **Key tasks**   1. Aggregate your data so it’s useful and accessible. 2. Organize and format your data. 3. Perform calculations. 4. Identify trends and relationships. |
| **Deliverable**  A summary of your analysis |

## Follow these steps for using spreadsheets

Open your spreadsheet application, then complete the following steps:

1. Where relevant, make columns consistent and combine them into a single worksheet.
2. Clean and transform your data to prepare for analysis.
3. Conduct descriptive analysis.
4. Run a few calculations in one ﬁle to get a better sense of the data layout. Options:
   * Calculate the mean of
   * Calculate the max ride\_length
   * [Calculate the mode of day\_of\_week](https://support.google.com/docs/answer/3094029?hl=en)
5. Create a pivot table to quickly calculate and visualize the data. Options:
   * Calculate the average ride\_length for members and casual riders. Try rows = member\_casual; Values = Average

of ride\_length.

* + Calculate the average ride\_length for users by day\_of\_week. Try columns = day\_of\_week; Rows = member\_casual; Values = Average of ride\_length.
  + Calculate the number of rides for users by day\_of\_week by adding Count of trip\_id to Values.

1. Open another ﬁle and perform the same descriptive analysis steps. Explore diﬀerent seasons to make some initial observations.
2. Once you have spent some time working with the individual spreadsheets, merge them into a full-year view. Do this with the tool you have chosen to use to perform your ﬁnal analysis, either a spreadsheet, a database and SQL, or R Studio.
3. Export a summary ﬁle for further analysis.

## Follow these steps for using SQL

Open your SQL tool of choice, then complete the following steps:

1. Import your data.
2. Explore your data, perhaps looking at the total number of rows, distinct values, maximum, minimum, or mean values.
3. Where relevant, use JOIN statements to combine your relevant data into one table.
4. Create summary statistics.
5. Investigate interesting trends and save that information to a table.

## Follow these steps for using R

Open R Studio and [use this script](https://docs.google.com/document/d/1TTj5KNKf4BWvEORGm10oNbpwTRk1hamsWJGj6qRWpuI/edit) to complete the following steps:

1. Import your data.
2. Make columns consistent and merge them into a single dataframe.
3. Clean up and add data to prepare for analysis.
4. Conduct descriptive analysis.
5. Export a summary ﬁle for further analysis.

# Share

Now that you have performed your analysis and gained some insights into your data, create visualizations to share your ﬁndings. Moreno has reminded you that they should be sophisticated and polished in order to eﬀectively communicate to the executive team. Use the following Case Study Roadmap as a guide:

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| **Case Study Roadmap - Share** |
| **Guiding questions**   * What story does your data tell? * How do your ﬁndings relate to your original question? * Who is your audience? What is the best way to communicate with them? * Can data visualization help you share your ﬁndings? * Is your presentation accessible to your audience? |
| **Key tasks**   1. Determine the best way to share your ﬁndings. 2. Create eﬀective data visualizations. 3. Present your ﬁndings. 4. Ensure your work is accessible. |
| **Deliverable**  Supporting visualizations and key ﬁndings |

## Follow these steps:

1. Take out a piece of paper and a pen and sketch some ideas for how you will visualize the data.
2. Once you choose a visual form, open your tool of choice to create your visualization. Use a presentation software, such

as PowerPoint or Google Slides; your spreadsheet program; Tableau; or R.

1. Create your data visualization, remembering that contrast should be used to draw your audience’s attention to the most important insights. Use artistic principles including size, color, and shape.
2. Ensure clear meaning through the proper use of common elements, such as headlines, subtitles, and labels.
3. Reﬁne your data visualization by applying deep attention to detail.

# Act

Now that you have ﬁnished creating your visualizations, act on your ﬁndings. Use the following Case Study Roadmap as a guide:

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| **Case Study Roadmap - Act** |
| **Guiding questions**   * What is your ﬁnal conclusion based on your analysis? * How could your team and business apply your insights? * What next steps would you or your stakeholders take based on your ﬁndings? * Is there additional data you could use to expand on your ﬁndings? |
| **Key tasks**   1. Create your portfolio. 2. Add your case study. 3. Practice presenting your case study to a friend or family member. |
| **Deliverable**  Your top three recommendations based on your analysis |