## What is the theme of your data story?

In this project, I delved into McDonald's global narrative, exploring its influence on diverse cultures and economies. Intrigued by its ubiquitous presence and global symbolism, I examined McDonald's through cultural, nutritional, and economic lenses. The project unfolds in layers, starting globally and eventually narrowing down:

1. **Global Perspective (Where to Eat McDonald's):**Utilizing **mcdonalds.R**, I crafted an interactive global map to showcase McDonald's widespread presence. This visual tool revealed the scale of the chain worldwide, highlighting regions with high concentrations and limited presence. This macro-level view was instrumental in understanding McDonald's as a global cultural phenomenon.
2. **Economic Perspective (When to Order McDonald's):**

In **bigmacprice.R**, I focused on a localized, temporal, economic view by analysing the Big Mac Index. Users could explore variations in Big Mac prices across regions, gaining insights into economic aspects like local purchasing power and currency valuation. This economic analysis provided a practical guide to the affordability of McDonald's in different regions.

**3. Individual Perspective (What to Order at McDonald's):**

Using **McDCorrelation.R** and **McDNutrition.R,** I analysed the nutritional content of McDonald's menu items. This allowed users to make informed choices based on nutritional value. The correlation analysis provided insights into how different nutritional elements were interrelated, aiding users in making healthier or more balanced food choices at McDonald's.

## Why is it important to address this question?

Investigating McDonald's is crucial for several reasons as it connects to several real world topics.

1. **Cultural Globalization and Adaptation**: McDonald's exemplifies cultural globalization, showcasing the global influence of American culture. While spreading worldwide, the chain also adapts to local cultures, evident in regional menu variations (Racoma, 2019). This aspect raises questions about cultural identity, globalization, and the balance between a global brand and local preferences.
2. **Economic Changes:** The project explores the changes in Big Mac prices across subregions, examining how McDonald's adapts its pricing strategies to diverse economic environments. By focusing on these adjustments, the research provides insights into the global economic dynamics influencing consumer behaviour and multinational corporations like McDonald's.
3. **Global Health and Nutrition**: Addressing the pressing issue of global health and nutrition, the project focuses on McDonald's, a major player in the fast-food industry (Alliance for a Healthier Generation, 2013). This research aids discussions on healthier food choices and the role of fast-food chains in promoting a balanced diet.

## Why do you think the data sources that you have curated can help you answer the question?

The data sources I curated are ideal for this analysis. The data on McDonald's locations per country helps in visualizing the chain's global reach and density, indicating cultural penetration and market dominance. The Big Mac price data set provides a lens into economic aspects, particularly in comparing cost of living across countries. The McDonald's nutritional information data set allows for an in-depth examination of the nutritional value of menu items, crucial for understanding health implications. Lastly, the McDonald's menu data set offers insights into product diversity and localization strategies.

1. [Most McDonald's Locations Per Country](https://openaxis.com/data/3740) (Factle App, 2022)
2. [Big Mac Price](https://www.kaggle.com/datasets/vittoriogiatti/bigmacprice/data) (Giatti, 2022)
3. [McDonald's Nutrition Facts](https://www.kaggle.com/datasets/mcdonalds/nutrition-facts) (McDonald's, 2016)
4. [McDonald's Menu](https://github.com/schmwong/APAC-McDelivery-Menu-Logger) (Wong, 2022/2023)

## What are the insights from the data and how are they depicted in plots?

**Global Presence and Cultural Reach**: The interactive maps I developed in **mcdonalds.R** using leaflet were instrumental in showing how extensively McDonald's has penetrated different markets. This visualization brought to light patterns of globalization and market saturation.

**Economic Insights from Big Mac Prices**: In **bigmacprice.R**, I employed **ggplot2** to illustrate the variation in Big Mac prices globally. This not only provided a practical example of purchasing power parity but also hinted at economic disparities between countries.

**Correlation Analysis**: With **McDCorrelation.R**, I was able to visually represent the relationships between various nutritional components of McDonald's menu items. This helped in identifying potential health impacts of different food choices.

**Nutritional Analysis**: Using **McDNutrition.R**, I created plots that highlighted the caloric density, fat content, and other nutritional aspects of various menu items. The **corrplot** visualization showed interesting correlations, like the link between calories and fat content, which were critical for understanding the nutritional profile of McDonald's offerings.

## How did you implement this entire project? Were there any new concepts that you learnt to implement some aspects of it?

This project encompassed various aspects of data science, including data collection, cleaning, analysis, and visualization. I honed my R skills, focusing on packages like **tidyverse**, **ggplot2**, and **plotly** for data manipulation and creating meaningful visualizations.

In **McDNutrition.R**, I delved into text mining, extracting and analyzing words from McDonald's menu items, exploring linguistic patterns and trends. **McDCorrelation.R** deepened my grasp of statistical relationships within the data, which was essential for drawing meaningful conclusions about McDonald's nutritional offerings.

Reflecting on my journey, I encountered challenges as a newcomer to R:

1. **Data Cleaning and Preparation**: Initially, preparing datasets for analysis posed challenges, involving mastering tidyverse functions like **mutate**, **filter**,and **select**. Significant cleaning and manipulation of nutritional and global location data were necessary, addressing issues such as missing values, inconsistent formats, and merging data from diverse sources.
2. **Interactive App Development with Shiny**
   * Building: Creating interactive web applications with Shiny was challenging, requiring comprehension of both R backend and UI design. Managing user inputs, reactive outputs, and ensuring app performance posed challenges, especially as a beginner handling both server and UI aspects.
   * Deployment Issues: Deploying the app to Shiny.io initially faced hurdles, encountering errors post-upload. Understanding differences between local and server environments, including package versions and data access, was crucial.
   * Debugging Remote Errors: Debugging on Shiny.io proved more complex than local debugging. Interpreting Shiny.io error logs and tracing issues back to specific code sections demanded attention, but it was essential for effective issue resolution.
3. **Complexity of Data Visualization**: Creating effective visualizations with **ggplot2** and **plotly** was a steep learning curve for a beginner like me. Understanding syntax, experimenting with plot types, customizing themes, and ensuring clarity in data representation were vital. Extensive online searches were necessary to discover and utilize specific packages.
4. **Statistical Analysis and Interpretation**: The project involved substantial statistical analysis, especially with the **McDCorrelation.R** script. Grasping concepts like correlation and interpreting them correctly in the context of McDonald's nutritional data demanded not only technical R skills but also a foundational understanding of statistics.

In summary, this project provided an enriching learning journey, applying various data science techniques to a real-world scenario. It offered valuable insights into a globally recognized brand, honing analytical skills, and expanding understanding of how data uncovers stories and trends shaping our world. There are still many things I wish I could have implemented, but I will continue working on this because it has genuinely been quite interesting!

## References

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