Subway Location Analysis

Project Description

Part 1

Subway is looking to raise growth equity capital to further expand in Brazil. Our fund is looking to conduct outside-in diligence on the company to assess its current state and further opportunities in order to decide whether to participate in the process.

Advent would like you to evaluate the company and provide data-driven insights and recommendations. The base analysis should include the following:

- Current % coverage of Brazilian population & additional locations needed to cover additional 2% of the population (population by city available in IBGE)
- Overlap with Mcdonald's locations (i.e., % of locations with overlap within a 1-, 5-, 10-km radius)

In addition to the location analysis, you may choose to use additional data points or analyses to further your recommendations. Here are a few ideas of signals that we often look at, please note these are simply ideas of optional additions to your final analysis.

- Social media sentiment
- Employee sentiment
- Pricing / cost signals
- International opportunities
- Any additional factors you think that we should consider

Here are some sources to get you started:

- https://www.mcdonalds.com.br/restaurantes
- https://restaurantes.subway.com/brasil
- https://www.ibge.gov.br/estatisticas/sociais/populacao/9103-estimativas-de-populacao.html?=&t=downloads
- https://www.ibge.gov.br/geociencias/organizacao-do-territorio/malhas-territoriais/15774-malhas.html
- https://www.reclameaqui.com.br/empresa/mcdonalds/
- https://www.reclameaqui.com.br/empresa/subway/

Part 2

Imaginary Shipping Company (distribution business) currently has 21 locations in Brazil (see Warehouse_Locations.xlsx file in data folder). Each warehouse location can supply kitchen equipment and disposables for restaurants in a 300 Km radius. How many additional warehouse locations does the company need to service 100% of Subway locations, and where should these locations be? Optimize the locations so that the company can build the minimum number of new warehouses to cover the restaurant locations that are currently not serviced.

Expected Output Files

Your output should include the following files.

Part 1:

- **Summary (.pptx):** Two slides max, to present your assessment of Subway with a focus on visualizations of your analysis outcomes.
- **Python Script (.ipynb):** Python script used to calculate location coverage and overlap, as well as any additional data analysis you have chosen to include. To help us navigate your code, please remember to use comments and markdown to capture your thought process and overall flow.
- **Excel Table:** ***Formatted data outputs*** of all analysis steps done in part 1.

Part 2:

- **Python Script:** Python script used to optimize additional warehouse locations.
- **Excel Table:** Table with list of new warehouse locations.

Keep in mind that this is a 48-hr timed exercise, so please email a zip file containing all your work before the deadline! Please note we are unable to allow for extensions at this time. Good Luck!