Assignment 2: Pivot Tables & Tableau

Business Intelligence and Applications

Dataset

The `nyc_restaurants.csv` file contains a dataset with information about restaurants in New York City. The dataset provides a comprehensive view of each restaurant's location, inspection results, reviews, and several other attributes.
The following list shortly describes the features of the dataset:

1. **ID**: Unique identifier for each restaurant.
2. **Borough**: The borough where the restaurant is located.
3. **Building**: The building number of the restaurant's address.
4. **Street**: The street on which the restaurant is located.
5. **Zipcode**: The postal code of the restaurant's location.
6. **Phone**: The phone number of the restaurant.
7. **Cuisine**: Type of cuisine offered by the restaurant.
8. **Last Inspection Date**: Date of the last health inspection.
9. **Inspection Score**: Health inspection score.
10. **GRADE**: The health inspection grade.
11. **Review Count**: Number of reviews on the restaurant's review platform page.
12. **Average Review Score**: Average score from the reviews.
13. **Yelp Rating**: The restaurant's rating on Yelp.
14. **Yelp Review Count**: Number of reviews on Yelp.
15. **Neighborhood**: The neighborhood in which the restaurant is located.
16. **Latitude**: Geographic latitude of the restaurant.
17. **Longitude**: Geographic longitude of the restaurant.
18. **Is Vegan?**: Indicates if the restaurant is vegan.
19. **Is Vegetarian?**: Indicates if the restaurant is vegetarian.
20. **Offers Delivery?**: Indicates if the restaurant offers delivery services.
21. **Offers Pickup?**: Indicates if the restaurant offers pickup services.
22. **Takes Reservations?**: Indicates if the restaurant takes reservations.

Task

The task for this assignment is to use Excel's pivot tables as well as the Tableau platform to analyse and summarise the dataset and to apply roll-up and drill- down operations so as to gain an insight into the data. You should also explore the possibilities and tools provided by Tableau and compare them to what is achievable with Excel's pivot table.
In particular, you should include the following points in your analysis:

1. Analyze the distribution of restaurants across different boroughs and neighborhoods. Identify areas with high concentrations of restaurants.
2. Evaluate the relationship between inspection scores, grades, and customer reviews. Determine if there's a correlation between a restaurant's health inspection score and its popularity or customer satisfaction.
3. Identify trends in cuisine types across different areas of New York City. Find out if certain neighborhoods specialize in specific types of cuisine.
4. Assess the impact of offering delivery, pickup, and reservation services on the average review scores and Yelp ratings of restaurants.
5. Use geographical data (latitude and longitude) to visualize the distribution of restaurants and their inspection grades on a map.
6. Compare the prevalence of vegan and vegetarian restaurants across different boroughs and neighborhoods. Determine if there are areas in New York City that are more accommodating to these dietary preferences, with respect to the total number of restaurants in the area.
7. Can you observe any particular trends in the data? Are there any significant insights that you gained while analysing the dataset? Try to be creative!
8. Compare the usage of Excel's pivot tables with the features offered by Tableau. Which tool is more suitable and convenient for which types of tasks? Is there anything that was possible to do with Tableau that you couldn't do with pivot tables and the other way round? You do not have to do all of the points above using both Excel and Tableau. Try to use the tool most appropriate and explain why. In some cases, you may want to try both of them and then describe why we presented the solution in one specific.

You can install Tableau using a free student licence. For Microsoft Office, you can download it through the University (see the official guide).

Submission Rules

You can work on this assignment in a group of maximum 4 people. If you successfully passed "Pivot Tables and Tableau" assignment last year, there is no need to redo it[1]
Please, prepare a PDF report of up to 3 pages, including tables (or excerpts thereof) and graphs, succinctly describing the salient aspects of the dataset and your findings. You should specify your names on the first page of the report.

[1] Contact the TA if this is the case.

Please, also prepare and record a short (max 6 minutes) video presentation where you describe your solution, approach, and findings. In your presentation, you should guide us through the steps you took to acquire the results and build the charts, while focusing on important details and verbally explaining the proceedings. You can use Microsoft Teams / Zoom (or any other tool of your choice) to arrange a meeting and record your presentation.
You should upload the recorded presentation to any cloud storage (Dropbox, Google Drive, etc.) and include the link to the file in your PDF. This should be done only by a single member of each team. Please, indicate your group in the uploaded file's name.
The report must be submitted by one of the members before Monday, 08 April 2024, 13:30 (at the latest) through the corresponding submission point on iCorsi platform.
You will fully pass the assignment if you satisfactorily solve and present at least 6 tasks; you get a partial pass if you solve at least 4 tasks.
A selection of the submissions will be invited to present their solutions live to the class during the lecture held on April 29, 2024.
Should you have any questions regarding the assignment or problems with your submission, please contact the TA (leonardo.alchieri@usi.ch).