

Visual Analysis of Stroke Data; Case UHSF

Background

United Health Stroke Foundation (UHSF) is a global organisation that works with various government and non-government health organizations across the globe for minimizing stroke-related incidents, saving lives, designing educational and training material and enhancing the recovery of stroke victims. United Health Stroke Foundation (UHSF) has Headquartered in Geneva, Switzerland, and has regional offices in London, New York, Singapore, and Sydney. The Foundation prides itself on its mission to identify and remove barriers to health care access and quality, advance cardiovascular health for all, and support survivors of stroke and their families, healthcare professionals and researchers to build community awareness and foster new thinking.

UHSF relies on data it collects from different countries to understand the patterns, drivers, and factors related to stroke incidents. As the research and various scientific publications have frequently cited personal, health, and lifestyle-related factors, in understanding stroke incidents, UHSF undertook a study over a period of 10 years from 2010 to 2020 to identify the various factors that might relate to the occurrence of stroke. Approximately 20,000 people from different regions and geographies, at various points in time, were invited to participate in this study and personal information, health indicators, lifestyle choices etc, were collected from the individuals. The stroke data spans sixteen variables and is stored as a CSV file "healthcare-dataset-stroke-data.csv". The variables are summarized below (check the data dictionary for a detailed description of the data).

- **Personal** - Gender, Age, Occupation, Marital Status, Work Type
- **Health Indicators** - Heart Disease, Average Glucose Level, Body Mass Index, Cholesterol level
- **Lifestyle Choices** - Smoking Status, Alcohol Consumption, Residence Type
- **Others** - Participant ID, Continent, Year of Participation, Stroke (Yes/No)

The UHSF executive would like to understand the **relationship** between various variables with stroke, **compare** the variables, and understand the **composition** and the underlying **distribution of the stroke-related factors**. At a recent conference, executives of UHSF learned the power of data visualization and how data visualization can be used to communicate interesting insights from the data. The executives have been recommended to use Power BI to convert the data to analytic-friendly forms, create insightful dashboards and reports, perform visual analytics, and present it in a way that helps them to formulate communication messages and design intervention strategies.

After graduating from UQ, you landed your first job as a Business analyst in the Sydney office. You are handed the task of preparing a PowerBI dashboard report to summarize the stroke data UHSF has collected. In order to progress to a permanent position, this is a vital assignment, and you need to demonstrate your ability to apply your data visualization

knowledge and skills to produce visual reports that highlight key insights from the data and communicate your results in an academic style report. In particular, UHSF executives are interested in **discovering factors associated with stroke incidents**. Also, you are instructed to identify the most **important factors associated with increased risk of stroke and the relationship between these variables**. You are required to complete the report template for the executives.

Assignment Deliverable and Report Structure:

This is a submission template. Please insert your responses/answers/works between the two opening and closing angled brackets as shown << >> . **DO NOT DELETE OR CHANGE ANY OTHER PARTS OF THE TEMPLATE. ANY TEXT OR VISUALS OUTSIDE THE << >> WILL NOT BE GRADED! REPORTS NOT USING THE TEMPLATES WILL BE PENALISED.**

1. Executive Summary:

An executive summary is a short summary (max. 200 words) of the key information in the document and is written for the executive. It should contain a clear, well-structured, evidence-based summary of your findings based on the Stroke data, “healthcare-dataset-stroke-data.csv”, that you have visualized. The findings should be from the visual analysis of the stroke data.

<< YOUR EXECUTIVE SUMMARY HERE >>

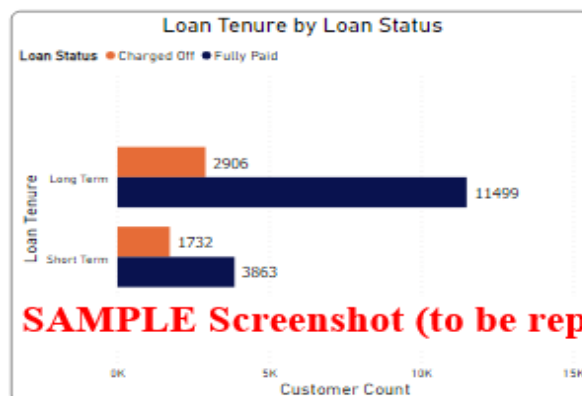
2. Descriptive analysis of Stroke via PBI

Please make sure to carefully read and answer the questions. Answering different questions or not answering each part of the questions will lead to a deduction of points. For each question:

- i. Include screenshots of only the **relevant** visualization(s) ,and should be the exact same numbers of visuals as asked in the question.
- ii. Choose a suitable Visualization type with any number of variables to visualize when visualizing data.
- iii. You might have to visualize multiple relationships to identify the important ones.
- iv. Your visuals should be clear, easy to understand, and have clear insights or a story to tell (as discussed in the quality of good visuals).
- v. You should use the appropriate ink-to-data ratio to make the visuals appealing.
- vi. You should follow all the principles of data visualization as discussed in the lecture.
- vii. Provide **an answer in the respective deliverable section**.

- 2.1. Please, visualize the two most important/relevant relationships between stroke and factors related to personal information.

<< Insert screenshot(s)/Image only of the relevant visual(s) here



SAMPLE Screenshot (to be replaced)

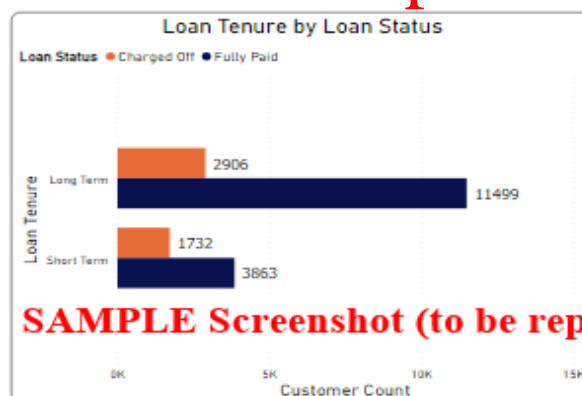
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<< Enter your response (**max. 100 words**) highlighting main insights by referring to the visuals 2.1 and justify your choices >>

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- 2.2. Please, visualize the two most important/relevant relationships between stroke and factors related to health Indicators.

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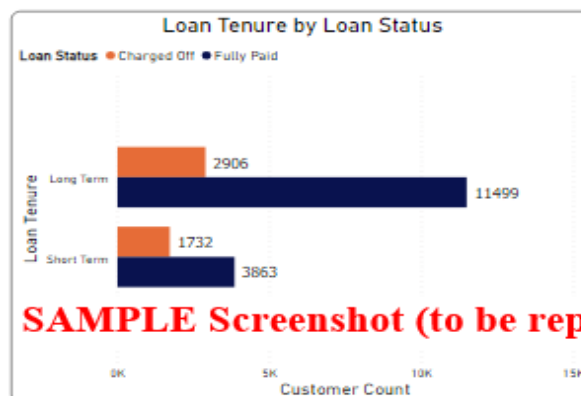
SAMPLE Screenshot (to be replaced)

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<< Enter your response (**max. 100 words**) highlighting main insights by referring to the visuals 2.2 and justify your choices >>

- 2.3. Please, visually compare the Lifestyle Choices factors based on the association with stroke. Your answer should include two visuals.

<< Insert screenshot(s)/Image only of the relevant visual(s) here



SAMPLE Screenshot (to be replaced)

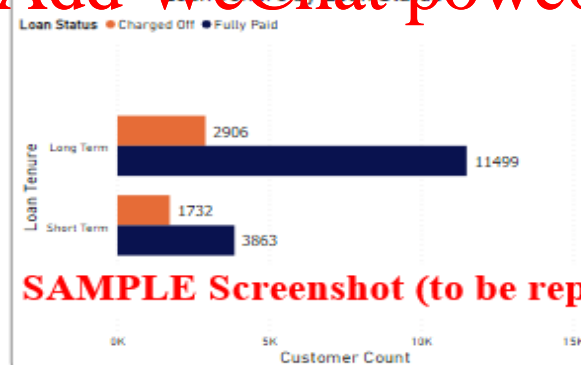
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<< Enter your response (**max. 100 words**) highlighting main insights by referring to the visuals 2.3 and justify your choices >>

- 2.4. Analyse the trends of stroke incidents across the different continents

<< Insert screenshot(s)/Image only of the relevant visual(s) here

Add WeChat powcoder

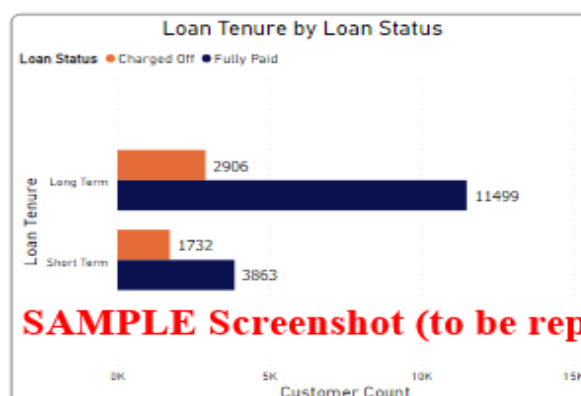


SAMPLE Screenshot (to be replaced)

<< Enter your response (**max. 100 words**) highlighting main insights by referring to the visuals 2.4 and justify your choices >>

- 2.5. Please, prepare a PowerBI dashboard report to summarize your important findings. Your report should not have more than 6 items (including the visuals and descriptive tables). You may include only the visuals from the previous sections or add any new visuals or tables that improve your report.

<< Insert Three screenshot(s)/Image only of the PowerBI dashboard report here



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<< Enter your response (**max. 100 words**) highlighting main insights by referring to the visuals 2.5 and justify your choices >>

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3. Discussion of the Results and conclusions

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Based on your visual analysis of the data, summarize your main findings. Also, using the insights from data visualization and PowerBI report, recommend UHSF on designing educational and training material and health awareness campaigns, and the continents they need to focus on. You may also refer to the stroke-related academic articles, blogs, news, and other publications to make the recommendations by following academic style of writing and referencing.

<< Develop explanations and compelling recommendations based on the visuals and the reported findings using academic styles of clear, structured, and concise writing **not exceeding 300 words** >>

4. References

Please include all the references (**minimum 5 reference**) that you cited in your report.

<< YOUR REFERENCES HERE >>