UC Davis Extension Capstone Project for Creating Dashboards and Storytelling with Tableau

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My final submission includes:

- A URL to your final viz or data story on Tableau Public

https://public.tableau.com/profile/suhaimi.william.chan#!/vizhome/SuhaimiChanCreditCardChurnPredictionAnalysis/S1?publish=yes

- A write up highlighting three specific design choices you made in light of your audience, and an explanation of why you made those choices

My three specific design choices I made in light of my audience are

1. Pre-attentive attribute through strategic use of color/contrast (red and gray color bar/scatterplot charts)
2. Parameters to guide interaction on Story Point 2, Dual Parameter Comparison Tool and visual hierarchy on Story Point 6, Gender / Education Level / Income Category
3. Effective Use of Language to explain and highlight the important points of each critical chart through text boxes

The reasons I made those choices are (explanation of why I made those choices):

1. Easy to understand for my audience by highlighting the important parts of the charts (red color is the highlight, and gray color is not the highlight) through strategic use of color/contrast
2. Giving the interactive charts and power to the users to use parameter drop down filters to select what parameters to compare and see the scatterplot chart visualization based on their selections through parameters to guide interaction on Story Point 2, Dual Parameter Comparison Tool and visual hierarchy so the audience will have a better understanding of the relationship
3. Highlight and explanation of the important points of each critical chart to the audience through text boxes so the audience will have a quick, clear and better understanding of the charts

- Your original project proposal with a short reflection on how your final project compares to your original project proposal. Did your plan change? What did you notice or learn during the process?

Please find my original project proposal for reference on the next page.

My reflection on how my final project compares to my original project proposal is the original project proposal problem statement sound easy enough in the beginning, but when I actually looked at the data and did my exploratory data analysis, I found it to be very complicated. There is no single feature/dual parameters to show the likelihood of customers to churn with high accuracy. So I had to show my findings and analysis on the highly important individual feature/parameter through multiple charts in multiple story points. Due to the complexity of the case, I had to create 8 story points, instead of 3 story points that I thought I would provide in my original project proposal. That way, the audience will have a clear and better understanding of the solution to the problem statement. I am glad that I was able to create multi-story points to meet my audience expectation and provide a clear answer to the problem statement that is easy to understand.

Yes, my plan changed. I originally thought of creating 3 story points, but I ended up with 8 story points to better present and better flow my data analysis and visualization so the audience will have a quick, clear and better understanding of how we come up with the solution to the problem statement of predicting how likely credit card customer to churn so they can proactively go to the customers to provide them better services/incentives and turn customers' decisions in the opposite direction.

What I noticed or learned during the process are:

1. I spent a lot of time and it takes a lot of patience to do the exploratory and explanatory data analysis and visualization to understand the data and better explain the story so the users will have a quick grasp and better understanding of the charts and story (it took me around 10 hours or so to do this part)
2. I learned how to create dual parameter comparison tool by googling and reverse-engineering of an existing chart available on Tableau Public
3. I was surprised that the data do not show any single effective column/parameter that can identify the issues. I have to use multiple KPIs to be able to identify the problem statement effectively.
4. I found it not easy to find the best data visualization to show and interpret my findings effectively
5. For my data set and problem statement, I found that multi-frame data story flows and suits better with showing the process and findings one step at a time, till we reach to a conclusion. In my case, it is easier to tell a story with a multi-frame data story than with a single frame visualization/infographic

Project Proposal

Executive Summary:

A manager at the bank is disturbed with more and more customers leaving their credit card services. They would really appreciate if one could predict for them who are likely going to churn so they can proactively go to the customers to provide them better services and turn customers' decisions in the opposite direction.

The reason I chose this topic is I find this case is very challenging with a common real world business case. It will be very interesting to see the analysis and data visualization using Tableau.

Who

• Stakeholders – Manager of the bank, Leaderships and Board Members of the bank

• Audience

- Quantitative Audience
- Snapshot: Bankers, Median Age - 55, M/F 50/50%, 20% do not have an educational background in business or finance.
- Qualitative Audience Snapshot: Persona 1: Kelly

Persona 1: Kelly (Bank's Credit Card Manager)

I am interested in any idea/analysis that will make this bank more financially stable

Kelly is a conservative, highly connected and financially-oriented manager. She feels a responsibility for ensuring the financial stability of the company.

Role: Bank's Credit Card Manager

Age: 46

Gender: Female

Education: MBA

Goals:

• Wants quick clear and credible updates

• Wants to ensure financial stability and make the bank more efficient

• Wishes to end credit card customer churn

• Prefers data-driven decision making

Challenges and Needs:

Kelly has heard anecdotal reports of the high bank credit card customer churn rate. She would really appreciate if one could predict for the bank who are likely going to churn so they can proactively go to the customers to provide them better services and turn customers' decisions in the opposite direction.

Context: Monthly board meeting. There are 12 people in the audience looking at a big screen across a large room and also have a printed summary (handouts).

- Subject-Matter Experts - Business Intelligence Analyst

What

• Data Sources – Kaggle: Credit Card Customer, Predict Churning Customers

https://www.kaggle.com/sakshigoyal7/credit-card-customers

• Data Quality – 100% useable

• Data Timeliness – Last data collected in this set: December 2020

Why

• Business Case/Other Goals – Create a single view infographic and a mobile-friendly version of a story offering perspective about the goal of type of credit card customers that will likely to churn based on the existing data. Also create a dashboard and three-part Tableau presentation using Story Points for an internal presentation/discussion.

How

• Format - narrated dashboard with story points

• Presentation Vehicle – Tablet, mobile phone, desktop, and projector.

Challenges

- This dataset has 10,127 customers mentioning their age, salary, marital status, dependent, education, credit card limit, credit card category, etc. There are about 18 features. So we only have a limited feature and limited data.
- We have only 16% of customers who have churned. Therefore, it is a bit difficult to find accurate customer type/category that will likely to churn.
- Do you have any constructive ideas/feedbacks?