Project Milestone 5 - Individual Contribution Report

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Reflection

The goal of the project is to increase enrollment for the hypothetical UVW College. My team's objective was to identify factors (attributes) suitable for predicting income and present those factors to UVW executives using appropriate visualizations. Our team adopted the Kanban strategy of software development which is quite flexible in comparison to Scrum [1]. As a member of the team, I attended all meetings and actively participated in brainstorming, discussions and strategizing. I participated in the visualization exercise by coding and presenting three attributes. I initiated and drafted a significant portion of the system documentation and executive report. I specifically assessed race (pie charts), sex (sunburst plot) and native country (choropleth maps) as factors that can be used to predict income. Among the three attributes I assessed, sex made it to be one of the top six attributes identified by the team. Additionally, I initiated the team slack channel, hosted the zoom meetings, co-chaired meetings and functioned as an Agile team facilitator. Below are visualizations I made, their significance and their importance to the business objectives.

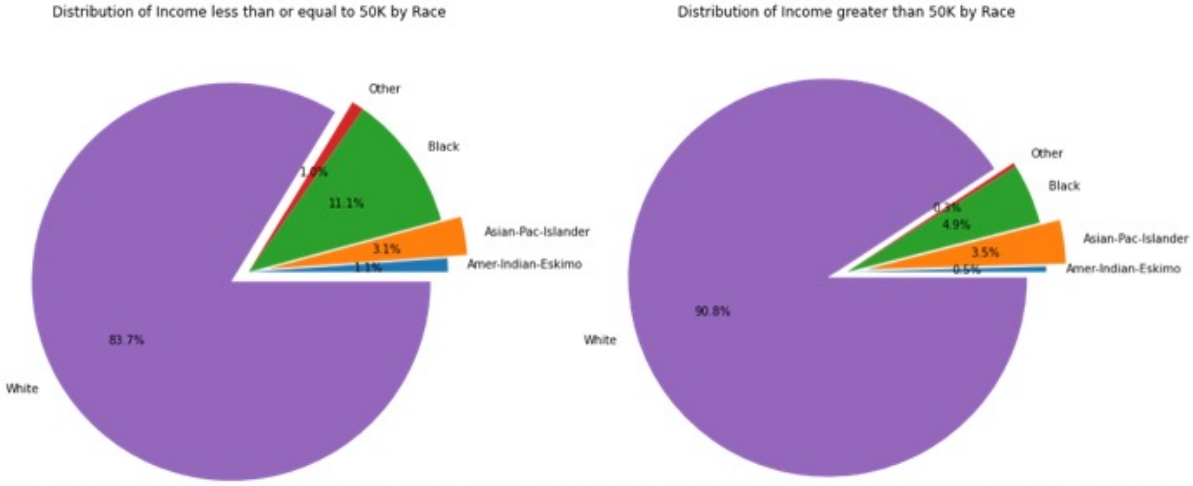
User Story #12:

Distribution of Income by Sex

One of the team's top six attributes:

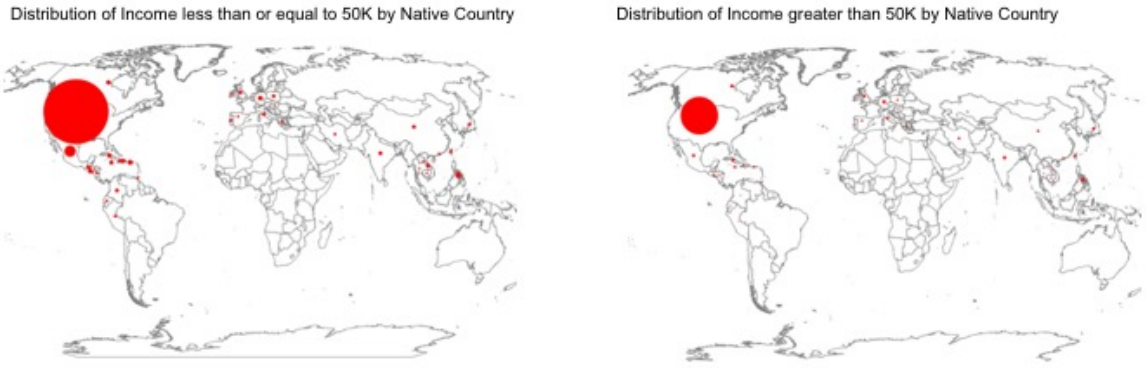
The sunburst plot shows that males are significantly more likely to earn more than 50K (p=0.0 by chi-square). Males dominate both income brackets. While males significantly make up 85% (6662/7841) of people that earn greater than 50K, males only make up 61.2% (15128/24720) of people who make less than or equal to 50K. This analysis is the least correlated among the top six attributes. However, it will make a good marketing strategy for both sex categories. To females, a motivation for crossing to a higher earning. To males, ambition to maintain the higher earning bracket.

User Story #10:



Pie Charts with exploded slices show the percentage of Whites and Asian-Pac-Islanders increases significantly from earning less than or equal to 50K to earning more than 50K. This was found to be significant (p=2.30e-70 by chi-square). However, this was not a top priority because the significance could not be supported by the strength of the relationship with income.

User Story #8:



The choropleth maps show that the native country of the people who participated in the survey was predominantly the United States. The same pattern of native countries could be seen in the two groups of incomes. That is, most of the people came from North America, South America, Europa and Asia. Participants did not come from Africa nor Australia. Though the choropleth map was aesthetically significant, the lack of a strong relationship with the income disqualified the attribute of being among the top six attributes considered to be important to the business objective.

Lessons Learned

Our design leaned mainly on the flexible Agile Kanban method. The priority of the team was thus to deliver on tasks. I specifically wanted to be sure of the expected deliverables. I also was of the opinion that we start our project in time so that we can meet our objective in time before

the deadline. The purpose of a coaching role is to help teams achieve high performance. From the agile coach's point of view, high-performing teams exhibit two qualities, delivery and continuous improvement [2]. I functioned as an Agile coach and my priority was to produce results and meet the deadline. Given our time frame, delivery was my target. I achieved this through enabling leadership, by enhancing the quality of interactions amongst team members. I initiated and hosted weekly meetings over zoom. I also initiated a Slack channel, communicated and encouraged team members to communicate frequently over Slack. I fostered a friendly environment and encouraged the teammates towards a sense of ownership of delivery.

Data visualization is an effective tool for exploring and communicating findings from data including genomic and healthcare datasets. This thus calls for a systematic way of organizing and describing the design space of data visualizations; to enhance researchers' awareness of the breadth of possible visualization design choices [3]. For constructing and systematically analyzing a visualization design space, there is a need for analysis of both the literature and visualizations themselves [3]. As such my design method include analysis of literature.

In summary, my design methods include Agile coaching/methodology and reviewing of literature. I found both effective for delivering this project.

Assessment/Grading

For this project, the coding skill I need was already obtained from the course lecture. My most important experiential learning came from my leadership role. I made a deliberate effort to enhance my leadership skill and also to seek feedback from teammates individually (one on one) and as a group. I have also suggested connecting through LinkedIn and have been able to connect with two teammates. I intend to continue to collaborate with them and to consciously try to get feedback that can enhance my leadership skill.

Future Application

I have learnt visualization methods like choropleth maps, exploded pie charts, tree maps, sunburst charts and others I wasn't aware of previously. I have also learnt how to use Jupyter notebook to execute these visualizations. I also had the opportunity to lead my team as an Agile coach. I will be enhancing (like taking a management/Agile course) and utilizing these skills in my future endeavours.

References

1. Law, Effie Lai-Chong, and Marta Kristín Lárusdóttir. “Whose Experience Do We Care About? Analysis of the Fitness of Scrum and Kanban to User Experience.” *International journal of human-computer interaction* 31.9 (2015): 584–602. Web.

2. Bäcklander, Gisela. “Doing Complexity Leadership Theory: How Agile Coaches at Spotify Practise Enabling Leadership.” Creativity and innovation management 28.1 (2019): 42–60. Web.

3. Crisan, Anamaria, Jennifer L Gardy, and Tamara Munzner. “A Systematic Method for Surveying Data Visualizations and a Resulting Genomic Epidemiology Visualization Typology: GEViT.” Bioinformatics 35.10 (2019): 1668–1676. Web.