DATA VISUALIZATION PORTFOLIO

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INTRODUCTION

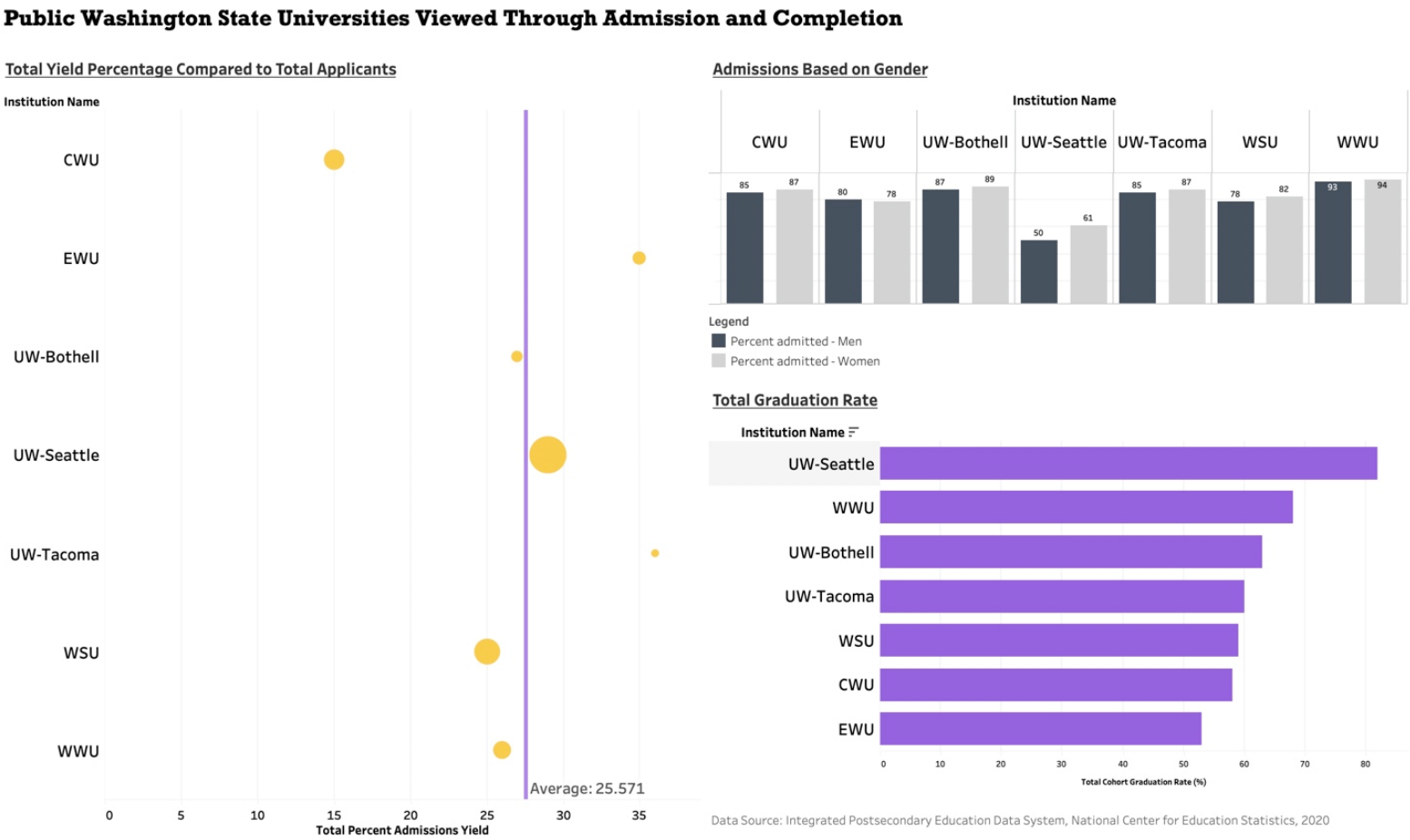
In this portfolio you will find a collection of three works done in accordance with this class. These visualizations were constructed on Tableau with provided data sets. Regarding my approach for each visualization, I took an extremely comparative approach. In my comparisons I often looked to compare how certain variables affect different demographics. I was also rather intrigued by changes over time. Across my portfolio, you will see the inclusion of many temporal charts. As a young Filipino college student, I am often curious on how the state of the world has changed before and during the duration of my lifetime. It is interesting to see how trends shift and move quickly even within the span of a year or so. Representing a minority group, a lot of the analysis and insights I draw also involve minority groups. As a huge advocate for equality for all genders and race, I was curious to see how the data shows possibly inequality throughout the various research questions.

VISUALIZATION 1

In this visualization, we were asked to explore the question “Is UW Bothell a typical university compared to others in Washington State?”. The intended audience is the UWB Chancellor in order to help him understand the differences between UWB and other schools. This is based on data from the Integrated Postsecondary Education Data System (IPEDS) 2020. In my visualization the general story I wanted to show was the process of finishing schooling; from getting admitted, to accepting the offer, and then finally graduating.

The process of my visualization was made with the entire college journey in mind as well as a touch of gender based statistical insights. Before we talk about the charts, the variables I wanted to explore were applicant amount based on gender, total admission yield and total cohort graduation rate. These statistical outcomes could inform universities on the kinds of students seeking to attend their school and the statistics of student retention and completion.

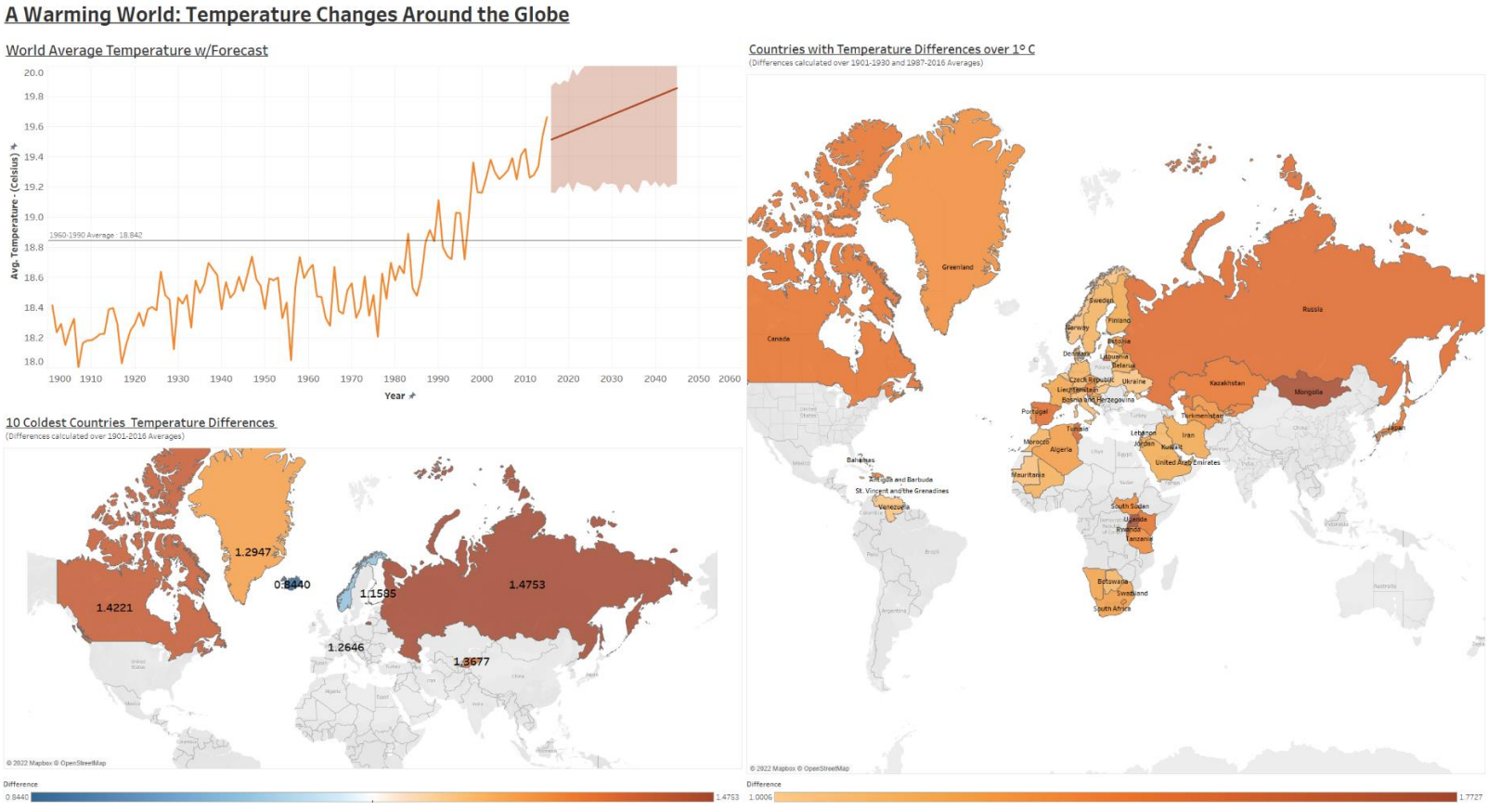
In my first graph we see the completion rate comparisons between the school. We see UW Bothell coming in 4th out of the 8 Washington universities I chose to compare throughout the visualization. I organized the bars in a sideways bar graph in order to show a hierarchy of



graduation rates. Making it easy to interpret the position compared to other schools. Graduation rate is a universal metric as well, so a single variable bar graph worked well. After that to provide some contrast, I added a comparative double bar graph going upwards to show admissions rate based on gender. These side-by-side bars are good in showing the disparity between two distinct groups of applicants, male and female. Each section of two bars is aligned with a university making the legibility easily comparable based on the glance of height.

VISUALIZATION 2

In our second visualization we were asked to practice visualizing change over time and space while exploring climate change data. The research questions our visualization revolved around was “How, if at all, have average surface temperatures changed between 1901 and 2020 across different regions of the world?”. With this research question in mind, we are presenting this to a community forum on climate change in Bothell. The forum is public and includes a diverse range of people with different education levels, occupations, languages, and racial and ethnic identities.



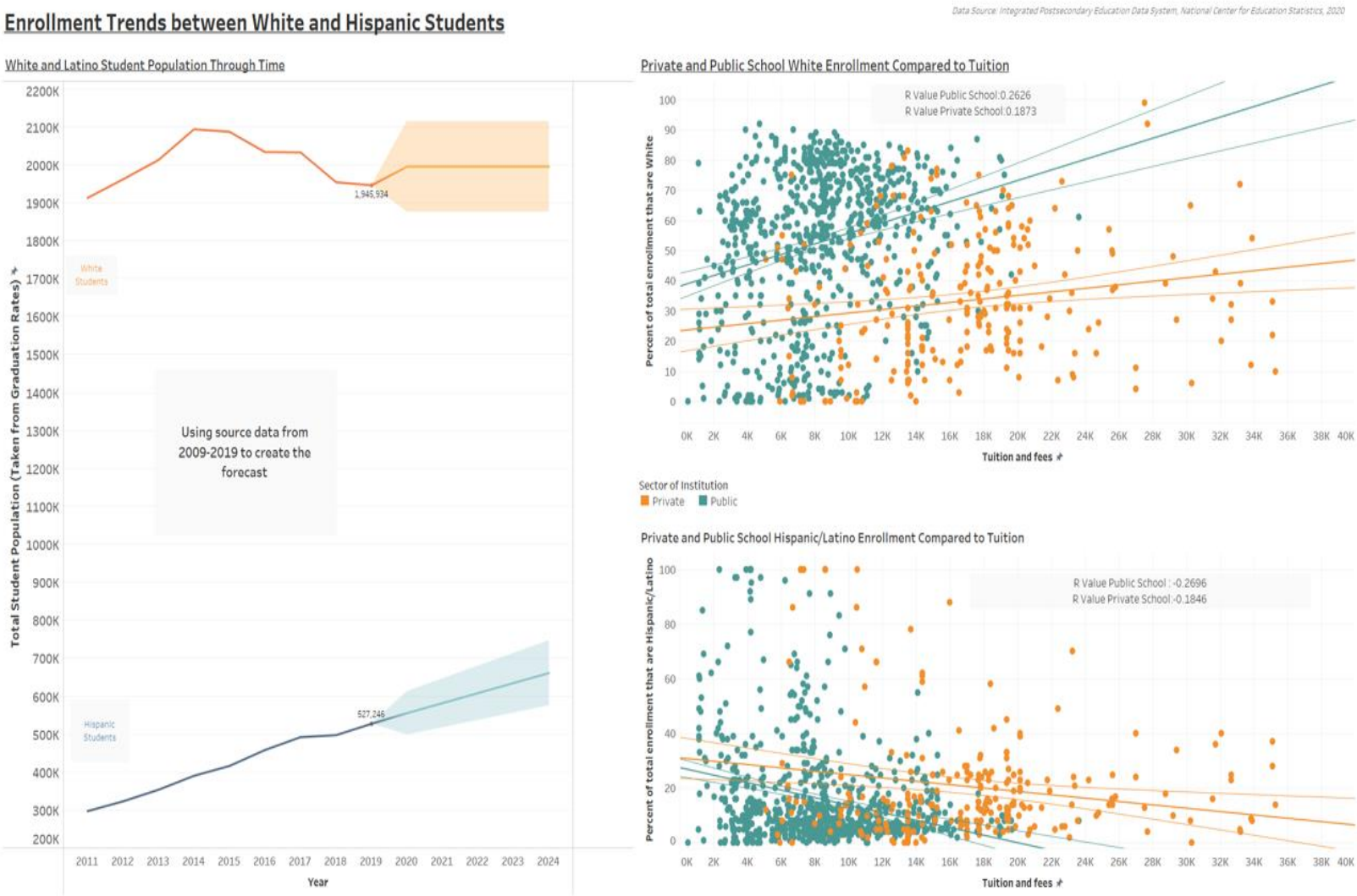
The process of this visualization was guided behind the principle that our world is warming. This was shown through different regions and countries around the world. With the geographic charts, I was able to show how regions differ and changed over time. We were tasked with including time series charts as well to show temporal changes. The overall design I looked to accomplish was a comparison between the coldest countries on the left-hand side (blue) and the countries that have warmed the most on the right hands side as well as the inclusion of an overall line graph (orange).

Below the line graph, I have my first choropleth map. In this map, I used data from the differences of average temperatures from the secondary source. In order to give a picture of who is going through the most/substantial change, I filtered the map to show the countries with over a 1°C increase. I used orange for this entire side of the graph to give a sense of warming up and increasing temperatures. On the left-hand side, I attempted to do a double choropleth map to compare more countries. This time I went with the bottom 10 coldest countries. On the top I have the average temperatures from the first half of the data set, and on the bottom graph I included a map of the latter half of the data set. I made sure to include the temperatures as well even though I tried my hardest to make the color gradient apparent.

VISUALIZATION 3

Our task for the last data visualization was to practice visualizing bivariate relationships and uncertainty. We are asked to do this with scatterplots,trend lines and the value of Pearson's r. We did not have a presecribed research question during this time and we were able to decide on our own. That being said I first opted to used the 2020 IPEDS data. With that in mind I wanted to paint a picture about the educational as well as the socio-economic variants of white enrollment and latino/latina enrollment against numerous variables. More noteably tuition and sector of institution.

To convey this story, I met the requirements by creating two scatter plots representing white enrollment compared to tuition and Hispanic enrollment compared to tuition. To further increase the insightfulness of the visual, I've included trend lines between two additional variables. The scatter plot is divided into the private school sector (green) and the public-school sector (orange). I chose these colors because I think they are aesthetically pleasing and mesh well together. On the left-hand graph, I have the overall population of each demographic of students over the years (Hispanic and white enrollment). This acts as a set up for the right-hand side scatter plots.



Referring to the scatterplots, on the top we can see a positive correlation between price and white enrollment. On the bottom we see the opposite correlation, as tuition and fees go up, we see less Hispanic enrollment. It is interesting because the correlations between private and public-school show about the same trends. Not only that but between the white and Hispanic groups, the Pearson's r value is rather similar. It is in trend and uncertainty however the correlations are completely opposite.