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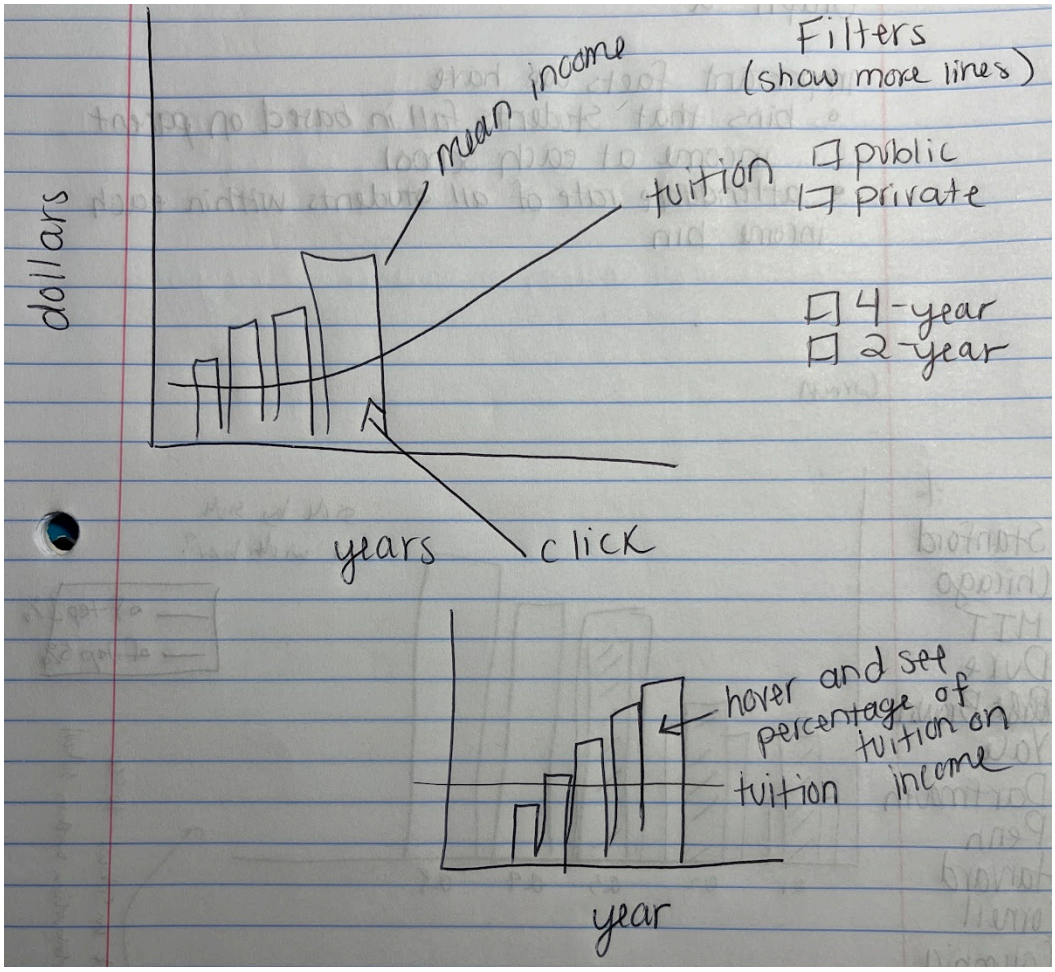
Milestone 2

For our final project, we plan to create an interactive news article exploring how tuitions of American universities have changed, relative to the average American salary, over the past few decades. A relevant conversation being had in the news today is one about access to higher education, and the colleges that fall into the Ivy+ category (Ivy League institutions, as well as the University of Chicago, Duke, Stanford, and MIT) especially receive this attention. Our goal is to enhance the public's understanding of the socioeconomic (in)accessibility of higher learning by visualizing the relationship between change in mean income and change in tuition costs over time. Through interactivity, users will be able to explore how the tuition for different types of institutions compare to one another, and attempt to pinpoint where the gap in accessibility began to widen. This project could also be utilized by prospective students and their parents to gain a better understanding of the financial burden of college, the financial makeup of these prestigious institutions, and the accessibility of higher education for their income bracket overall.

We gathered our data from the National Center for Educational Statistics, the United States Census Bureau, and from Opportunity Insights. The National Center for Educational Statistics dataset contains information on the cost of attendance of colleges in the United States. The metric we are using accounts for tuition, fees, room, and board across different types of institutions, like public or private, and different degree lengths, like 2 and 4 years. We also have this data adjusted into 2021-2022 dollars, which can help with taking inflation into account over time. The dataset from the United States Census Bureau contains the mean income within each income quintile from 1967-2022, as well as these in 2022 adjusted dollars. We have two datasets from Opportunity Insights. The first is from a study conducted in 2017 by Chetty et al. for The Equality of Opportunity Project, and it contains information per US university regarding the parental income distribution of students at universities across multiple years. We will be focusing on the 1991 birth cohort data (corresponding roughly to the class of 2013 in college). The second dataset contains information about the 139 selective US universities, with numbers by college and parental income bin for students in the US who took the SAT or ACT in certain years. We will be focusing on the parental income bin information from this dataset as well.

Our first visualization will provide a bigger picture view of how the average income and tuition have changed over time. We plan to use a bar chart to represent average income and overlay it with a line chart representing average tuition. We aim to capture how tuition has grown to capture a greater percentage of average income, and we plan to show how this fraction varies across different types of universities (private, public, for profit, nonprofit), giving users the option to filter to their liking. Users will also be allowed to toggle between two views; one will represent currency in 2021-2022 dollars, while the other will represent costs/incomes in nominal dollar values. Users will also have the capability to hover and click on the bars to obtain more

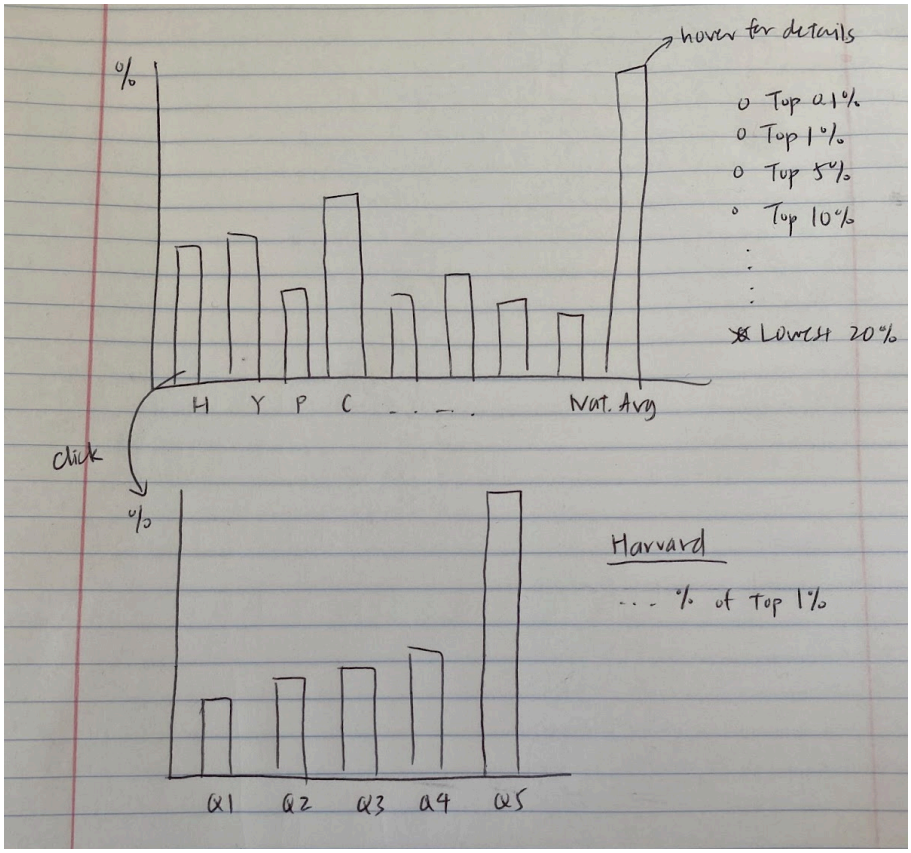
information. Clicking on a bar will open a more compact visualization, representing the mean income for each quintile and the average tuition for the chosen year.



Storyboard for Visualization 1: Mean Income and Mean Tuition over Time

Our second visualization will provide a closer look at parental income distributions for students of the Ivy+ universities. This may not seem as directly related to our first visualization, but the overarching theme of the article is that higher education, especially at the elite level, is becoming increasingly inaccessible to lower income families, who have less access to opportunities that help their child in the college application process and feel a larger burden from the tuition costs. This is reflected both in the relationship between average income and average university tuition, as well as the proportion of Ivy+ parents with incomes in the top percentiles. We plan to represent the latter through a bar graph that visualizes the percentage of students at each Ivy+ institution whose parents fall into an income bracket for each of the Ivy+ institutions, along with a bar representing the national average percentage. Users will be able to adjust the income bracket and see the changes across all 12 of these schools, as well as the national average. We may add hovering capabilities as well for users to see more details. Users can click

on a bar and see the income quintile breakdown for the selected school as well. We plan to include some additional information in written form describing the parental income distributions at certain schools.



Storyboard for Visualization 2: Percentage of Attendance by Income Bracket

Link to Prototype: info4310-finalproject.onrender.com/final/