

Info247-2020 Spring Final Project

What We Talk About

When We Talk About

Asian American

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1. Project Goals

Immigrants play a significant role in the development of the United States of America through history. Research indicates that the U.S. has been benefiting from the fluidity of migration in multiple aspects, from culture to industry, resulting in a great country of a thriving economy, general welfare, and vigorous innovation. On the other hand, as the pace of globalization speeds up and economic growth slows down, some may challenge if the advantages of immigration outweigh the disadvantages – they doubt a welcoming immigration policy also accounts for social issues, takes jobs away from Americans, and increase the danger of crime and terrorism. Among these subjects of questions, Asian Americans received fewer discussions while being the fastest-growing group.

Asian Americans, or more generally, Asians in America, make up for 6.5% of the U.S. population. “Asian” has been used to address people coming from the East back to the early 20th century, but it’s an umbrella term comprising a big group of people of over 20 countries of origin, who came to the U.S. at different points and dispersed across the whole country, with both cross-groups and in-community diversity and disparity. They should not be generalized as “Asian American”, given each of their unique community culture and characteristics.

We hope to empower people with the knowledge of different ethnic groups within the Asian Americans. In this final project, we apply information visualization in tracing the historical immigration of the US as well as investigating the traits and demographic information, and thus to clear up who they are and the mist obscures them. Specifically, the project goal includes the following topics:

- Profile of each ethnic group:

- Discover what accounts for Asian American
- Highlight the population differences
- Interactive visualization to intrigue the audience
- Demographics by geographic distribution
- Contextualize the history of Asian American
- Present the socio-economic gaps between Asian American communities

2. Related Work

[The Asian American Achievement Paradox](#)

We interviewed some Asian Americans before starting this project and found many mentioned they felt both “privileged and discriminated.” Published in 2015, relatively new, this book discussed the formation of “Asian Exceptionalism” in the contemporary context, including the fact of its fast-growing population as well as the diverging gap. It also reviewed recent scholarly works focused on Asian American communities, investigating or countering arguments with their in-depth interviews with the adult children of Chinese immigrants and Vietnamese refugees and survey data.

[Flashpoints for Asian American Studies](#)

We refer to the Pew Research Center frequently often in this project. However, we are also cautious about their optimistic reports, which over highlight the strength of the Asian American community but neglect the significant disparities within and between various subgroups. This book has a deep analysis of this bias and the so-called “model minority” effect. For example, specific ethnic groups (such as Hmong, Cambodian, Laotian, and Vietnamese Americans) have high school graduation rates as low as 61 percent and even lower rates of college graduation—numbers comparable to those of Latinos and African Americans.

The Color of Success - Asian Americans and the Origins of the Model

This book reviews the transformation of Asians in the U.S. from the "yellow peril" to "model minorities" in the middle decades of the twentieth century. While Asian Americans ostensibly boast the highest median income of any racial group, Asian American families generally include more workers per household than white families. Interestingly, as this book pointed out, while Asian American studies scholars have rightly called attention to the stakes of ignoring the diversity of Asian America, they have had their blind spots, too, and ironically have contributed in crafting the mythology of the model minority.

Growth in undocumented Asian

We examine the Asian American from another angle, a darker and lesser-known side that shows the economic gap. When it comes to unauthorized immigrants, few will think of Asian people. In fact, the Asian undocumented population has more than tripled within 15 years since 2000, to the CMS estimates of over 1.7 million in 2015. By contrast, the Mexican unauthorized population grew by only 21% during the same period, to 5.8 million in 2015.

The Stories We Tell, and Don't Tell, About Asian-American Lives

"Identity isn't a prescriptive solution. But when you're uncertain of your place within society, it can help to have ready-made categories or narratives, even if you choose to reject them." The category of "Asian American" was created in the late nineteen-sixties, crosses ethnic divisions and class lines, encompassing refugees from Southeast Asia struggling to adapt to the American hustle, multigenerational American families with only an abstract connection to their ancestral homelands, and the children of transnational Chinese élites who have been sent to America for schooling.

Immigration - Part of the “State of Asian Americans and Pacific Islanders” Series

Karthick Ramakrishnan and Farah Z. Ahmad discussed the disparity of income as well as poverty issues in this paper. Immigration has been an issue of the U.S. because of the changes in immigration policies over the past 150 years. This is particularly true to Asian Americans, especially considering that the racial group comprises the greatest proportion of foreign-born residents and was the subject of many bans by Law.

Who are Asian Americans?

The Asian American population is one of the fastest-growing and most diverse demographic groups in the U.S. While the “Asian” label has been used in government classification as a racial category for several decades, various national-origin groups differ in many areas. Some Asian groups may fare well on socioeconomic outcomes when compared to the national average, but other Asian groups fare much worse and are often invisible to the public.

How ‘Crazy Rich’ Asians Have Led to the Largest Income Gap in the U.S.

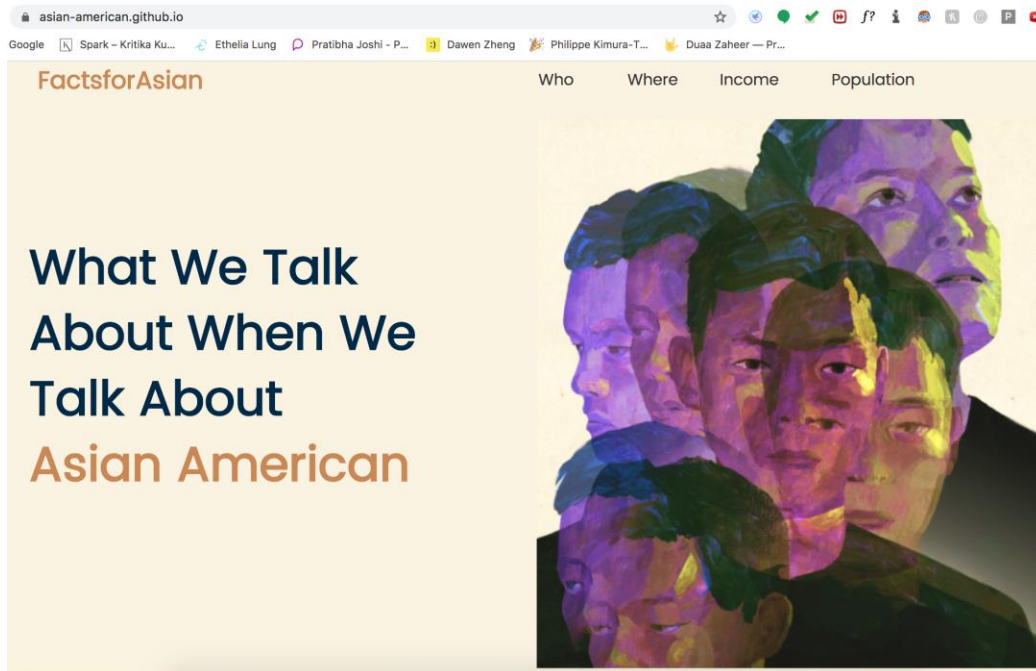
This New York Times article uses data visualization to present the fact that Asians in the U.S. have the largest income gap. It also talks about when Asians arrived, the education of Asians, etc.

Key facts about Asian Americans, a diverse and growing population

Pew Research Center does a great job to present key facts about Asian Americans using infographics. Facts, including population growth, income levels, are presented in the site.

3. Visualizations

3.1. Landing page

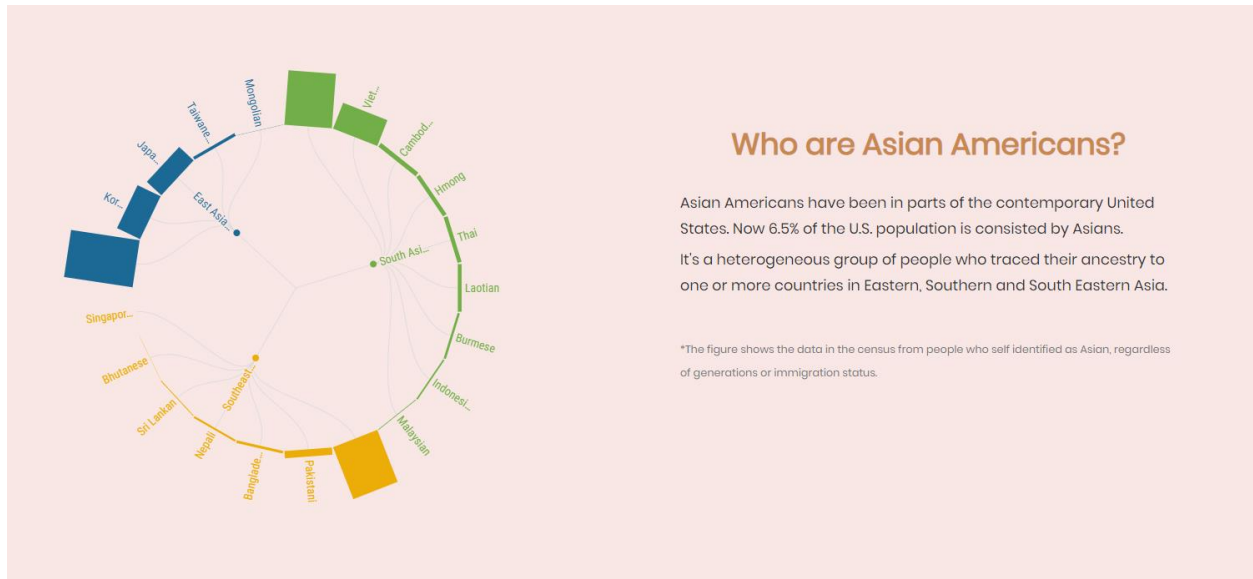


Motivation:

We began with a headline “What we talk about when we talk about Asian American” to introduce the overall theme of the website as well as grabbing the audience's attention. Visitors can navigate to different sessions by clicking on the menu in the top navbar.

Illustration credit: <https://www.newyorker.com/books/under-review/the-stories-we-tell-and-dont-tell-about-asian-american-lives>.

3.2. Basic profile



Motivation:

The first visualization should show the overview of the Asian American in which the population is the first quantitative data to help readers acknowledge the skewness and sparseness of the distribution.

Implementation:

A radial tree with bar charts to show the population of each group by the origin of the ancestry. From the visualization, we could easily tell that there are 3 main groups and only 1 or 2 subgroups as the majority of each. The 3-4 main ethnicities are already quite diverse compared to other minorities in the states- African and Hispanic American.

Reference:

The data is derived from the [US Census and American Community Survey in 2018](#).
[The Implementation of Radial Tree Reference](#).

3.3. Flashcard Introduction



Motivation:

To introduce the ethnic group of Asian Americans, we still need descriptive paragraphs to give board ideas and highlight the differences among them.

Implementation:

The tab card system with animations makes it more interactive and engaging with the directive hint on the front page(click on). Readers could easily navigate the information by moving the mouse over the tabs to find the brief with the underline indication of the current tab card. We design the hover effect to help readers understand the tabs are clickable.

Reference:

The content is mainly from [Wikipedia](#), the related Wikipedia articles of each subgroup, and [the reports of Pew Research Center](#).

The implementation is from the flying card

<https://codepen.io/interstellar/pen/zNapzo?editors=1000>

3.4. Drag and Match Game

Fast facts about Asian Americans!

Now you definitely learned a lot about Asian Americans! Let's see if you could match !

Colorado declared its Recognition Day	Highest Population with >4 million	U.S. has the largest diaspora community of the ethnicity
Fastest population growth recently (2x in 20 years)	Sailors are first Asians in North America	>50% people don't possess high school degree
Highest civic assimilation to the U.S. and activism	Used to be 3rd largest group but declined recently	Having been targets for hate crimes since 911

Drag the cards in the bottom and place them into the relevant slots!

Hmong American	Cambodian American	Vietnamese American	Pakistani American	Japanese American	Asian Indian American	Korean American	Chinese American	Filipino American
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Motivation:

In the design of the storyline, after 10 sections of the narrative description, to keep readers engaged with the stories, the matching game was designed to uncover the fast facts of each ethnic group.

Implementation:

Each slot contains one of the traits of the specific Asian American about their history events, demographics of recent trends. Specifically, some of them contain spoilers which would lead readers to the following chapters e.g. geographic distribution for Hmong American and education issue of Cambodian American.

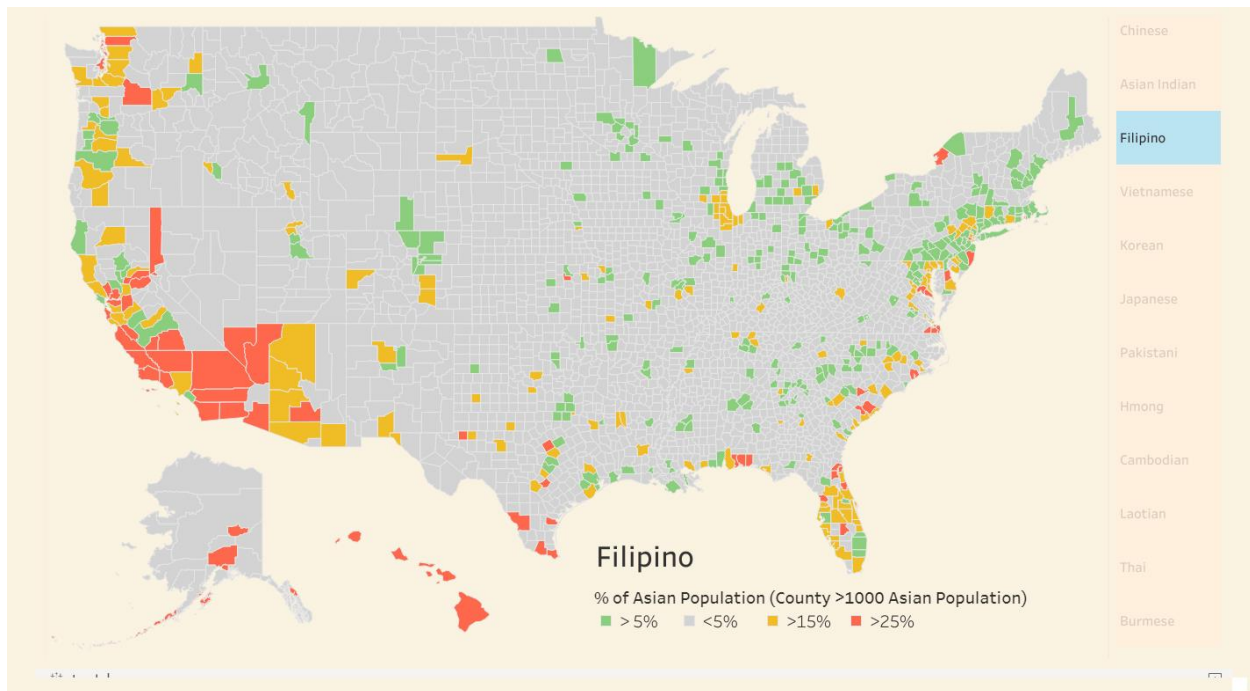
Reference:

Information is summarized and extracted from articles on Wikipedia and population, income, geographic distribution, and the education level in other sections.

The implementation is modified from the drag and drop matching game.

<https://codepen.io/noyiri/pen/zeoRwB>

3.5 County Level Choropleth for Geographic Distribution



Motivation:

The reader could gain an understanding of the distinctions among each ethnic group in Asian Americans. While the impression that Asian immigrants are mostly in California and New York is only partially correct. For example, due to the refugee movement, the majority of Hmong and Cambodia Americans are not on the west coast. Some States worth a highlight - Alaska, Hawaii, Texas, Colorado, Massachusetts, and Florida all have unique distribution patterns. Also,

the distribution within the state would show the insight that the difference between northern and southern California is highlighted.

Implementation:

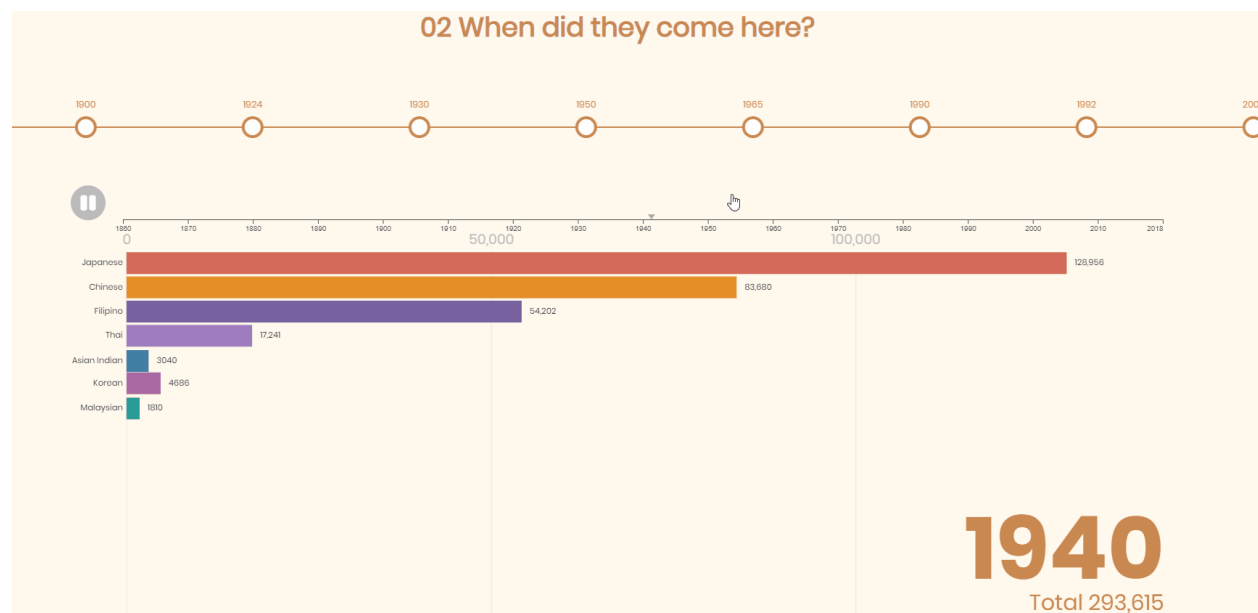
We normalize the data into the percentage of the Asian population and only highlight the county with more than 1,000 Asian population. The data is projected into the county-level map to create the choropleth which is the improvement that we made from the conclusion of the usability test. The label filtering of more than 10 ethnic groups consisting of more than 80% of the Asian population.

The visualization is created by Tableau.

Reference:

The county-level data is extracted from the ACS census data.

3.6 Historical Timeline with Bar Chart Animation



Motivation:

One common interest from the participants of the usability test is when did the groups of Asian Americans come, and if the timing is different among the groups.

The reasons that we choose the sorted bar chart with ranking animation (aka Racing Bar Chart) are:

- 1) We'd like to encode the ranking as extra attributes into the visualization that the line chart is hard to reflect. The significant change of ranking for Japanese and Asian Indians is eye-attracting.
- 2) The sudden appearance of the new bar is a novel way to highlight the attribute of underlying data. The US census changes the survey method and definition in survey questions over time that reflect the increase of importance of the Asian for the government and policy.
- 3) The unit scale of magnitude has a huge difference between top - 4 million to bottom - only a few thousands. That line chart or other chart makes the comparison not discernable.

Implementation:

The timeline is implemented by javascript, it simply detects the location of the cursor to show summarized information in a div for all dots on the timeline on mouseover(hover).

For the bar chart, we have implemented a version by modifying the d3 template of the racing bar chart on observableHQ. However, the **view of** function can not be embedded into the website. Thus, we move to the Flourish app with fine-tuned parameters and layout to create the racing bar chart.

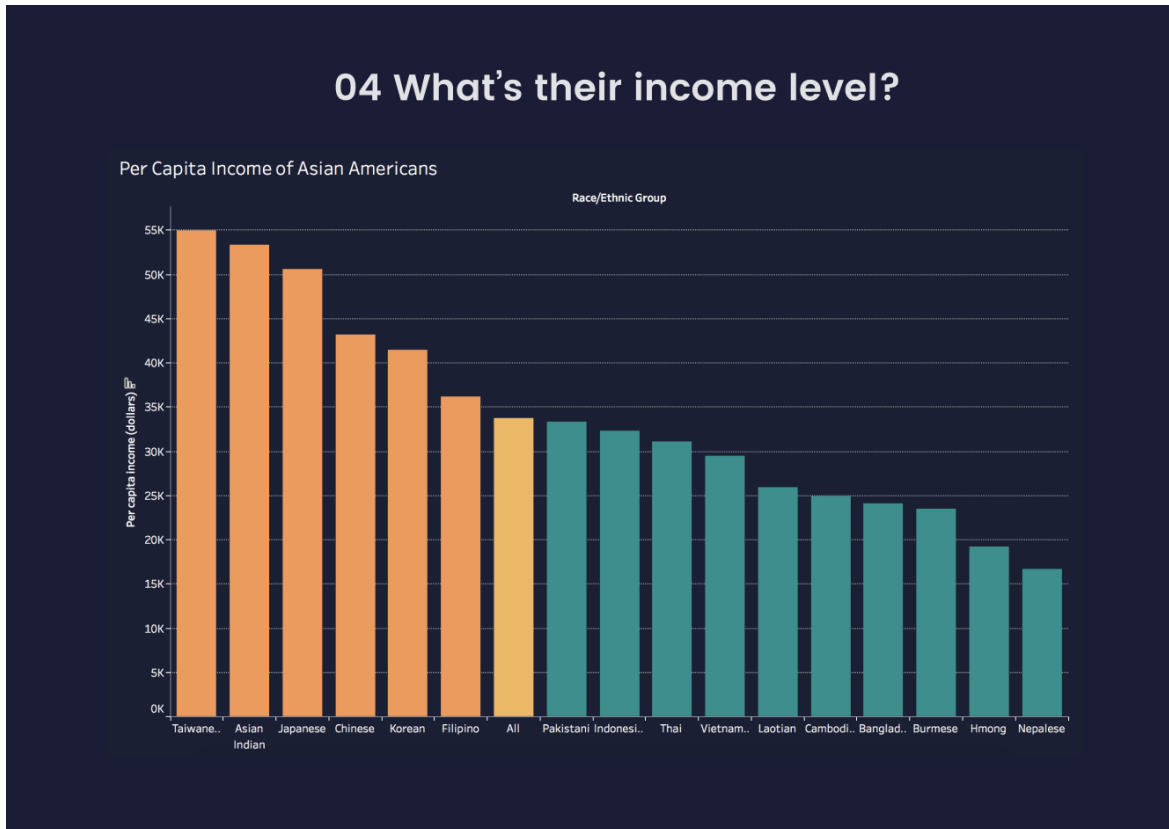
Reference:

This visualization is inspired by Mike Bostock, who created this amazingly engaging and illustrative [racing bar chart](#).

The timeline is implemented by pure Javascript and CSS.

All the text and pictures are summarized and extracted from the list of narrative references.

3.7 Income level of different Asian groups



Motivation:

To present the income disparity among Asian groups and convey that not all Asian Americans are rich, we decided to show the income level of Asian groups in a straightforward way.

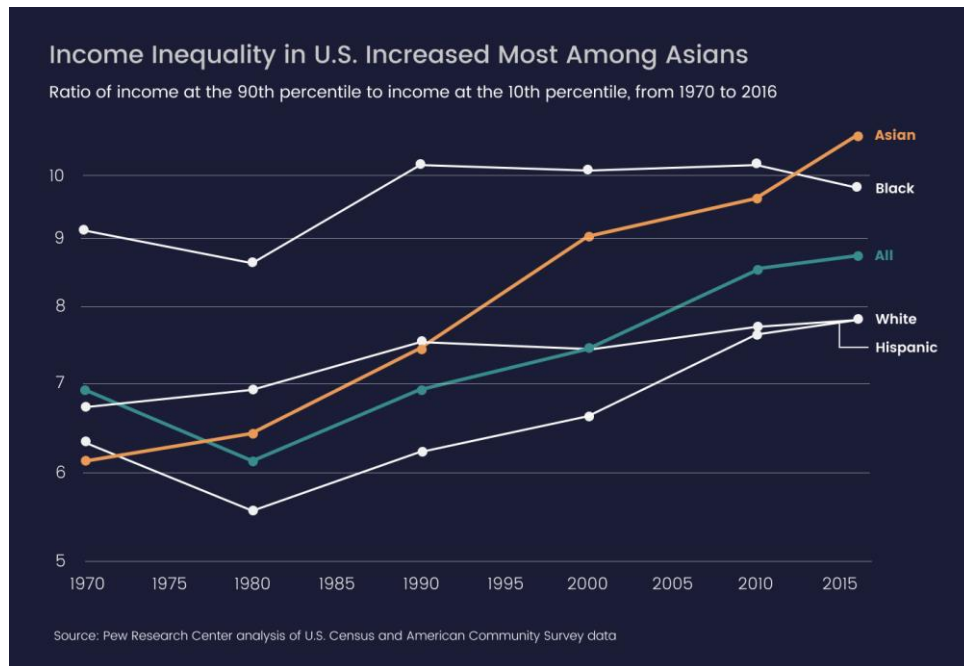
Implementation:

We used Tableau to create a bar chart that shows the per capita income level of every race. We used different colors to differentiate races that have income higher than average with races that lower than average.

Reference:

We extracted data from the ACS census data in 2018.

3.8 Income inequality increased from 1970 to 2016



Motivation:

After presenting the income of different races, we want to further highlight a fact that income inequality is rising more rapidly among Asian Americans than other racial or ethnic groups, reflecting wide disparities in income among Asian origin groups.

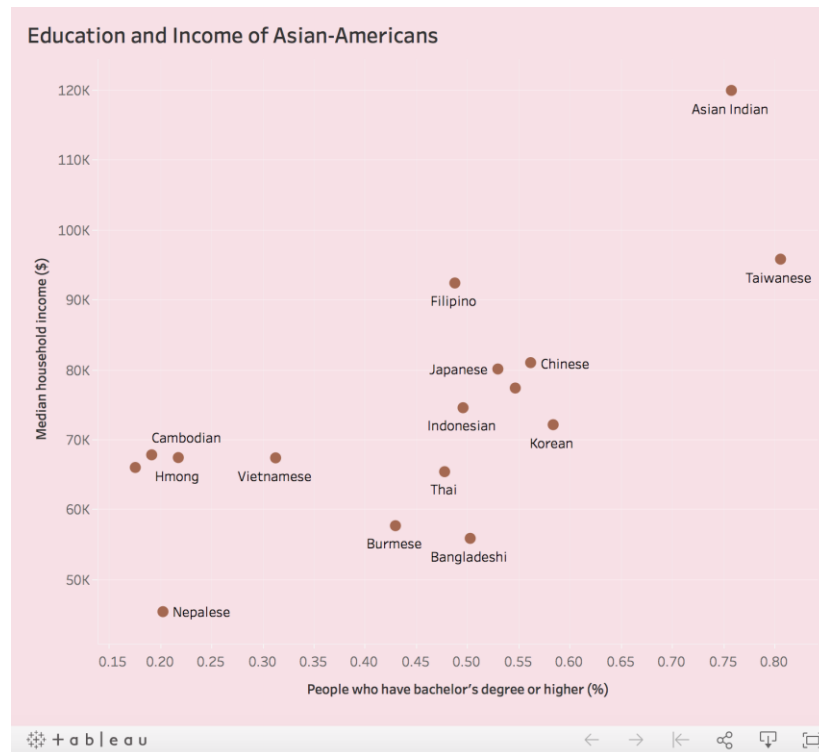
Implementation:

We used illustrator to create a line graph that shows how income inequality has decreased over time from 1970 to 2016.

Reference:

Data from [the report of the Pew Research Center](#).

3.9 Education and income page



Motivation:

To show the disparity in education level as well as give people a chance to explore the relationship between education and income among Asian groups, we want to present a cross-analysis graph.

Implementation:


We used Tableau to create a scatter plot graph which shows that the disparity in both the education level and income level is high.

Reference:

We extracted data from the ACS Census data in 2018.

3.10 Ending page

Finally...



"No group can be generalized. We are not arguing that Asian people are the only minority, but this group has lacked close look for a long time"

- that's why we created this website to help you know more about this group. We hope you enjoy reading this site :)

Motivation:

To summarize and give users a chance to think more about the facts presented in our site, we quoted a sentence about Asian people and added an illustration that represents Asian culture.

Illustration credit: <https://www.felicia-liang.com/work/mahjong-parlor-floral-decorations>

4. Data sources

[The United States Census Bureau](#)

The Census Bureau is the leading source of quality data about the nation's people and economy, including the American Community Survey and Decennial Census Data. The Bureau hosts a digital library that archives publications including [census reports](#) and [statistical data](#) before 2000 in PDF/image format, so we could manually eyeball old data back to 1860.

[Immigration and Citizenship Data from USCIS and DHS](#)

These are the official data released by 2 of government organizations- Citizenship and Immigration Service and Department of Homeland Security.

[Migration Data from Migration Policy Institute \(MPI\)](#)

MPI is a non-partisan think tank established in 2001 which publishes an online journal, the Migration Information Source, which provides information.

[Pew Research Center](#)

Pew Research Center is a nonpartisan fact tank that conducts public opinion polling, demographic research, and other empirical social science research. Pew has a series of in-depth reports of socio-economic status across subgroups of Asian American.

[Wikipedia](#)

The prestigious platform that offers contexts of early immigration and the demographic profile of Asian immigrants. We also looked up the changes of the immigration policy of the U.S.

5. Tools Used

We implemented interactive visualizations using D3, tableau and flourish, developed the webpage using HTML, CSS, JS, and designed infographics using Figma and Adobe Illustrator. We use GitHub to manage version control and to host the website.

6. Usability Testing and Results

We conducted user testing with 3 prospective users as well as collected feedback through in-class discussion and office hours. A combination of semi-structured interview, observation, and contextual inquiry was applied to inspect the usability of the website. We aim to test both the functional and aesthetic aspects our our website, specifically, we hope to

- Assess the effectiveness of the storyline and narrative structure
- Evaluate the existing visualizations, by the following dimensions:
 - Clarity of the charts
 - Usability of the interactive visualizations
 - Aesthetics of the website: color tone, theme, visual presentation
- Get insights on the problem space and potential, bridging visualizations accordingly

During the testing, we provided tasks and questionnaires to assess the usability of our website and what information may be most relevant to users' needs.

Specifically, we want to measure:

- The time spent on each section on the website
- Whether the participant learned something new from each visualization (1 Not at all - 7 Very much)

- Whether it's easy to get information from each visualization (1 Not at all - 7 Very much)
- The usability of website (1 Not at all - 7 Very much)
 - It is easy to find my way around the site.
 - The naming and labeling of different sections was easy to understand.
 - Screens have the right amount of information.
 - The information is relevant to my needs.
 - The website is designed with me in mind.
 - The site's functionality would keep me coming back.
 - The overall look and feel of the website was pleasing.
- How likely would the participant recommend this website to friends (1 Very unlikely -10 Very likely)

The testing results indicated that our participants felt very surprised when seeing some of our visualizations and said they learnt a lot, which means we are going in the right direction, but the audience needs more explanation around why we present those data and what data is selected is important.

Besides qualitative feedback, we also got some quantitative results from the testing session through questionnaire. Here are the results.

Result 1 - Assessment of each section

Section Name	Time Spent	Information is helpful (1 Not at all - 7 Very much)	Information is easy to get (1 Not at all - 7 Very much)
Front page	5 - 10 secs	N/A	N/A
Demographics	20 - 30 secs	6	5.5
Distribution	1 - 2 mins	6	4.5
Income	1 min	5.5	6
Income inequality	30 secs	7	6.5
Population change	3 min	7	7
End page	10 secs	N/A	N/A

Result 2 - Assessment of the website

Heuristics	1 (Not at all) - 7 (Very much)
It is easy to find my way around the site	7
The naming and labeling of different sections was easy to understand	6.5
Screens have the right amount of information	6.5
The information is relevant to my needs	7
The website is designed with me in mind	6.5
The site's functionality would keep me coming back	7
The overall look and feel of the website was pleasing	7

Based on those results, we decided to make the following revisions:

- Improving the existing visualizations
 - Geographic Distribution: Given the feedback in our usability testing, we found (1) the concept of “normalized population compared to the average” was not intuitive to the audience and (2) the uneven size of each State led to different level of preattentive effect and would mislead people, we decided to rework the visualization using the 2010 Census dataset, which encompassed granular population of each subgroup down to county level.
 - For the income inequality graph, we found data from 1970 - 2016 and incorporated them into the graph. We also added labels on the x-axis.
- Adding new visualizations
 - We added a visualization that shows the education attainment of Asian Americans based on the suggestion we got from the usability testing sessions.
 - Profiles of each Asian Race: To introduce the ethnic group of Asian Americans, we added descriptive paragraphs to give board ideas and highlight the differences among them.
 - Fast facts: To keep readers engaged with the stories, we add a fun matching game to uncover the fast facts of each ethnic group.
 - History timeline: Although the racing bar received the highest score in all testings, feedback suggested we added contexts to some prominent population changes in the racing bar. Therefore, we summarized a few influential or interesting historical events to supplement the racing bar.
- Adding more explanations

- To clarify what population the data covers, we labelled each resource and dataset on the website.
- Improving the overall website
 - We improved the website to make it responsive to fit in different browsers and resolution settings.

7. Links to demos and documents

[The website](#)

[GitHub repository](#)

[Usability testing report](#)

[Thumbnail image for project webpage \(also uploaded on bCourse\)](#)



8. Project Work Allocation

Category	Task	Ryan	Yankai	Yunjie
Ideation	Brainstorming, define goals	33.3%	33.3%	33.3%
Dataset	Collection & sourcing	50%	40%	10%
	Research & selection	60%	30%	10%
	Data cleansing & processing	90%	10%	0%
Visualization	Who are they - Radial tree	10%	80%	10%
	When did they come - Population racing bar	50%	50%	0%
	Where are they located in - Geographic distribution	70%	30%	0%
	Socio-Economic Status - Income inequality	0%	0%	100%
	Socio-Economic Status - Education Attainment	0%	0%	100%
Website	Layout and styling	40%	20%	40%
	Landing page	0%	0%	100%
	Who are they - Flashcard introduction	0%	100%	0%
	Who are they - Drag and match game	0%	100%	0%
	When did they come - History timeline	80%	20%	0%
	Repository Management	40%	40%	20%
Usability Study	Usability testing	30%	30%	40%
Presentation & Report	Presentation	33.3%	33.3%	33.3%
	Report writing	33.3%	33.3%	33.3%

