

Narrative Visualization Project Essay

Messaging

My narrative visualization intends to state the relationship between years/experience level/country and data science jobs' salaries from 2020 to 2022, implemented with the "Data Science Job Salaries" Kaggle dataset (Bhatia, Ruchi.) For example, in my second scene, there is more percentage of people who have salaries above 190K USD in 2022. It indicates that it is much easier to find a job above 190K USD in 2022. Similar logic could apply to experience level and country in the scene.

Narrative Structure

My narrative visualization was designed to follow the martini glass structure.

Users cannot play around with the visualization until going through all introduction and three scenes in the top yellow section.

Visual Structure

There are three scenes in my narrative visualization. All of them are using the same set of visual structures, which are structure, highlight, and transition since the only trigger parameter in the whole visualization is the slider bar.

The structure mainly has three bar charts in the whole scene, which are year vs percentage of people on the top left, experience level vs percentage of people on the top right, and count of people vs country on the bottom. With this structure, users could easily find out the reflection in all three charts with the minimum salaries amount changing and do the analysis to find out the best combination of year, experience level, and country to achieve the selected minimum salaries.

For the highlight, it mainly uses the red annotation to do the highlighting work. All the bar charts are in light green color, which makes the red annotations have strong visual contrast with the bar charts. Also, the annotations are pointing to important data items and list out useful information to get the viewer to focus and understand important parts of the data.

For the transition, the "Next" button and messages in the top yellow section could orient users to go to the next scene. The "Next" button leads viewers to go to the next scenes. The message in the top yellow section shows viewers which minimum salaries got selected to generate the current scene and what useful information could get from the current scene.

Scenes

There are three scenes in the narrative visualization, selecting 0K minimum salaries in USD, 190K minimum salaries in USD, and 300K minimum salaries in USD.

The reason for making the scenes in the order of 0K, 190K, and 300K is that in 0K, viewers could view all information gotten from the dataset without any filter, which could help viewers to have an overview of how data is displayed in all three charts. Therefore, it is placed in the first scene. 0K to 210K is a special range of data that the largest percentage of people in a year vs percentage of people chart is always located in 2022. Above 210K is another special range of data that the largest percentage of people in a year vs percentage of people chart is always located in 2020. Therefore, to cross compared this year's regularity with the other two charts, 190K and 300K are selected in numeric order as the parameters of the second scene and third scene.

In the first scene, both years vs percentage of people and experience level vs percentage of people charts show 100% in all categories, and in the count of people vs country chart, the United States has the largest amount of people. It's shown an overview of the whole visualization data. In the second scene, 190K is a number in the special range that 2022 always has the largest percentage of people. In the experience level vs percentage of people chart, the Executive-level / Director has the largest percentage and in the count of people vs country chart, the United States has the largest amount people. These data items indicate that an Executive-level / Director level job in the United States in 2022 is easier than over 190K USD salary. Similar logic applied to the third scene, it's easy to get the conclusion that an Executive-level / Director level job in the United States in 2020 is easier than over 300K USD salary.

Annotations

The template of the annotations in my visualization is in red color and points to different data items in each chart. Because the bar charts in the whole visualization are in light green color. The red color is in strong contrast to the green color which could grab viewers' attention easily.

The annotations have a red connector that points to different data items in each chart, and it includes a bold title and normal label. The title indicates the salary range condition to show the annotation and the label shows the important message that the data items are trying to explain. For example, in the third scene year vs percentage of people chart annotation, the connector is pointing to the 2020 data item and the title is showing "Above 210K USD Year VS Percentage of People Chart:" which indicate the range shown in this annotation is Above 210K USD salaries. The label is showing "The Percentage of people in 2020 is always more than the other years, which indicates that a data science job in 2020 is easy to be above 210K USD salary." This label helps viewers to understand how the year vs

percentage of people chart performs when minimum salaries selected numbers above 210K USD.

Since the annotations in my charts are explaining how the charts perform when salaries data varied in a specific range. Therefore, I didn't implement annotations' changes within a single scene.

Parameters

The parameter of my narrative visualization is the minimum salary value controlled by the slider bar.

There is a total of 45 states in my narrative visualization. Different states could show up with different minimum salary numbers in the slider bar. In different states, three bar charts may show different values, the annotation connector may point to different data items, the annotation content may show different messages and when hovering over bars, the tooltips may show different data information.

The minimum salary value act as a filter for all charts and annotation to generate different states and scenes.

For state, the minimum salary value filters out the data with "salary_in_usd" less than it in the dataset, so that all charts only display the result of data with "salary_in_usd" equal to or larger than it in the dataset. The annotations and tooltips are updated with these parameter changes accordingly.

For the scene, like a state, the minimum salary value filters out the data with "salary_in_usd" less than it in the dataset. But it also considers the data overview and special range of the salary to make the data presented in the whole visualization meaningful, in each scene, it has fixed annotations to supply additional information.

Triggers

The triggers in my visualization are the slider bar on the top left of the webpage to change the minimum salary value input and popped-up tooltips in the bars of each bar chart.

The top yellow section with the "Next" button is the affordance that introduces users that which options are available to them in the narrative visualization.

When the user sets the minimum salary value with the slider bar, the state of the whole narrative visualization will be updated accordingly. When the user hovers over the bars, the tooltip will be popped up with appropriate data information. This is how the trigger work in my visualization.

This yellow section affordance supplies detailed instruction about how to manipulate the slider bar to get and understand the different states of the narrative visualization with the user's preference and the hover-over popped-up tooltips supply more data information. This is how affordance work in my visualization.

Reference:

1. Bhatia, Ruchi. "Data Science Job Salaries." Kaggle, 15 June 2022, <https://www.kaggle.com/datasets/ruchi798/data-science-job-salaries?resource=download>.