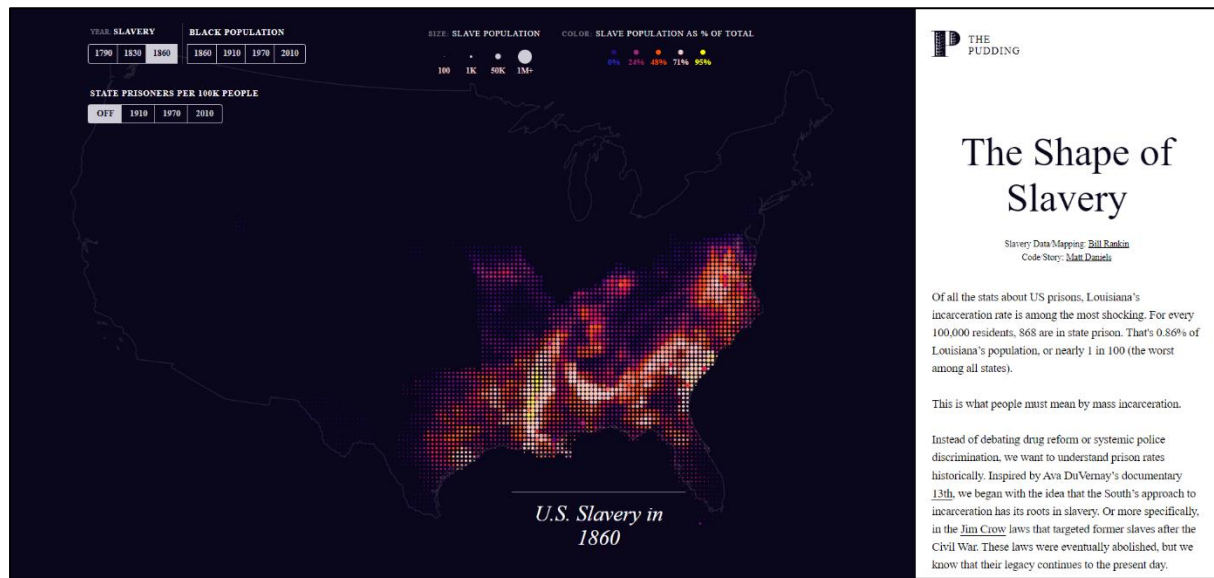


2562617

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Critical Analysis Essay

Case Study: The Shape of Slavery



[Figure 1: screenshot of the data journalism project]

Project Overview

In this essay, I will do a critical analysis of the data journalism project titled, "The Shape of Slavery". It was created by Bill Rankin and Matt Daniels, who mapped out the data and wrote the code, respectively. The data journalism project was published in January 2017 on *The Pudding*, which is a "digital publication that creates visual essays with data" (The Pudding, 2024). The aim of the project is to show the connection between the rate of incarceration and the population of slaves in the American South (Rankin and Daniels, 2017). This is illustrated through the data visualisation and further expanded in its accompanying article.

Data Visualisation Techniques

In "The Shape of Slavery" the data visualisation technique used is a dot map. Dot maps or dot density maps use the dot symbol to show "the distribution of many related

phenomena in geographical space” (Synergy Codes, 2024). In this data journalism project, different sized dots are used to represent the number of incarcerated people across the United States as well as enslaved people in the deep South.

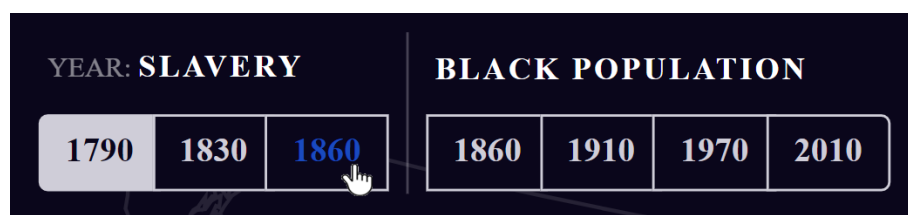


[**Figure 2:** screenshot of the legend/key showing how population is represented]

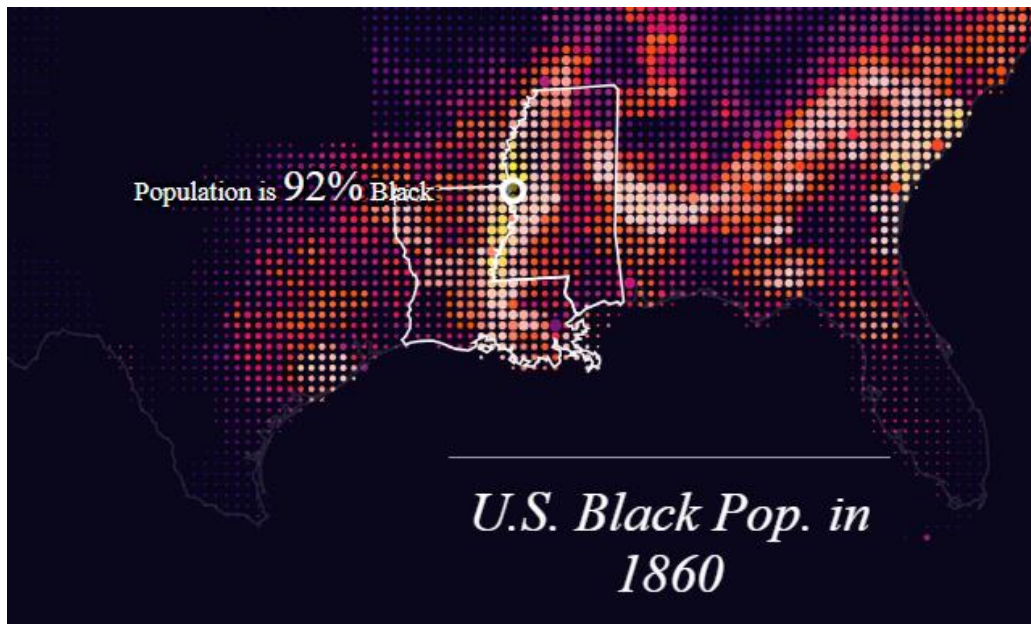
Other data visualisation techniques include “visual scalability,” “real-time interaction,” and “personalization” (Bikakis in Li, 2020, p.19). These will be expanded on in the later sections but in general, they speak to the visualisation being able to effectively display large amounts of data, the user being able to interact with the visuals, and them being able to change to how they view the data (Bikakis in Li, 2020, p.19). The reason behind these choices is that “big data is useful when it is represented in an accessible way” (Nkosi, 2020). It is unfathomable how many people were enslaved and incarcerated from 1790 to 2010; therefore, the visualisation helps the user make sense of these large numbers through its use of colour, patterns and shape language.

Interactivity and User Engagement

The role of interactivity in this project is to communicate with the user and keep them engaged with the information they are receiving. The interactions available to the user are clicking, hovering, and scrolling. In the nav bar, when the user clicks inside a box, its area is filled with a white colour. This action also changes the information displayed on the map, depending on the date that was selected. Also, when the user hovers over a date, the text changes from white to blue.



[**Figure 3:** screenshot showing the hover effect on the nav bar]



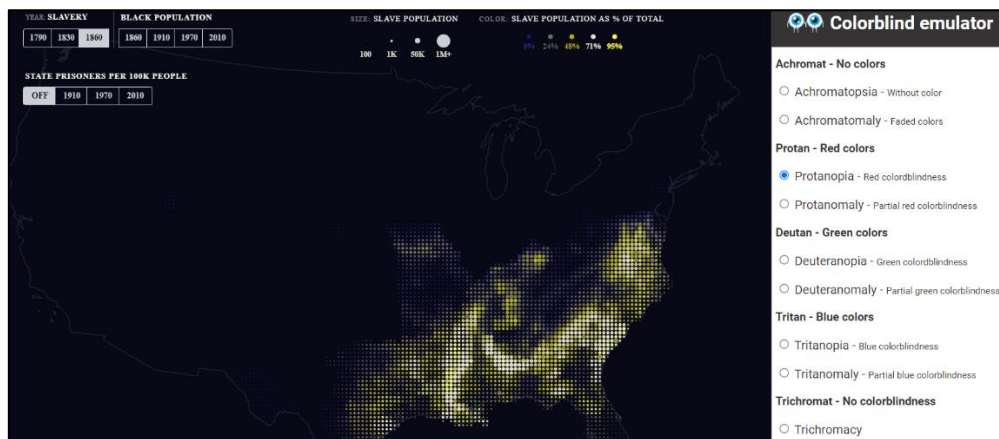
[Figure 4: screenshot showing the hover effect on the map]

Hovering is also available on the map. When the user hovers over a dot, the area surrounding it gets highlighted and information is given about the number of people the dot represents. While clicking and hovering are based on what the user wants to do or see, scrolling is set up by the designers to automatically take the user through the visualisation and its different parts. This means that with each scroll, the user will be able to see the map change without having to click on the nav bar. These interactions are effective because they show the user that their actions have an effect on the information they receive.

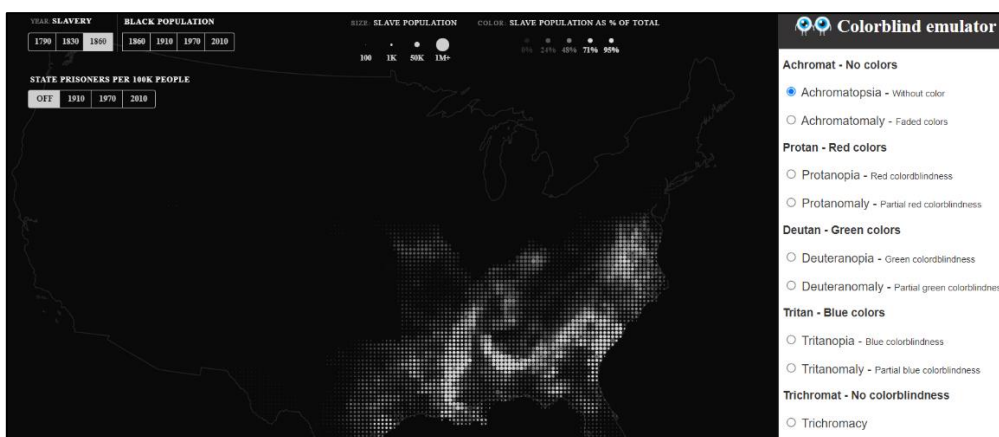
The impact of interactivity on user engagement is the creation of immersion and intuitiveness. The user feels involved and present in the moment because they have the agency to make changes. The interactive elements are also intuitive, for example, when the user sees the buttons on the nav bar, they know that they are clickable. Over the years, I have engaged with several data visualisations and most of them were static bar graphs. In spite of the use of colour and descriptive labelling, I did not feel like I understood what I was seeing or even cared about what it represents. This is because the data was just given to me, and I was not able to interact with it or see it in a different light. Therefore, the impact of interactivity on data interpretation and comprehension is that users are not just passive consumers, but they are active in obtaining knowledge.

UI/UX Design Principles

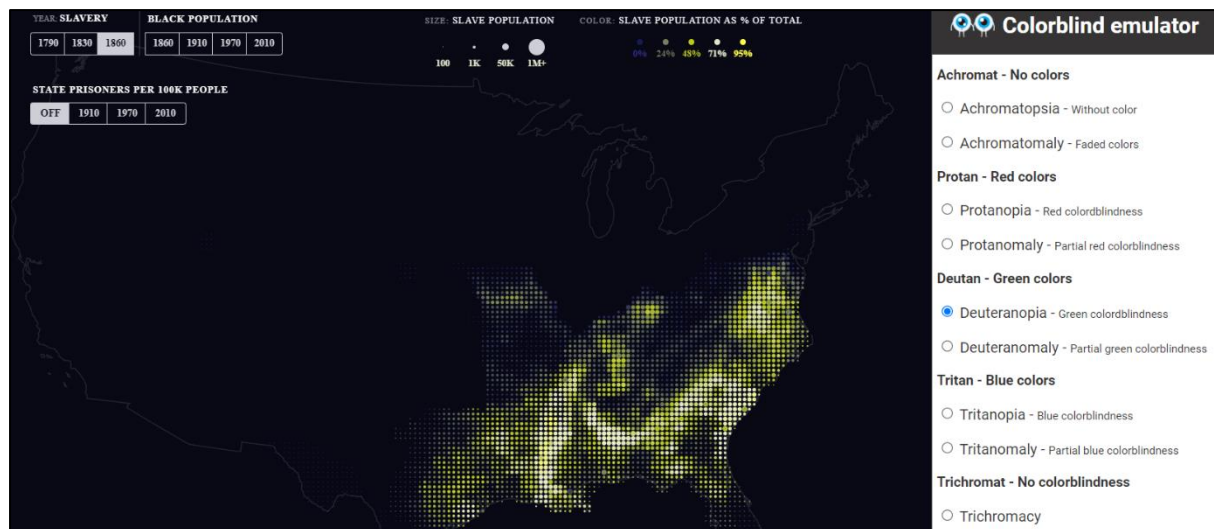
The UI/UX design principles present in this data visualisation are “clarity, simplicity, consistency, feedback, usability, hierarchy, and accessibility (Direduryan, 2023). The information displayed in the visualisation, is clear and easy to understand, also, the map, nav bar, and legends have simple designs. The colour scheme and layout are consistent, even when the map’s data changes, and the user gets feedback each time they interact with the UI elements i.e. the text colour changes when hovering on a date in the nav bar. The visualisation is usable, because it does not have any no errors or unconventional interactions. In terms of hierarchy, the most important part of the project is the map, and it takes up the most space on the page. Another important part is the nav bars and they also take up a large amount of space in the top left corner. The least important part is the legends, and they are the smallest elements on the screen. Lastly, this project is accessible because it has a dark background so it will be easy on the user’s eyes. It is also accessible to users with different types of colour blindness (see Figures 5-8).



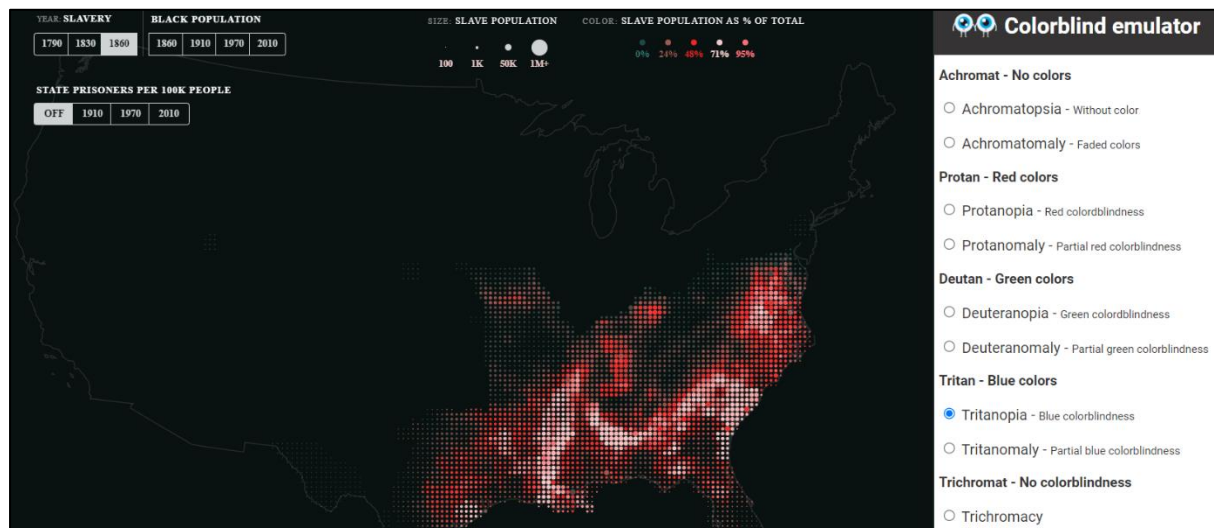
[Figure 5: screenshot showing how people with Protanopia see the map]



[Figure 6: screenshot showing how people with Achromatopsia see the map]



[Figure 7: screenshot showing how people with Deutanopia see the map]

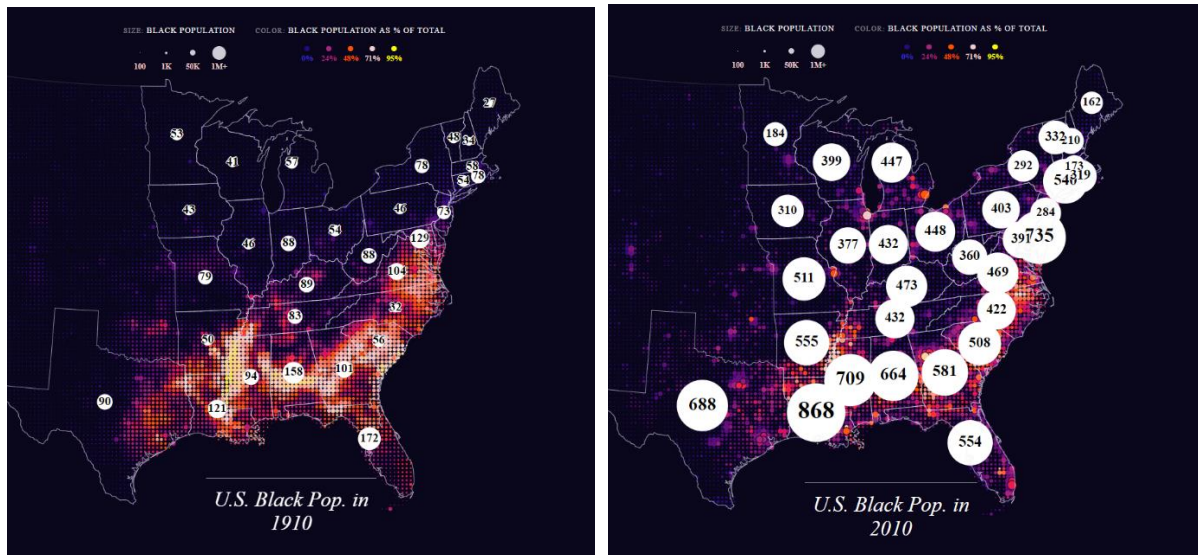


[Figure 8: screenshot showing how people with Tritanopia see the map]

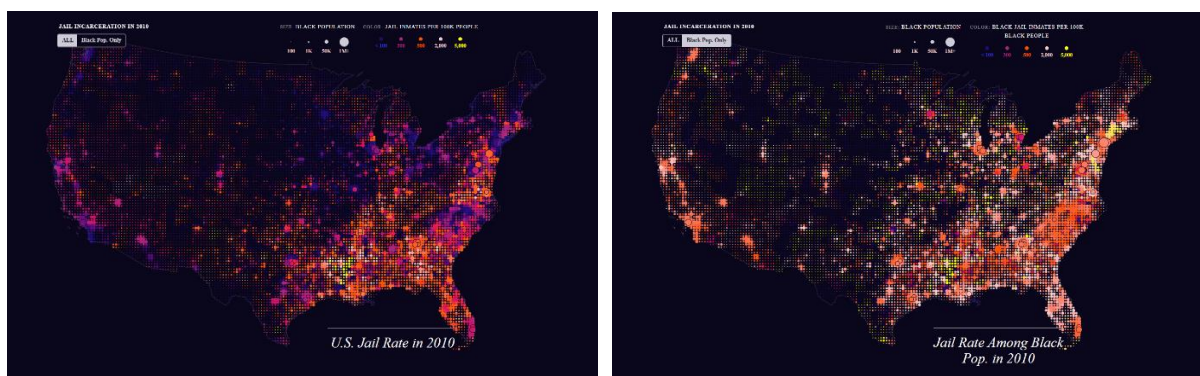
These UI/UX techniques have significantly influenced the way I interacted with the data and informed my understanding of it. By having a clear visual hierarchy, I knew what to focus on and what to ignore. By having a consistent layout and colour scheme I was able to understand the relationship between the slave populations of 1860 and the population of incarcerated people in 2010. This is because the colours of the dots remained the same, so it was easy to build that connection, also, each time the map's data changed, the layout remained the same. In general, I found the project to be visually appealing and it was able to understand the data, which gave me a good user experience.

Data-Driven Storytelling

This project combines narrative elements with data-driven storytelling in the way it represents the black population and state prisoners for each year. Population is represented by the coloured dots and state prisoners are represented by white circles on the map. As seen in Figures 10 and 11, the number of state prisoners was relatively low in 1910, with the highest being 172, and the number kept increasing until 2010, where the highest was 868. This creates the narrative that the states with the highest number of slaves, eventually had the highest black population, and it is where most prisoners are found. This is further illustrated in Figures 12 and 13, where 12 shows the number of prisoners across races and 13 shows the number of black prisoners and, in each one, the highest number of prisoners can be seen in the South.



[Figure 10 & 11: screenshots showing the number of prisoners in 1910 and 2010]

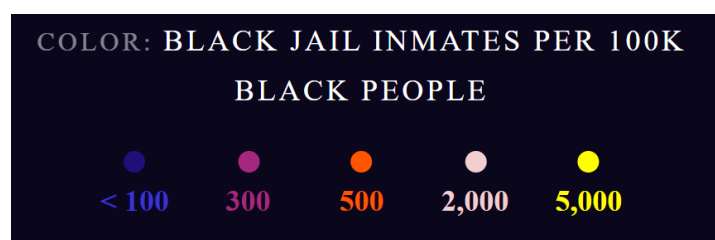


[Figure 12 & 13: screenshot showing the number of prisoners and the number of black prisoners in 2010, respectively]

Overall, the importance of narrative in communicating complex information is to make it easy for the user to remember. I was able to remember and understand the significance of the data because the project represented it with colours and circles, and I would not have been able to do so had I just read the accompanying article. This is because “by making the data we want to show, relevant to our audience, it becomes a pivotal point in our story” (Knafllic, 2015, p.185).

Emotional Impact

The colour palette used in the data visualisation contributes to the serious tone of the project and the overall message. Firstly, the background colour of the visualisation is navy blue, therefore, it sets up a dark tone or mood for the user. In the legend, the colours blue, purple, orange, pink, and yellow represent the number of black inmates. These colours, besides blue, are described as warm colours and they are conventionally used to denote danger. Therefore, their use in this project, will show the user that they are representing something negative as opposed to cool, pastel colours that might represent something light and positive. In a way, the “designers [settled] for establishing the context for an emotion rather than the emotion itself” (Hassenzahl and Tractinsky, 2006, p.94). This means that instead of expecting users to understand the severity of the numbers, they associated them with colours so that users can make connections between their understanding of the colour, and the number it represents.



[Figure 9: screenshot showing how inmates are represented on the map]

Conclusion

In the analysis of “The Shape of Slavery” I learnt that data visualisation is not just about displaying appealing visuals, but it is also about constructing meaning or conveying a narrative. I also learnt that there should be a clear relationship between the different elements i.e. the shapes, colours, numbers and the graph/map should communicate

with each other. These insights will be applied to my own data visualisation projects in the future by guiding me not to spend too much time on aesthetics and actually focus on storytelling and meaning-making.

Word Count: 1570

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