

Theory Section: Data Visualisations for Social Good

This section delves into the rationale behind the design and implementation of two D3.js visualisations that embody the principles of compassion and generosity found in biblical teachings and community support initiatives. These visualisations—focusing on Bible verses related to giving to the poor and homeless shelter locations in South Africa—aim to blend technology with spirituality, fostering a deeper connection between users and these important themes.

Bible Verses Visualization Page

Concept and Design

The Bible Verses Visualization Page is built on the premise that scripture can offer guidance and inspiration in our interactions with others, particularly concerning generosity and compassion. By representing Bible verses through a dynamic D3.js visualisation, this project transforms traditional scripture engagement into an interactive experience.

The design features nodes orbiting around a central point, where each node symbolises a specific verse related to giving to the poor. This approach allows users to intuitively explore the relationships among verses, as verses from the same chapter are colour-coded. This method not only enhances user engagement but also enables immediate visual comprehension of thematic connections.

Researching D3.js Nodes

In preparation for implementing the node-based visualisation, extensive research was conducted on different types of node structures in D3.js. Resources such as the [D3.js official documentation](#) and various tutorials helped clarify the best practices for creating interactive and aesthetically pleasing node visualisations. Notably, the use of **force-directed graphs** was considered to create an engaging user experience. For reference, see Mike Bostock's Force-Directed Graph on Observable.

User Interaction

When users click on a node, they receive a pop-up displaying the corresponding Bible verse. This feature promotes an immersive experience, encouraging users to reflect on the significance of each verse. The design aligns with the mission of HHD, which seeks to inspire individuals to act on biblical teachings regarding charity and support for those in need.

The interactive nature of the visualisation fosters a sense of community and shared purpose, encouraging users to engage with the scriptures actively. By blending technology and spirituality, this visualisation creates an environment that invites users to contemplate the vital messages of compassion and charity found within the Bible.

Aesthetic Considerations

The combination of colour-coded verses and an orbiting node structure not only enhances the visual appeal but also creates an aesthetically pleasing design that captures users' attention. This design strategy reflects the project's goal of creating an engaging and

meaningful interaction with scripture, reinforcing the themes of generosity and support for the less fortunate.

Homeless Shelters Visualisation Page

Purpose and Functionality

The Homeless Shelters Visualization Page serves as a critical tool for connecting individuals in need with resources. Utilising a D3.js choropleth map, this page visually represents the locations of homeless shelters across South Africa, employing a clear colour-coding system. Areas marked in red indicate shelter locations, allowing users to quickly identify where assistance is available.

Researching D3.js Maps

To design the choropleth map, extensive research was conducted on various mapping techniques and resources available in D3.js. The D3.js map tutorial offers an excellent overview of creating choropleth maps, providing insights into colour scaling, data binding, and interactivity.

Challenges with APIs in South Africa

Finding APIs in South Africa proved to be somewhat challenging, as the availability and quality of data vary significantly. However, I persevered through these challenges, pivoting to alternative visualisation methods such as bar charts and node-and-edge representations. This pivot allowed for maximising tooltips and interactivity, ensuring that the visualisations remained engaging and informative. I explored several South African APIs, including resources like [Data.gov.za](https://data.gov.za) and the [South African Open Data Portal](https://data.gov.za), which provided valuable datasets to enhance the accuracy of the project.

Information Accessibility

Hovering over a shelter area reveals detailed information, including the shelter name, location, province, price per week, and relevant crime statistics. This transparency ensures that users have access to crucial information, empowering them to make informed decisions about seeking assistance. For instance, upon hovering over a specific area, users might see a notification like:

- **SHELTER NAME:** HHD
- **LOCATION:** Johannesburg CBD
- **PROVINCE:** Gauteng
- **PRICE PER WEEK:** XXXX
- **CRIME STATS:** XXXX

This approach not only enhances usability but also addresses the often-overlooked aspect of safety and costs associated with seeking shelter.

User-Centric Design Features

To improve user experience, the map includes a zoom-in feature at the bottom. This functionality is especially valuable in densely populated areas, where multiple shelters might be located close to each other. By allowing users to zoom in, the map facilitates easy navigation and helps users find the most relevant resources quickly.

Alignment with Mission

Overall, this choropleth map reinforces HHD's mission by providing critical information to individuals seeking assistance. It highlights available support in communities, promoting awareness of resources designed to aid those experiencing homelessness. The combination of data visualization and essential information serves as a powerful reminder of the importance of community support and assistance for the less fortunate.

Conclusion

Both visualizations utilize cutting-edge technology and serve as platforms for promoting essential values such as compassion, generosity, and community support. By integrating scripture with practical resources, these visualizations create an engaging and meaningful experience, encouraging users to reflect on the teachings of charity and the importance of helping those in need. Through this innovative approach, HHD aims to inspire action and foster a sense of responsibility toward supporting the poor and marginalized in society.