

Diversity and Inclusion – A dive into queer rights and acceptance around the globe.

Source: <https://www.lbcc.edu/sites/main/files/imagecache/lightbox/main-images/lgbtq-resources-tile.jpg>

Table of Contents

<i>Introduction:</i>	3
<i>Design:</i>	3
<i>Implementation:</i>	4
<i>Deviation from Design Sheets:</i>	4
<i>User Guide:</i>	5
Legal and Other Rights:	5
Religion and Acceptance:	6
Crime and Punishment:	7
Travel:	7
<i>Conclusion:</i>	8
<i>Bibliography:</i>	9
<i>Appendix:</i>	10

Introduction:

I am a queer in tech from a third world country where homosexuality is not as much accepted as it is here in Australia. Currently there have been world-wide developments in the laws and amendments in various countries with USA banning drag culture in the state of Tennessee and India having a Supreme Court Hearing about the legalisation of same sex marriage.

I feel this is an important topic to have insights on. Therefore, my aim is to compare various outlaws prevalent in all the countries and effects on workplace diversity and inclusion using a survey data.

This project tries to answer the following questions:

- Legality of homosexuality around the globe. Religion and its impact over the acceptance.
- Severity of the laws against the queer community in the countries still considering it illegal.
- Travel preferences for the people within the community.
- Comparing the queer rights and protection across the countries which includes the constitutional, right to marriage and employment protection.

Design:

The data visualization project has been developed using R and Shiny with the designing and brain storming based on Five Design Sheet method. Design and Implementation is based on keeping the target audience i.e., the general audience in mind, for them to easily comprehend the story and make meaning of the visualizations.

Design Sheet-1 was used to brainstorm possible visualizations and tools that can help develop the project. Among all the possible ideas the most suitable ones are selected. It also explores all the categories and possible grouping of data along with the visuals which are best fitted together.

Design Sheet-2 discuss about use of heat map and bar graphs which has possible cons. Since our data talks about Demographics and not of any continuous data the use of heat map becomes absurd here. The bar graph is used to compare various rights and their percentage distribution which is redundant and way too compact to fit in the data that we have. This makes the stacked bar graph quite congested to hold the data in.

Design Sheet-3 was based on the comparative analysis of distribution of legality of LGBTQIA+ society. Pie or Donut chart were considered for this task. Although this sheet covers a very small aspect of the bigger picture therefore making it not fit enough for answering our questions. Therefore, a need to include other element and data is needed here.

Design Sheet-4 talks about a packed bubble chart that shows the type of punishments used by different countries against queer people as a criminal offense. The bubble chart seems to be the most logical and appropriate choice for this visualization to convey the story. The line chart, however, is going to display the trends in most likely to be visited countries by the community members. There was used a design implementation of showing the trend lines animated which shows the popularity of the countries over the years.

Design Sheet-5 is the final implementation sheet which captures the proposed layout of the visualization project. This design includes a comic stripe style display of the story. This will start with a map showing legal status of community across the globe. Followed by this, it will also capture a pie chart and packed bubble chart which will depict the percentage distribution of rights and punishments respectively.

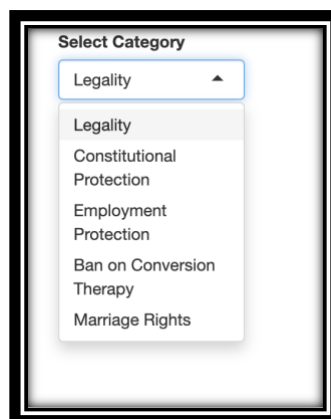
Implementation:

R and Shiny has been utilised to perform data handling and putting this project together using the below libraries:

- **tidyverse and dplyr:** performs data analysis and manipulation.
- **ggplot2, ggforce and leaflet:** generates interactive visual plots.
- **sf, rnatrualearth and rnatrualearthdata:** earth data to generate world maps.
- **shiny:** creating R Shiny application.

Deviation from Design Sheets:

- In design sheet a heatmap was proposed to show the legality of queer people across the globe which is not technically appropriate for the kind of demographic data that we have. Instead, it has been replaced with a choropleth map which shows the country providing legal status rather than showing both legal and illegal.
- Also, a drop down was suggested with name of the countries which seems to be inadequate. It has been replaced with drop down showing different kinds of rights which changes the map to show the countries providing these rights to the community.



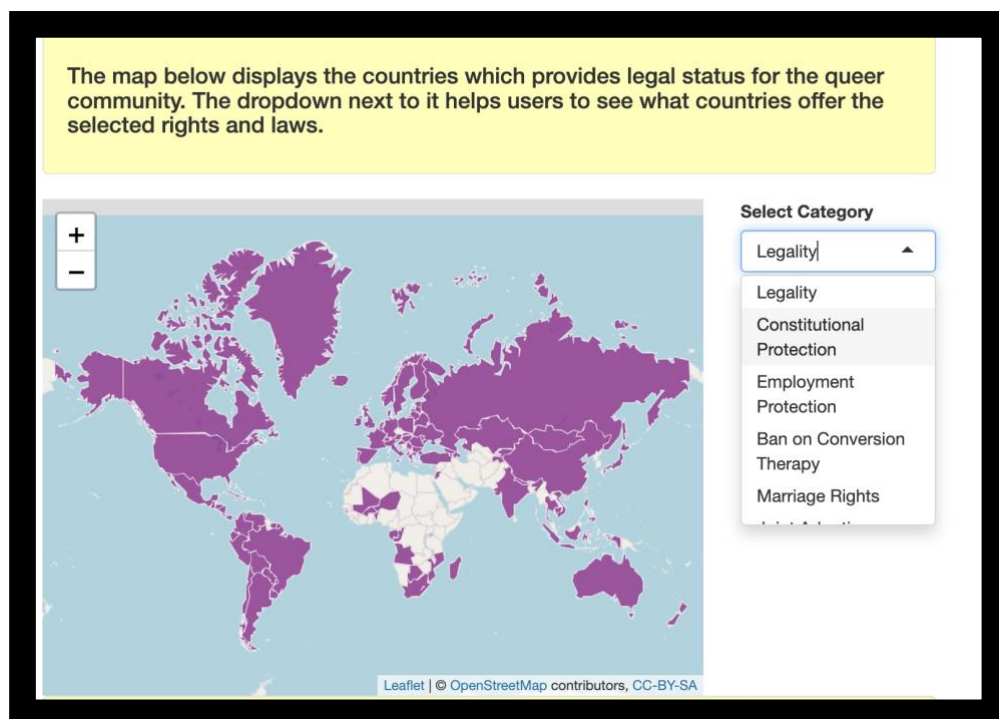
- The pie chart showing percentage distribution of these rights has also been linked to the dropdown which will change the chart according to selected drop down value.
- The packed bubble chart has been replaced with a donut chart as the packing of the circles was causing text to overlap making it hard for the visual to be comprehended.
- Instead of showing most 5 visited countries over the years now user will have the option to select 5 most and least likely to be visited countries. A radio button has been added for user to select their desired output.

User Guide:

It is a single paged scrollable shiny app which is based on comic strip view. The view follows a sequential order of the questions we have trying to visualize throughout the project.

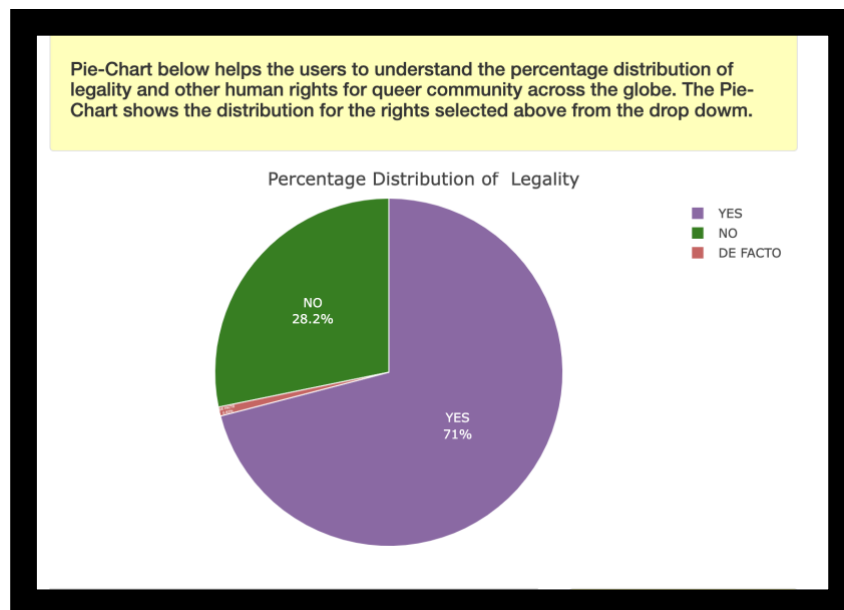
Legal and Other Rights:

The first section of the page uses choropleth map and pie chart to help us visualize the countries and their percentage distribution which provides legal and other rights to the members of the community. Right next to the map a drop down is provided to select the kind of rights users want to visualize. By default, the value is set to Legal which shows the countries legally accepting the community. The drop down lets users choose rights like Constitutional, Employment, Marriage, Adoption and Ban on Conversion Therapy.



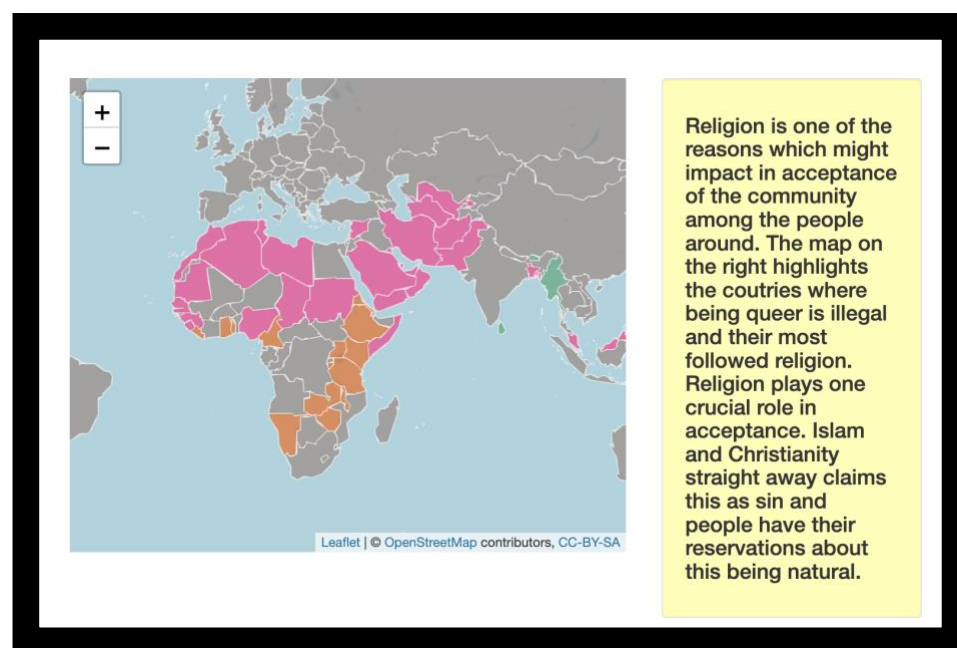
Along with the map we will be able to see percentage distribution of the countries abiding by these laws. The pie-chart is also linked to this drop down which will show distribution

according to the chosen dropdown value. Both map and pie chart have hover functionality which shows the respective values of the areas under the mouse cursor.



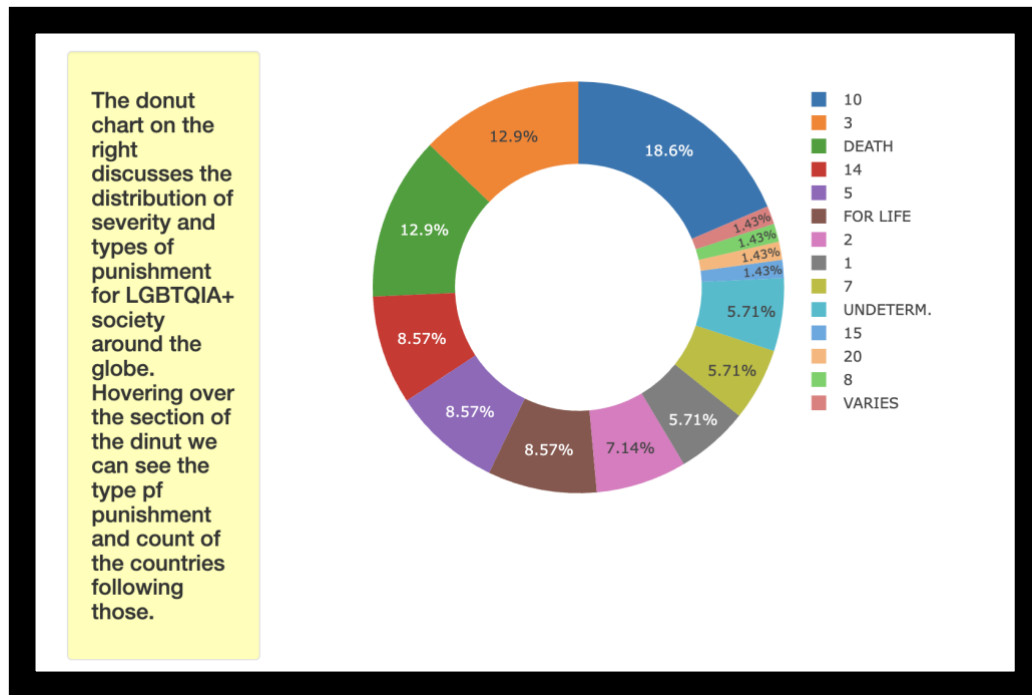
Religion and Acceptance:

Choropleth map is used to visualize the major religion of the countries where same-sex relationship is still illegal. The map provides additional interaction of seeing the religion when hovered over a country. This map is color coded based on different religions. Hover implementation helps users to see the most followed religion in the country.



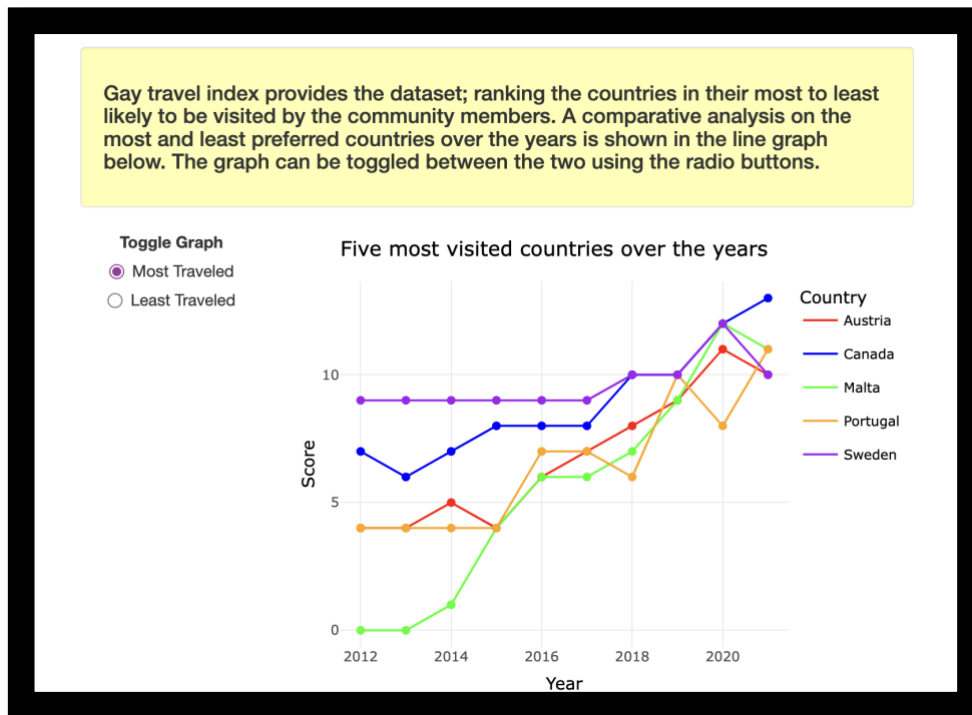
Crime and Punishment:

Donut chart is used to understand the brutality of the punishment in the countries where homosexuality is a crime. The chart is color coded with respect to the type of punishment in years and displaying distribution and number of countries with that kind of punishment.



Travel:

We use line chart to see the trends in most and least preferred countries for queer community members to travel to. The users are provided with radio buttons to select their choice of the graph. It shows a comparative analysis between 5 countries over the years.



Conclusion:

This data exploration project gives a clear insight on the diversity and inclusion around us. This has been helpful to find the answers to the questions that were posed in the beginning. Homosexuality and Gender Sciences has been an ever developing and debatable topic. All this data exploration gives us a sense of the vulnerability of the community and how the basic human rights are still missing for a particular set of the community. Also, this gives us the understanding of the areas in the laws and the region around the globe where we need to focus, educate, and spread awareness about these rights and their violations. Religion however prominent but cannot be single factor in people's acceptance towards queer community.


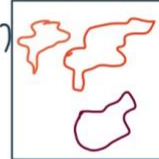

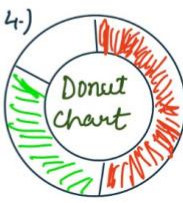
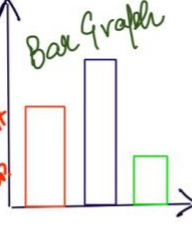
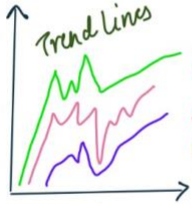
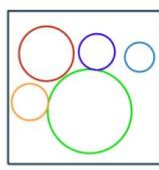
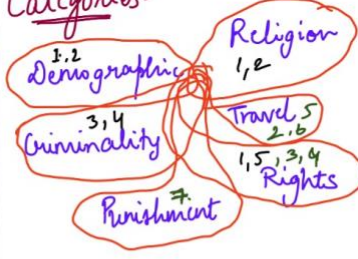
This project provides a detailed experience in developing techniques to study and analyse vast data in various formats and sources. It has provided me with skills to link various data sources together and make use of them using wrangling techniques. It has helped me brush up my skills in R programming and Tableau. I was introduced to new libraries and tools to tackle my problems.

Though I was able to achieve my desired outputs I feel, the dataset could have been more diverse. Economic and Literacy data of the countries could have been used in this project to support my results and findings.

Bibliography:

1. [Data Analytic]. (2020, October 5). *R beginners: How to create a circle packing chart in ggplot* [Video]. Youtube. <https://www.youtube.com/watch?v=jKIR2-QpaI4&t=213s>.
2. (n.d.). *Donut chart with ggplot2*. The R Graph Gallery. Retrieved June 4, 2023, from <https://r-graph-gallery.com/128-ring-or-donut-plot.html>
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4. (n.d.). Pie Charts in R. Plotly. Retrieved June 1, 2023, from <https://plotly.com/r/pie-charts/>
5. Parashar, P. *Research_Proposal_31940757*
6. Parashar, *Data_Exploration_Project_31940757*

Appendix:

<h1>Sheet-1</h1>		<p><u>Title</u>: FITS147 DVP</p> <p><u>Date</u>: 15/05/2023</p> <p><u>Author</u>: Pragy Parashar</p>
<p><u>Ideas</u>:</p> <p>1.) <u>map</u></p>  <p>2.) <u>Heat Map</u></p>  <p>3.) <u>Pie Chart</u></p>  <p>4.) <u>Donut Chart</u></p>  <p>5.) <u>Bar Graph</u></p>  <p>6.) <u>Trend Lines</u></p>  <p>7.) <u>Bubble Chart</u></p> 		<p><u>Filter</u>:</p> <ul style="list-style-type: none"> • 1 & 2 are used to plot geographical demographics. • 3, 4, 5 explains proportional distribution of types of criminality & rights. • 7 Can be a little ambiguous if not color coded.
<p>2. How to implement colour & animation?</p> <p>3. If the info. is simple & understandable enough to be comprehended by general audience?</p> <p>4. Are the plots sufficient enough to convey the necessary information?</p>		<p><u>Categories</u>:</p> 
		<p><u>Combine & Refine</u>:</p> <p>Pie & Donut chart can depict similar information</p> <p>Bar graph should be changed to stacked bar for more information & comprehension.</p>

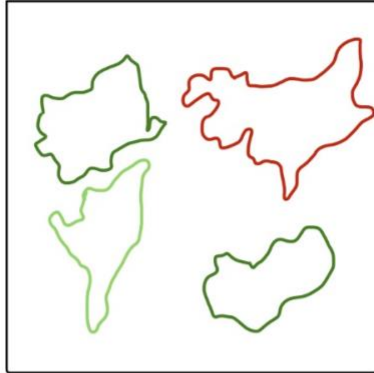
Layout:

FIT5147 DVP

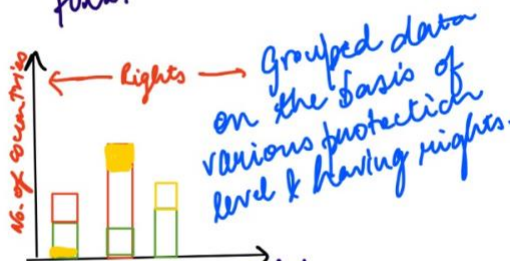
Sheet 2

15/05/2023

Pragy Panashan



Heat map depicting most to least safe places for queer folk.



Stacked Bar charts describes the count of countries with various rights

Focus:



maps are scrollable & selecting a region displays info in a pop up.

Operations:

- Clicking over a region on the heat map pops up a display about inclusivity & rights in the region.
- Grouping data to produce other desired visualizations
- Animating trend lines for top ranking countries over the years.

Region

Country 1

Country 2

Country 3

Country 4

interactive drop-down to select a country on map.

- Color coding the stacked bar graph to make it more comprehensible.

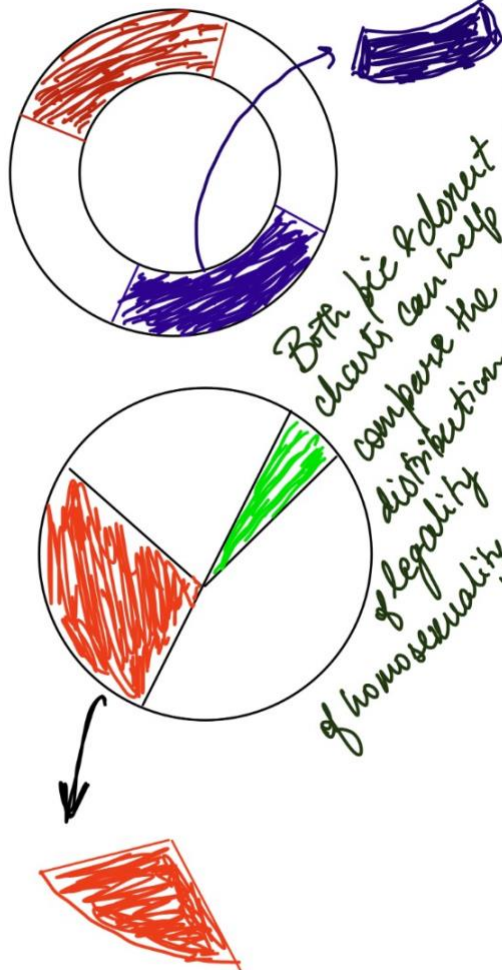
Layout:

Sheet 3

PIT 5147 DNP

15/05/2023

Pragy Parashar



Operations:

→ color coding the areas in the pie charts & donut charts.

→ grouping data to achieve desired charts.

→ the selected area pops up visually highlighting the selected section:

Pros:

Visually can easily convey the information.

Cons:

Data has to be highly selective.

Only a selected number of features can be used.

Focus: selected sections highlights & pop ups from the chart.

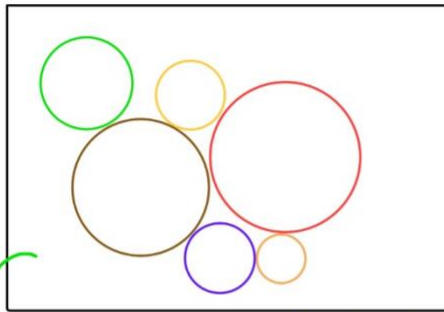
Layout:

Sheet 4

FIT5147 DVP

15/05/2023

PRAGY PARASHAR



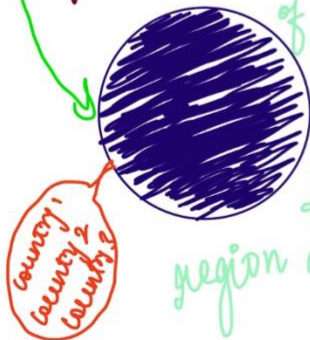
Bubble chart depicts the type of punishments & no. of countries.

Operations:

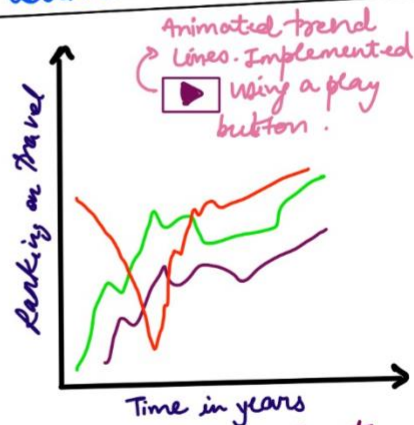
→ The bubble chart will be color coded with the type of punishment around the world.

→ Also size of the bubble depicts number & distribution of the countries.

Focus:

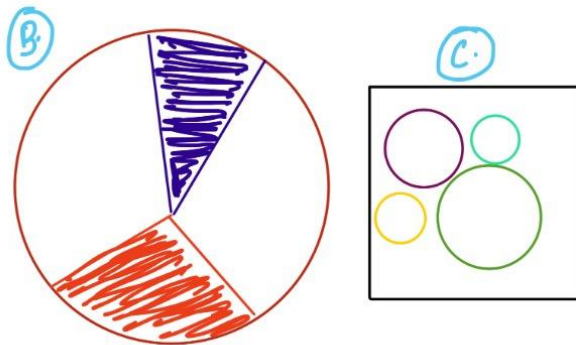
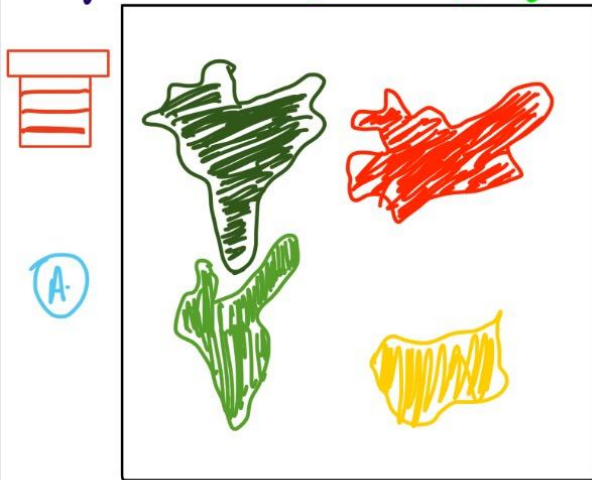


the selected region of the chart pops up & list of countries falling in that region are shown:



This trend line chart will show the ranking of top countries with highest ranking around the globe

Layout: hegality around the globe.



Distribution of Data

Focus:

A. Region pops up when mouse hovers over an area on the map. Displays the hegality of Queen folks in the region.

B. Highlighting sections in the pie chart displaying the distribution.

C. Bubble chart shows the countries & different penalties for the criminal offence.

FIT5147 DVP

Pragy Parashar

15/05/2023

Sheet-5

Operations:

→ Dropdown to select & visualize the region & country.

→ Religious distribution of countries.

→ Category provided for the kind of punishment in various regions.

Discussion:

→ Dataset is cleaned & wrangled using R & excel.

→ Needs to be comprehensible enough for the targeted audience.

→ Dashboard is designed using R & shiny.