Story Telling with Open Data

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R Pubs URL: ** https://rpubs.com/HarshithHS004/1051346**

Assignment Code: R Markdown all the raw code

- **Worldwide Road Traffic Deaths (1990-2019):**

  Objective

  The main objective of the above data visualization aims to show the analysis and comprehension of historical trends, patterns, and factors influencing road traffic fatalities is the primary goal of this study of road accident fatalities from 1990 to 2019.

- **Targeted Audience**

  The targeted audience for Worldwide Road Traffic Deaths is the policymakers, transportation authorities, and researchers can use this information to their advantage In order to reduce traffic accidents and increase road safety.

raw code:

```
---
title: "World Wide Road Traffic Deaths"
output:
  flexdashboard::flex_dashboard:
    orientation: columns
    vertical_layout: fill
runtime: shiny
---
```

```{r setup, include=FALSE}

```
library(flexdashboard)
library(tidyr)
library(dplyr)
library(ggplot2)
library(forecast)
```

```
library(plotly)

library(highcharter)

library(readr)

library(ggplot2)

library(dplyr)

library(tidyr)

library(extrafont)

library(tinytex)

# Read the road_accidents.csv dataset

Sample_Road<-read.csv("road_accidents.csv", header =TRUE)

# Read the road_accident_based_gender.csv dataset

Sample_gender<-read.csv("road_accident_based_gender.csv", header =TRUE)

Sample_Road_gender<-gather(Sample_gender, key="Gender", value= "Deaths_Percentage_per_100k",

    Male:Female)
```

 # Countries

Column {data-width="650"}

Road accident Death by Country from the Year 1990 - 2019, Visualize the each country and corresponding death until 2019.The main objective is to examine and comprehend the historical trends, patterns, and causes of traffic fatalities.The targeted audience are Policymakers, transportation authorities, researchers, and public health professionals can use this information to implement efficient measures to lower traffic accidents and increase road safety.

```{r}

```
# Download the map data

library(plotly)

library(RColorBrewer)

# map data

map_data <- map_data("world")

# Group and summarize the data
```

```
country_tibble_sample <- Sample_Road %>%select(Country, Deaths) %>%
                group_by(Country) %>%
                summarize(Death_Capita = round(sum(Deaths)), .groups = "keep") %>%
                arrange(Death_Capita)
#Cutomise the color
custom_colors <- c("#7FFFD4", "darkcyan","orange","red","darkred"  )


# Create the choropleth map
plot_ly() %>%
  add_trace(
    type = "choropleth",
    locations = country_tibble_sample$Country,
    locationmode = "country names",
    z = country_tibble_sample$Death_Capita,
    #hoverinfo ='text', text=~paste(  "Country: ", country_tibble_sample$Country,
"<br>Deaths: #", country_tibble_sample$Death_Capita),
    text = paste("Country: ", country_tibble_sample$Country, "<br>Deaths: ",
country_tibble_sample$Death_Capita),
    colorscale = list(
      list(0, "#7FFFD4"),
      list(0.2, "darkcyan"),
      list(0.4, "orange"),
      list(0.8, "red"),
      list(1, "darkred")
    ),
    zmin = 0,
    zmax = 10000000,
    colorbar = list(
      title = "Deaths",
      x = 0,
```

```
    xanchor = "left",
    y = -0.2,
    yanchor = "bottom",
    len = 0.9,
    thickness = 20,
    orientation = "h"
   )
  )  %>%
  layout(
   title = list(
    text ="<b>Worldwide Road accident and the Death by Country</b><br><b>1990-
2019</b>",
    y= 0.95,
    x = 0.5,
    xref ="paper",
    yref="paper",
    font=list(
     size = 20,
     color = "black"
    )
   ),
   geo = list(
    showframe = FALSE,
    showcoastlines = TRUE,
    projection = list(type = "equirectangular"),
    height = 1000,
    width= 900,
    margin= list(l=50, r=50, b=50, t=50)
    )
  )
```

```

## Column {data-width="400"}

---

### Rapid change of Death from 1990 to 2019 based on Continents

```{r}

library(plotly)

# Download map data

#map_data <- download_map_data("custom/world-continents")

library(ggplot2)

library(bubblyr)

# Group and summarize the data

south_america <- c('Argentina', 'Brazil', 'Chile', 'Colombia', 'Ecuador', 'Guyana', 'Paraguay', 'Suriname', 'Uruguay')

library(countrycode)

Sample_Road$Continent <- countrycode(sourcevar = Sample_Road$Country,

origin = "country.name",

destination = "continent")

Sample_Road$Continent[Sample_Road$Country %in% south_america] <- 'South America'

Sample_Road$Continent[Sample_Road$Continent=='Americas'] <- 'North America'


continent_tibble_Year <- Sample_Road %>%select(Continent,Year, Deaths) %>%

group_by(Continent, Year) %>%

summarise(Death_Capita_rate = round(sum(Deaths)), .groups ='keep')

continent_tibble_Year <- continent_tibble_Year[!is.na(continent_tibble_Year$Continent), ]

library(plotly)

fig <- plot_ly(continent_tibble_Year, x =~Year, y=~Death_Capita_rate,color =~Continent,

hoverinfo ='text', text=~paste(  'Continent:', Continent, '<br>Year:', Year, "<br>Deaths:", Death_Capita_rate),

marker = list(size = 13))

fig<- fig %>% layout(

```
        title="Continents Rapid change of Death
1990 to 2019",
        font=list(
      size = 10,
      color = "black"
    ),
yaxis = list(zeroline = FALSE, title ="Death_Capita"),
       xaxis = list(zeroline = FALSE, title ="Year"))
fig
```

Charts represent Deaths by WHO Region and Genders Death rate over a period of time.

```{r}

```
library(plotly)
plot_ly(Sample_Road_gender,  x= ~WHO.region, y= ~Deaths_Percentage_per_100k, color = ~Gender,colors = c("#67a9cf","#ef8a62"), frame=~Year,
      hoverinfo ='text', text=~paste(" WHO.region:",WHO.region, '<br>Year:', Year, "<br>Deaths:", Deaths_Percentage_per_100k, '<br>Gender:', Gender)) %>%
  add_trace(type = "bar", mode="marker")%>%
  layout(title = "<b>Deaths by Region and Gender</b>",
      font=list(
      size = 10,
      color = "black"
       ),
       xaxis = list(title = "WHO Region"),
       yaxis = list(title = "Deaths Percentage per 100k")) %>%
  highlight("plotly_hover")
```

 # Search and Explore Country {data-icon="fa-search"}

Column {. sidebar}

Chart:Explore the individual country traffic death rate, select the year from 1990 - 2019 and the country you wish to explore.

```{r}

```
library(DT)
library(htmlwidgets)
library(shinyWidgets)
library(shiny)
Country_tibble_search <- Sample_Road %>%
  select(Country, Year, Deaths)%>%
  group_by(Country, Year) %>%
  summarise(Death_Capita_rate = round(sum(Deaths)), .groups="drop")
sliderInput(
  "year", "Year",
  min = min(Country_tibble_search$Year),
  max = max(Country_tibble_search$Year),
  value = c(min(Country_tibble_search$Year), max(Country_tibble_search$Year)),
  step = 1
)
selectInput(
  "country", "Country",
  choices = unique(Country_tibble_search$Country),
  multiple = TRUE
)
renderPlotly({
  filtered_data <- Country_tibble_search %>%
    filter(Country %in% input$country, Year >= input$year[1] & Year <= input$year[2])

  plot_ly(
    filtered_data,
```

```
    x = ~Year,
    y = ~Death_Capita_rate,
    color = ~Country,
    colors = sample(colours(), nrow(filtered_data)),
    type = 'scatter',
    mode = 'lines',
    hoverinfo = 'text',
    text = ~paste("Country:", Country, '<br>Year:', Year, "<br>Deaths:", Death_Capita_rate)
  ) %>%
    layout(
      showlegend = FALSE,
      font=list(
        size = 10,
        color = "black"
      ),
      title = "Road Accident Death By Country",
      xaxis = list(title = "Year"),
      yaxis = list(title = "Death_Capita_rate"),
      paper_bgcolor = 'transparent'
    ) %>%
    add_markers() %>%
    highlight("plotly_click")
})
```

Column {.tabset .tabset-fade .colored data-width="750"}

The line Chart represent the countries death at particular year from 1990 - 2019

```{r}

```
plot_ly(Country_tibble_search, x=~Year, y=~Death_Capita_rate,
```

```
      color=~Country, colors= sample(colours(), 240),

      type= 'scatter', mode='lines',

      hoverinfo ='text', text=~paste("Country:",Country, '<br>Year:', Year, "<br>Deaths:",
Death_Capita_rate))%>%

  layout(showlegend =FALSE,

       title="Road Accident Death By Country",

       xaxis= list(title="Year"),

       yaxis= list(title="Death_Capita_rate")) %>%

  layout(paper_bgcolor = 'transparent') %>%

  layout(paper_bgcolor='transparent') %>%

  add_markers()%>%

  highlight("plotly_click")
```

Column {data-width="250"}

Chart represent Highest to lowest Traffic Death rate by country and also total death in world, needs to be taken care to reduce the overall death rate

```{r}

```
continent_bar_tibble <- Sample_Road %>%

select(Country, Deaths) %>% group_by(Country) %>% summarise(Death =
round(sum(Deaths)), .groups ='keep') %>%

 arrange(desc(Death))

highchart() %>% hc_add_series(continent_bar_tibble, hcaes(x = Country, y = Death, color =
Death), type = "bar", color = "#67a9cf") %>%hc_title(text = "Highest to lowest Traffic Death
by country ") %>%. hc_subtitle(text = "1990-2019") %>% hc_plotOptions(bar = list(stacking =
"normal"))%>%  hc_xAxis(categories = continent_bar_tibble$Country, labels = list(step = 1),
min = 0, max = 24, scrollbar = list(enabled = TRUE)) %>% hc_yAxis(title = list(text = "Death"))

####

plot_ly(data = continent_bar_tibble,  x = ~Country, y = ~Death, type = "bar") %>%

  layout(title = "Death by country",

    subtitle = "1990-2019",

    xaxis = list(
```

```
    type = "category",
    tickmode = "array",
    tickvals = seq(1, length(continent_bar_tibble$Country)),
    ticktext = continent_bar_tibble$Country,
    range = list(0, 12),
    showticklabels = TRUE,
    showline = FALSE,
    showgrid = FALSE,
    tickfont = list(size = 12),
    tickangle = 45,
    ticklen = 5,
    automargin = TRUE,
  scrollbar = list(enabled = TRUE)
  ),
  yaxis = list(title = "Death"),
  plot_bgcolor = "transparent",
  paper_bgcolor = "transparent",
  showlegend = FALSE,
  bargap = 0,
  bargroupgap = 0.2
 )
```

Objective

The main objective of the above data visualization aims to show the analysis and comprehension of historical trends, patterns, and factors influencing road traffic fatalities is the primary goal of this study of road accident fatalities from 1990 to 2019.

Targeted Audience

The targeted audience for Worldwide Road Traffic Deaths is the policymakers, transportation authorities, and researchers can use this information to their advantage In order to reduce traffic accidents and increase road safety.

Reference

- *Worldwide Road Accidents*. (2022, March 21). Kaggle. https://www.kaggle.com/datasets/malikhamzanawaz/world-wide-road-accidents
- *Road traffic deaths*. (n.d.-c). Our World in Data. https://ourworldindata.org/grapher/road-traffic-deaths-sdgs
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- Baglin, J. (2023b, February 16). *Chapter 10 Dashboards | Data Visualisation: From Theory to Practice*. https://dark-star-161610.appspot.com/secured/_book/dashboards.html
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