Ruth Maina; DSC640 Week 9 & 10; Feb 14, 2024

5.2 Exercises: Heat Maps, Spatial Charts, and Lollipop Charts

INSTRUCTIONS:

These two weeks we are going to be focused on **heat maps, spatial charts, and lollipop charts** and using various tools to create these visualizations. You must consolidate all the charts into ONE document with each chart labeled with the type of chart and technology - for example: Python - Bar Chart. Failure to label and consolidate the charts will resort in points being taken off or a 0 for the assignment.
Sample Datasets (click on the Downloads tab.)
You may also download them directly from this link:
Exercise 5.2 Datasets (click the link to download a folder containing the datasets.)
You need to submit:
1 heat map, 1 spatial chart and 1 lollipop using Tableau or PowerBI
1 heat map, 1 spatial chart and 1 lollipop chart using Python
1 heat map, 1 spatial chart and 1 lollipop chart using R

ASSIGNMENT RESPONSE BEGINS HERE:

R-code for loading dataset:

```
> excel_file_path <- "C:/Users/ruthk/OneDrive/Ruth School/Ruth Bellevue/DSC640/costcos-geocoded.csv"
> library(readxl)
> basketball_df <- read.csv(excel_file_path)
```

R – code and output below - heat map:

```
> basketball_df<- basketball_df[order(basketball_df$PTS, decreasing = FALSE),]
> row.names(basketball_df) <- basketball_df$Name
> basketball_df <- basketball_df [,2:20]
> game_matrix <- data.matrix(basketball_df)
> game_heatmap <- heatmap(game_matrix, Rowv=NA, Colv=NA, col = cm.colors(256), scale='column', margins=c(5,5))
```
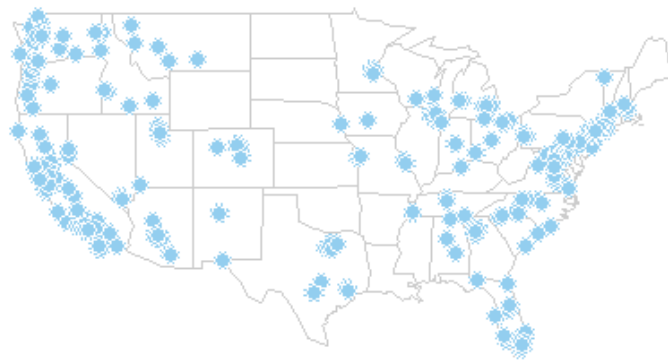
R – Basketball Stats:
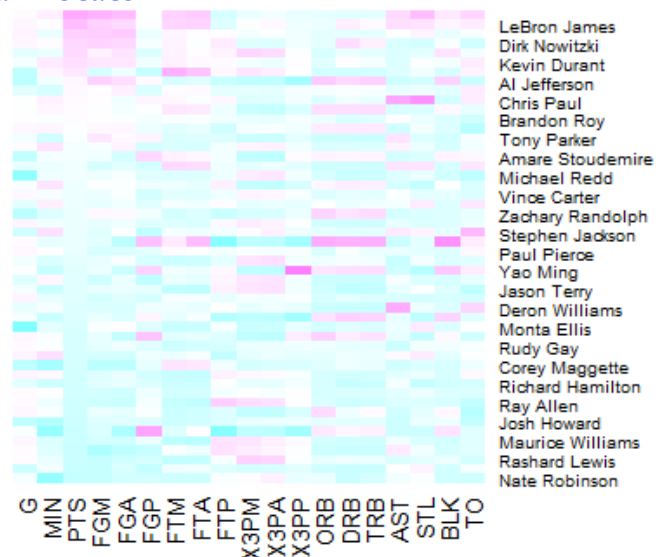
R – code and output below - <mark>spatial chart</mark>:

```
> library(maps)
> excel_file_path <- "C:/Users/ruthk/OneDrive/Ruth School/Ruth Bellevue/DSC64
0/costcos-geocoded.csv"
> costcos_df <- read.csv(excel_file_path)
> map(database="state", col="#cccccc")
> symbols(costcos_df$Longitude, costcos_df$Latitude, bg="#93ceef", fg="#fffff
f", lwd=0.5, circles = rep(1, length(costcos_df$Longitude)), inches = 0.05, a
dd=TRUE)
```
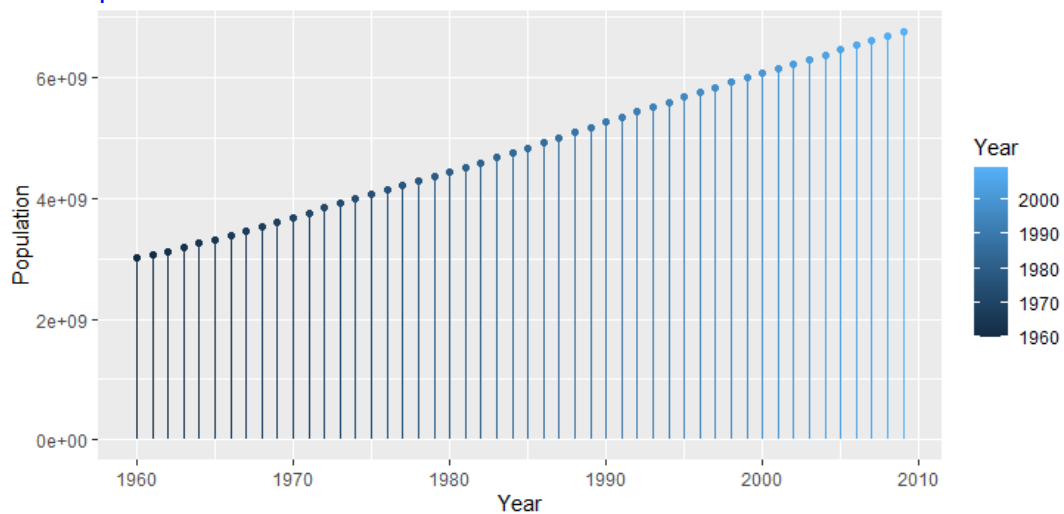
R- Costcos Locations:

R – code and output below – <mark>lollipop chart</mark>:

```
> excel_file_path <- "C:/Users/ruthk/OneDrive/Ruth School/Ruth Bellevue/DSC64
0/ex2-2/world-population.xlsx"
> world_df <- read_xlsx(excel_file_path)
> library(ggplot2)
> ggplot(world_df, aes(x=Year, y=Population, color=Year)) + geom_point() + ge
om_segment(aes(x=Year, xend=Year, y=0, yend=Population))
```

R – World Population:

Power BI – heat map:

US Unemployment Rate by Year and Period

Year	M01	M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12
1982	8.60	8.90	9.00	9.30	9.40	9.60	9.80	9.80	10.10	10.40		
1983		10.40	10.30	10.20	10.10	10.10	9.40	9.50	9.20	8.80	8.50	8.30
2009	7.70	8.20	8.60	8.90	9.40	9.50	9.40	9.70	9.80	10.10	10.00	10.00
1975	8.10	8.10	8.60	8.80	9.00	8.80	8.60	8.40	8.40	8.40	8.30	8.20
1976	7.90	7.70	7.60	7.70	7.40	7.60	7.80	7.80	7.60	7.70	7.80	7.80
1981	7.50	7.40	7.40	7.20	7.50	7.50	7.20	7.40	7.60	7.90	8.30	8.50
1984	8.00	7.80	7.80	7.70	7.40	7.20	7.50	7.50	7.30	7.40	7.20	7.30
1992	7.30	7.40	7.40	7.40	7.60	7.80	7.70	7.60	7.60	7.30	7.40	7.40
1985	7.30	7.20	7.20	7.30	7.20	7.40	7.40	7.10	7.10	7.10	7.00	7.00
1980	6.30	6.30	6.30	6.90	7.50	7.60	7.80	7.70	7.50	7.50	7.50	7.20
1977	7.50	7.60	7.40	7.20	7.00	7.20	6.90	7.00	6.80	6.80	6.80	6.40
1986	6.70	7.20	7.20	7.10	7.20	7.20	7.00	6.90	7.00	7.00	6.90	6.60
1993	7.30	7.10	7.00	7.10	7.10	7.00	6.90	6.80	6.70	6.80	6.60	6.50
1991	6.40	6.60	6.80	6.70	6.90	6.90	6.80	6.90	6.90	7.00	7.00	7.30
1958	5.80	6.40	6.70	7.40	7.40	7.30	7.50	7.40	7.10	6.70	6.20	6.20
1961	6.60	6.90	6.90	7.00	7.10	6.90	7.00	6.60	6.70	6.50	6.10	6.00
1987	6.60	6.60	6.60	6.30	6.30	6.20	6.10	6.00	5.90	6.00	5.80	5.70
1994	6.60	6.60	6.50	6.40	6.10	6.10	6.10	6.00	5.90	5.80	5.60	5.50
1978	6.40	6.30	6.30	6.10	6.00	5.90	6.20	5.90	6.00	5.80	5.90	6.00
1949	4.30	4.70	5.00	5.30	6.10	6.20	6.70	6.80	6.60	7.90	6.40	6.60
2003	5.80	5.90	5.90	6.00	6.10	6.30	6.20	6.10	6.10	6.00	5.80	5.70
1971	5.90	5.90	6.00	5.90	5.90	5.90	6.00	6.10	6.00	5.80	6.00	6.00
1979	5.90	5.90	5.80	5.80	5.60	5.70	5.70	6.00	5.90	6.00	5.90	6.00
2008	5.00	4.80	5.10	5.00	5.40	5.50	5.80	6.10	6.20	6.60	6.90	7.40

Power BI – spatial chart:

US murders by State
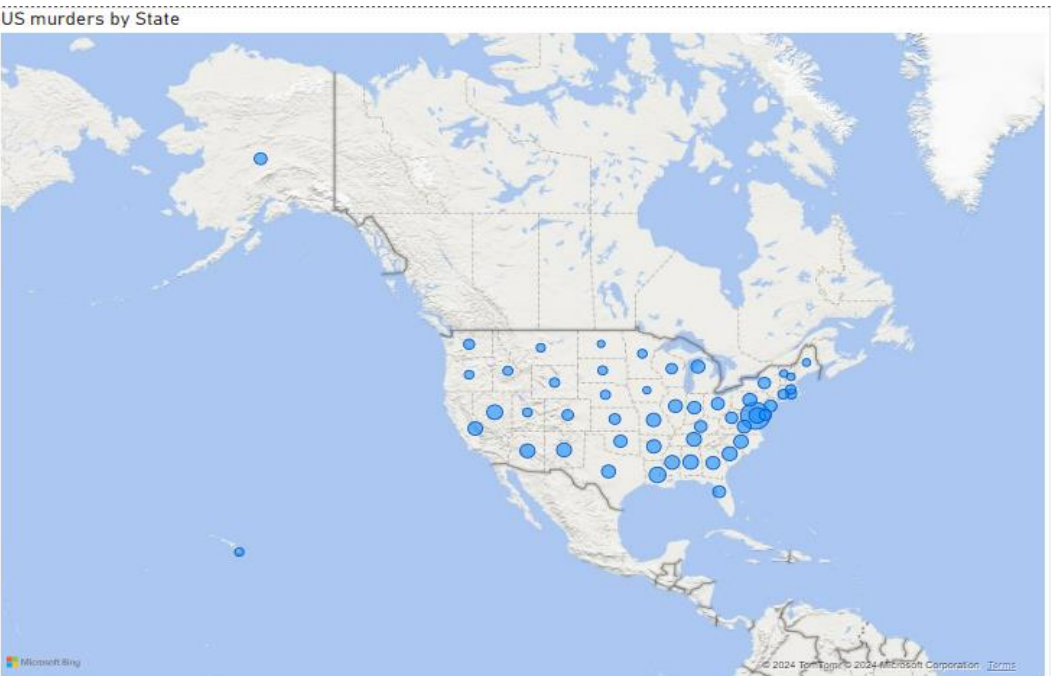
Power BI – lollipop chart:
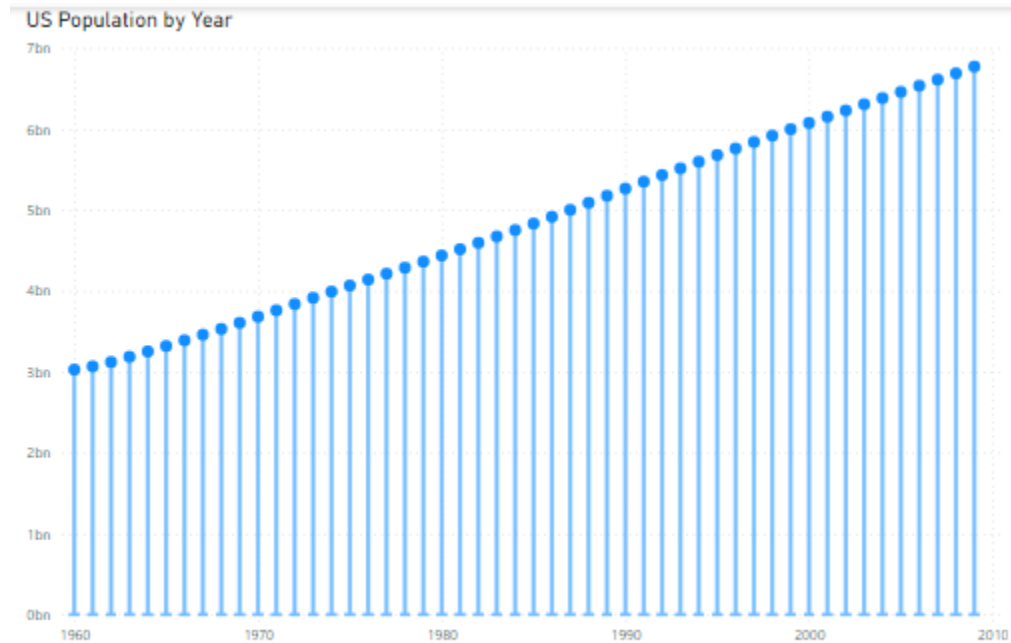
Python – spatial chart of costcos locations: