#Importing Data from SPSS to R

install.packages("haven")

library(haven)

attitude <- read\_sav("/Users/kf/Documents/SUSS/ANL501/TMA/Global-Attitudes-Spring-2022-Survey-Data/USETHIS-Pew Research Center Global Attitudes Spring 2022 Dataset.sav")

#Changing it to a dataframe

attitude <- as.data.frame(attitude)

##

##Data Exploration and Cleaning##

##

#By looking at the structure, the country is labelled using numbers

str(attitude)

#To check which number represents Singapore == 14

unique(attitude$country)

#Filter for Singapore

sg.attitude <- subset(attitude, country == 14)

#to look at all the variables and survey questions

names(attitude)

#Use unique() To check which questions and variables that might be relevant: fav\_us, fav\_china, growinflu\_us,growinflu\_china, age

unique(attitude$fav\_china)

#Total 6 variables

#Putting all relevant variables together

relevant.vars <- c("fav\_us", "fav\_china", "growinflu\_us","growinflu\_china","age","sex")

#Show only Singapore's response to relevant variables

sg.fil.attitude <- sg.attitude[ , relevant.vars]

summary(sg.fil.attitude)

str(sg.fil.attitude)

class(sg.fil.attitude)

##

##Creating bar plot on how Singapore's favor response towards the United States and China##

##

#When creating bar plots, ggplot2 expects character or factor data for aesthetic mapping.

#I converted these variables to factor before creating the bar plots.

sg.fil.attitude$fav\_us <- as.factor(sg.fil.attitude$fav\_us)

sg.fil.attitude$fav\_china <- as.factor(sg.fil.attitude$fav\_china)

#Load in ggplot2 and create a bar plot for attitudes towards the United States

install.packages("ggplot2")

library(ggplot2)

plot.fav.us <- ggplot(sg.fil.attitude, aes(x = factor(fav\_us, labels = c("Very Favorable", "Somewhat Favorable", "Somewhat Unfavorable", "Very Unfavorable", "Don't Know", "Refused")), fill = factor(fav\_us))) +

geom\_bar(position = "dodge") +

labs(x = "Response Towards United States", y = "Count",

caption = " ") +

theme\_minimal()+

scale\_y\_continuous(breaks = seq(0, 600, by = 100), limits = c(0,600))+

theme(legend.position = "none") +

ggtitle("Favorable Comparison Towards the United States & China")

#Create a bar plot for attitudes towards China

plot.fav.china <- ggplot(sg.fil.attitude, aes(x = factor(fav\_china, labels = c("Very Favorable", "Somewhat Favorable", "Somewhat Unfavorable", "Very Unfavorable", "Don't Know", "Refused")), fill = factor(fav\_china))) +

geom\_bar(position = "dodge") +

labs(x = "Response Towards China", y = "Count", title = " ",

caption = "Source: Pew Research Center: Spring Survey 2022") +

theme\_minimal()+

scale\_y\_continuous(breaks = seq(0, 600, by = 100), limits = c(0,600))+

theme(legend.position = "none")

#Arrange the plot to be side by side.

install.packages("gridExtra")

library(gridExtra)

arranged.fav.plot <- grid.arrange(plot.fav.us, plot.fav.china, ncol = 2)

##

##Adding age groups to the comparison##

#Prompt in Chat GPT: How to group the age column and add to a bar plot?

##

age\_breaks <- c(18,25,35,45,55,65,75,85,99)

age\_labels <- c("18-24", "25-34", "35-44", "45-54", "55-64", "65-74","75-84","85-99")

#Create new age group column with cut()

sg.fil.attitude$AgeGroup <- cut(sg.fil.attitude$age, breaks = age\_breaks, labels = age\_labels, right = FALSE)

#Remove rows with NAs in AgeGroup or fav\_us columns

sg.fil.attitude <- sg.fil.attitude[complete.cases(sg.fil.attitude[, c("AgeGroup", "fav\_us")]), ]

# Define color palette for age groups

age\_palette <- c("18-24" = "blue", "25-34" = "green", "35-44" = "red", "45-54" = "purple", "55-64" = "orange",

"65-74" = "pink", "75-84" = "yellow", "85-99" = "black")

#Plot the graph for both US and China

plot.fav.us.age <- ggplot(sg.fil.attitude, aes(x = factor(fav\_us, labels = c("Very Favorable", "Somewhat Favorable", "Somewhat Unfavorable", "Very Unfavorable", "Don't Know", "Refused")), fill = AgeGroup)) +

geom\_bar(position = "dodge")+

labs(x = "Response", y = "Count", title = "Reponse Towards the United States by Age",

subtitle = "Question: Please tell me if you have a very favorable, somewhat favorable, somewhat unfavorable, or very unfavorable opinion of United States",

caption = "Source: Pew Research Center: Spring Survey 2022",

fill = "Age Group") +

scale\_fill\_manual(values = age\_palette) + # Assign colors based on age groups

theme\_minimal()

plot.fav.china.age <- ggplot(sg.fil.attitude, aes(x = factor(fav\_china, labels = c("Very Favorable", "Somewhat Favorable", "Somewhat Unfavorable", "Very Unfavorable", "Don't Know", "Refused")), fill = AgeGroup)) +

geom\_bar(position = "dodge") +

labs(x = "Response", y = "Count", title = "Reponse Towards China by Age",

subtitle = "Question: Please tell me if you have a very favorable, somewhat favorable, somewhat unfavorable, or very unfavorable opinion of China",

caption = "Source: Pew Research Center: Spring Survey 2022",

fill = "Age Group") +

scale\_fill\_manual(values = age\_palette) + # Assign colors based on age groups

theme\_minimal()

##

##Added gender to the comparison by filling with sex##

##

#change sex to a factor

sg.fil.attitude$sex <- factor(sg.fil.attitude$sex, labels = c("Male", "Female"))

#Create a bar plot for attitudes towards US by sex

plot.fav.us.sex <- ggplot(sg.fil.attitude, aes(x = factor(fav\_us, labels = c("Very Favorable", "Somewhat Favorable", "Somewhat Unfavorable", "Very Unfavorable", "Don't Know", "Refused")), fill = sex)) +

geom\_bar(position = "dodge") +

labs(x = "Response Towards United States", y = "Count",

caption = " ") +

theme\_minimal()+

scale\_y\_continuous(breaks = seq(0, 300, by = 100), limits = c(0,300))+

theme(legend.position = "none") +

ggtitle("Favorable Comparison Towards the United States & China by Gender") +

scale\_fill\_manual(name = "Gender",

values = c("Male" = "black", "Female" = "pink"))+

theme(

axis.text.x = element\_text(angle = 45, hjust = 1, size = 12),

axis.title.x = element\_text(size = 14),

axis.title.y = element\_text(size = 14),

axis.text.y = element\_text(size = 12),

plot.title = element\_text(size = 16)

)

#Create a bar plot for attitudes towards China by sex

plot.fav.china.sex <- ggplot(sg.fil.attitude, aes(x = factor(fav\_china, labels = c("Very Favorable", "Somewhat Favorable", "Somewhat Unfavorable", "Very Unfavorable", "Don't Know", "Refused")), fill = sex)) +

geom\_bar(position = "dodge") +

labs(x = "Response Towards China", y = "Count", title = " ",

caption = "Source: Pew Research Center: Spring Survey 2022") +

theme\_minimal()+

scale\_y\_continuous(breaks = seq(0, 300, by = 100), limits = c(0,300))+

theme(legend.position = "right")+

scale\_fill\_manual(name = "Gender",

values = c("Male" = "black", "Female" = "pink"))+

theme(

axis.text.x = element\_text(angle = 45, hjust = 1, size = 12),

axis.title.x = element\_text(size = 14),

axis.title.y = element\_text(size = 14),

axis.text.y = element\_text(size = 12),

plot.title = element\_text(size = 16)

)

#Arrange the plot to be side by side.

install.packages("gridExtra")

library(gridExtra)

arranged.fav.plot.sex <- grid.arrange(plot.fav.us.sex, plot.fav.china.sex, ncol = 2)

##

#Creating bar plot on Singaporeans' Perceived Influence of the United States and China

##

#When creating bar plots, ggplot2 expects character or factor data for aesthetic mapping.

#I converted these variables to factor before creating the bar plots.

sg.fil.attitude$growinflu\_us <- as.factor(sg.fil.attitude$growinflu\_us)

sg.fil.attitude$growinflu\_china <- as.factor(sg.fil.attitude$growinflu\_china)

#Check to see if all labels are used. Removed when creating box plots below.

unique(sg.fil.attitude$growinflu\_us) #no one responded "Refused"

unique(sg.fil.attitude$growinflu\_china) #no one responded "Don't know"

#Load in ggplot2 and create a bar plot towards the United States

install.packages("ggplot2")

library(ggplot2)

plot.influ.us <- ggplot(sg.fil.attitude, aes(x = factor(growinflu\_us, labels = c("Getting stronger", "Getting weaker", "Staying about the same", "Don't Know")), fill = factor(growinflu\_us))) +

geom\_bar(position = "dodge") +

labs(x = "Response Towards United States", y = "Count",

caption = " ") +

theme\_minimal()+

scale\_y\_continuous(breaks = seq(0, 400, by = 100), limits = c(0,400))+

theme(legend.position = "none") +

ggtitle("Singaporeans' Perceived Influence of the United States and China")

#Create a bar plot towards China

plot.influ.china <- ggplot(sg.fil.attitude, aes(x = factor(growinflu\_china, labels = c("Getting stronger", "Getting weaker", "Staying about the same", "Refused")), fill = factor(growinflu\_china))) +

geom\_bar(position = "dodge") +

labs(x = "Response Towards China", y = "Count", title = " ",

caption = "Source: Pew Research Center: Spring Survey 2022") +

theme\_minimal()+

scale\_y\_continuous(breaks = seq(0, 700, by = 100), limits = c(0,700))+

theme(legend.position = "none")

#Arrange the plot to be side by side.

install.packages("gridExtra")

library(gridExtra)

arranged.fav.plot <- grid.arrange(plot.influ.us, plot.influ.china, ncol = 2)