Nikhil Gopal HW1

Code:

```
#setwd("G:/My Drive/STAT 3105")

library(jsonlite)
```

```
## Warning: package 'jsonlite' was built under R version 4.0.3
```

```
library(dplyr)
```

```
##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##     filter, lag

## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
#process data
data <- fromJSON("unemployment_cpi_unempl_2000_2020.json")
df <- as.data.frame(bind_rows(data$Results))
a <- data.frame(df$data[1])
b <- data.frame(df$data[2])

#remove unnecessary columns
a <- subset(a, select = -footnotes)
b <- subset(b, select = -footnotes)

#reassign 1st/2nd half status to each month
a$period[a$period=="M12" | a$period == "M11" | a$period == "M10" | a$period == "M09" | a$period == "M08

a$period[a$period=="M06" | a$period == "M05" | a$period == "M04" | a$period == "M03" | a$period == "M02

#change type of column from char to double
a$value = as.double(a$value)

#obtain average unemployment per period for first part
first_part <- a %>%
  group_by(year, period) %>%
  summarise(mean(value))
```

```
## `summarise()` regrouping output by 'year' (override with `.groups` argument)
```

```
names(first_part) <- c("year", "period", "unemployment")

#change type of column from char to double
b$value = as.double(b$value)

#obtain average CPI per period for 2nd part
second_part <- b %>%
  group_by(year, periodName) %>%
  summarise(mean(value))
```

```
## `summarise()` regrouping output by 'year' (override with `.groups` argument)
```

```
names(second_part) <- c("year", "period", "cpi")
```

*Add CPI and Export to CSV:

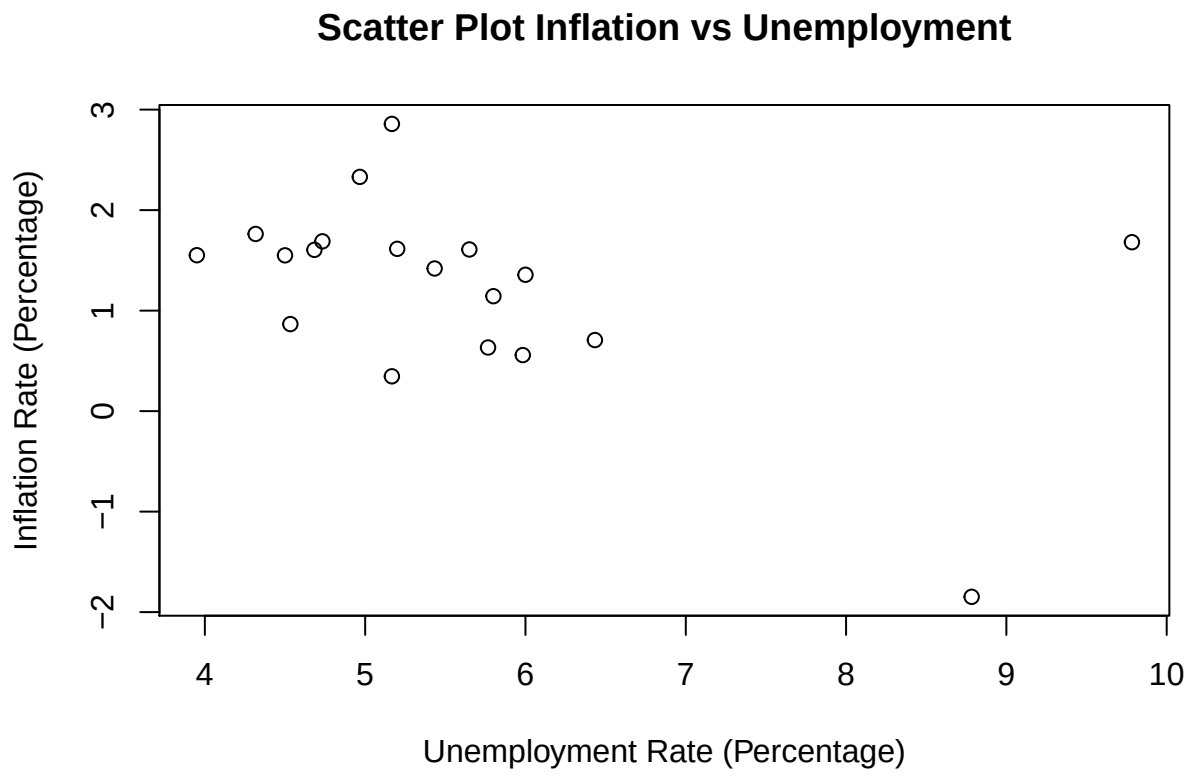
```
#add CPI to df

first_part$cpi <- second_part$cpi
df <- first_part

#export to csv
write.csv("CPI.csv")
```

```
## "","x"
## "1","CPI.csv"
```

```
#calculate inflation
df$inflation <- rep(1:20)

#convert to dataframe
df <- as.data.frame(df)

inflation <- rep(1:20)

counter = 1
for(index in df$cpi){
   if(counter == 1) {
    inflation[counter] <- NA
    counter = counter + 1
  }
  inflation[counter] <- (df$cpi[counter] - df$cpi[counter - 1])/df$cpi[counter -1] * 100
  counter = counter + 1
}

#remove last NA
inflation <- inflation[1:20]

#add column to df
df$inflation <- inflation
```

Graph:

```
#scatter plot inflation vs unemployment
plot(df$unemployment, df$inflation,
     main = "Scatter Plot Inflation vs Unemployment", xlab = "Unemployment Rate (Percentage)",
     ylab = "Inflation Rate (Percentage)")
```



Accuweather:

- What are the potential unethical things related to the researches mentioned in the news?
  - The company lied to its customers and told them that data would not be collected in situations where it clearly was being collected.
- Were the collections of data justified? Should researchers use data collected in similar manners?
  - No, I don't believe this type of outright deceipt is justified. It is necessary to collect location data for a weather app, but this app collected data while the app was not being used, against users explicit instructions to not do so.
- Please Share your opinion on the data collection procedure.
  - I think it should be illegal and I am glad that the application updated the software to remove this data collection.

Deep Fakes:

- What are the potential unethical things related to the researches mentioned in the news?

  - As directly mentioned in the article, potential framing of politicians or portraying people committing actions that they would have otherwise not wished to be shown publicly.

- Were the collections of data justified? Should researchers use data collected in similar manners?
  - I think there are potential uses of this technology. For example in a medical setting like therapy. Just like any other technology in the world, this data should be used in an ethical way, but simply creating the software is not bad.

- Please Share your opinion on the data collection procedure.
  - This technology did not comment much other than that footage was used to train the software, maybe like a test/trace method.

Facial Analysis:

- What are the potential unethical things related to the researches mentioned in the news?
  - This article directly mentioned facial recognition technology being employed in prison sentencing to assign black prisoners longer sentences than white ones. This obviously is unethical, as people should be sentenced based on the crime and not on their color.

- Were the collections of data justified? Should researchers use data collected in similar manners?
  - Facial recognition has lots of uses, especially in the the justice system. I believe this technology could enhance lives the way Face ID does on my iPhone.

- Please Share your opinion on the data collection procedure.
  - Lots of work needs to be done to collect this data in an ethical way. Informed consent should be used when taking facial images or recordings to train classification models, and data should always be anonmyized.

Google:

- What are the potential unethical things related to the researches mentioned in the news?
  - This honestly to me does not seem that unethical. Google should have a right to collect your data, and mine it and aggregate and compare it to relevant other datasets. Google provides me with free services like Gmail, Drive and YouTube, and in exchange I am providing them with my browsing history that they can commoditize.

- Were the collections of data justified? Should researchers use data collected in similar manners?
  - I believe so. Users are made aware in TOS agreements and there are methods to disable certain types of tracking. Even though Google can combine its data with the information from DoubleClick, they are not releasing this publicly and nobody except for an advertising company will be able to see which websites I am visiting, so I think it is fine.

- Please Share your opinion on the data collection procedure.
  - Google combined its own data collection of user's identities with Data Mining and information collected from DoubleClick. Users would normally agree to this in the TOS. I do wish it were made clearer in exactly which ways Google is allowed to sell my data and which ways would be off limits.