Anly560 Project

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```
library(tidyverse)
library(ggplot2)
library(forecast)
```

```
## Warning: package 'forecast' was built under R version 4.1.2
```

```
library(astsa)
library(xts)
library(tseries)
library(fpp2)
library(fma)
library(lubridate)
library(tidyverse)
library(TSstudio)
library(quantmod)
library(tidyquant)
library(plotly)
library(ggplot2)
```

```
drinks = read.csv("drinks.csv",header=TRUE)

# total_litres_of_pure_alcohol
drinks <- drinks[order(-drinks$total_litres_of_pure_alcohol),]
drinks <- head(drinks,10)
drinks
```

```
##                country beer_servings spirit_servings wine_servings
## 16              Belarus           142              373            42
## 99            Lithuania           343              244            56
## 4               Andorra           245              138           312
## 69              Grenada           199              438            28
## 46       Czech Republic           361              170           134
## 62               France           127              151           370
## 142 Russian Federation           247              326            73
## 82              Ireland           313              118           165
## 100          Luxembourg           236              133           271
## 156            Slovakia           196              293           116
##     total_litres_of_pure_alcohol
## 16                          14.4
## 99                          12.9
## 4                           12.4
## 69                          11.9
## 46                          11.8
## 62                          11.8
## 142                         11.5
## 82                          11.4
## 100                         11.4
## 156                         11.4
```

```
jpeg(file="p1.jpg")

ggplot(drinks, aes(x="", y=total_litres_of_pure_alcohol, fill=country)) +
  geom_bar(stat="identity", width=1, color="white") +
  coord_polar("y", start=0) +
  theme_void() +
  ggtitle(" Top 10 country with total litres of pure alcohol")
dev.off()
```

```
## quartz_off_screen
##                 2
```

```
russia = read.csv("russia.csv",header=TRUE)
head(russia)
```

```
##   year                    region wine beer vodka champagne brandy
## 1 1998        Republic of Adygea  1.9  8.8   3.4       0.3    0.1
## 2 1998                Altai Krai  3.3 19.2  11.3       1.1    0.1
## 3 1998               Amur Oblast  2.1 21.2  17.3       0.7    0.4
## 4 1998        Arkhangelsk Oblast  4.3 10.6  11.7       0.4    0.3
## 5 1998          Astrakhan Oblast  2.9 18.0   9.5       0.8    0.2
## 6 1998 Republic of Bashkortostan  1.8 17.5  10.7       0.9    0.2
```

```
rp <- russia  %>%
   plot_ly(x=~year, y=~beer, color=~region) %>%
   add_bars() %>% layout(title="Beer consumption by different region in Russia")

rp
```

```
## Warning: Ignoring 58 observations
```

```
## Warning in RColorBrewer::brewer.pal(N, "Set2"): n too large, allowed maximum for pale
tte Set2 is 8
## Returning the palette you asked for with that many colors

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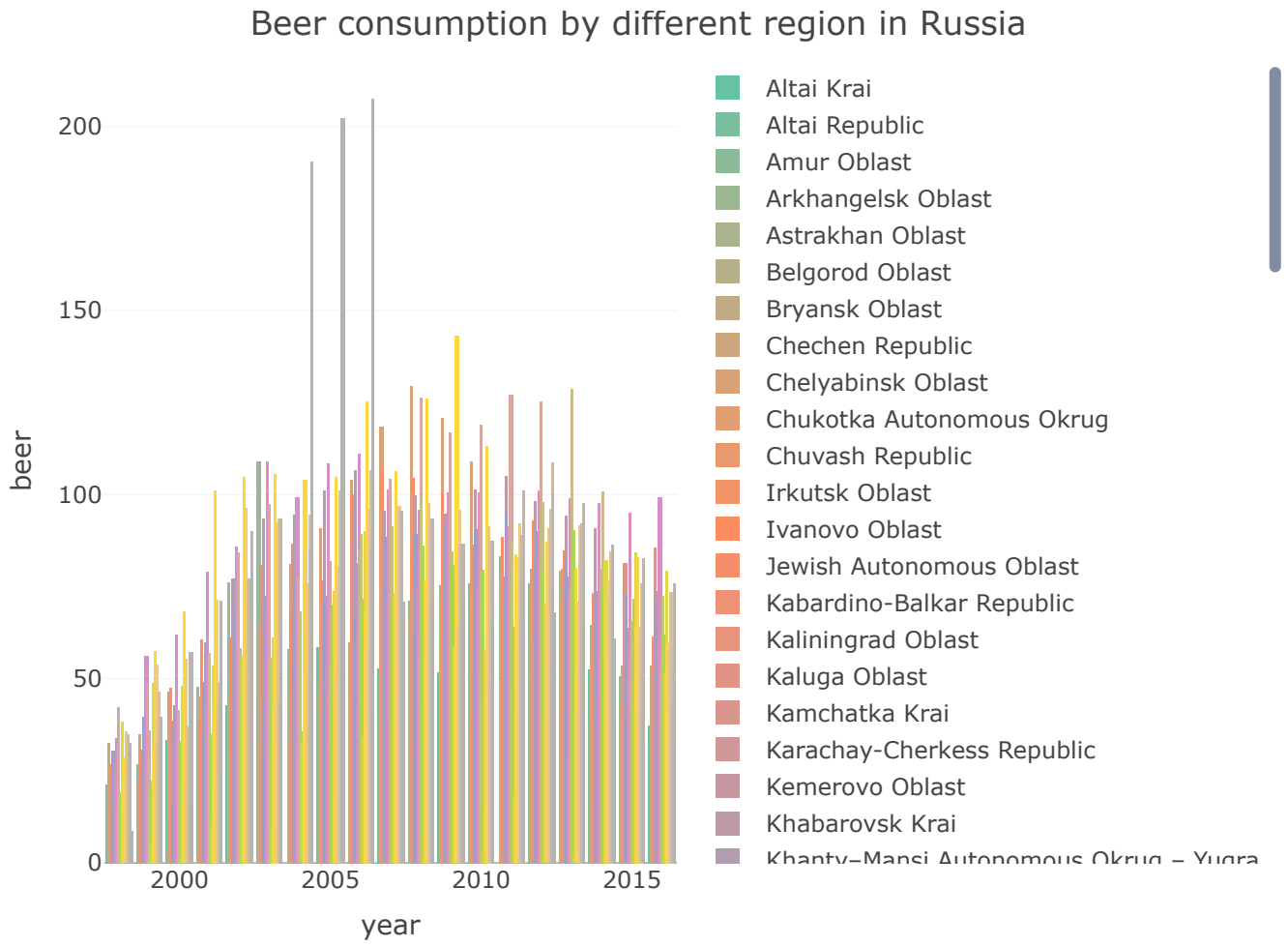


```
htmlwidgets::saveWidget(as_widget(rp), "ru.html")
```

```
## Warning: Ignoring 58 observations

## Warning: n too large, allowed maximum for palette Set2 is 8
## Returning the palette you asked for with that many colors

## Warning: n too large, allowed maximum for palette Set2 is 8
## Returning the palette you asked for with that many colors
```

```
beer = read.csv("beer.csv",header=TRUE)

colnames(beer) <- c('country','code','year','beer')

beerp <- beer  %>%
   plot_ly(x=~year, y=~beer, color=~country) %>%
   add_bars() %>% layout(title="Beer consumption by different country")
head(beer)
```

```
##       country code year beer
## 1 Afghanistan  AFG 1961    0
## 2 Afghanistan  AFG 1962    0
## 3 Afghanistan  AFG 1963    0
## 4 Afghanistan  AFG 1964    0
## 5 Afghanistan  AFG 1965    0
## 6 Afghanistan  AFG 1966    0
```

```
htmltools::save_html(beerp, file = "beer.html")
```

```
## Warning in RColorBrewer::brewer.pal(N, "Set2"): n too large, allowed maximum for pale
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## Warning in RColorBrewer::brewer.pal(N, "Set2"): n too large, allowed maximum for pale
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```

```
capital = read.csv("capital.csv",header=TRUE)

head(capital)
```

```
##     state year ethanol_beer_gallons_per_capita ethanol_wine_gallons_per_capita
## 1 alabama 2018                            1.04                            0.26
## 2 alabama 2017                            1.07                            0.26
## 3 alabama 2016                            1.09                            0.26
## 4 alabama 2015                            1.11                            0.26
## 5 alabama 2014                            1.13                            0.25
## 6 alabama 2013                            1.14                            0.25
##   ethanol_spirit_gallons_per_capita ethanol_all_drinks_gallons_per_capita
## 1                              0.69                                  1.99
## 2                              0.67                                  1.99
## 3                              0.65                                  2.01
## 4                              0.64                                  2.01
## 5                              0.62                                  2.00
## 6                              0.60                                  1.99
##   number_of_beers number_of_glasses_wine number_of_shots_liquor
## 1        246.5185                51.5969                143.2603
## 2        253.6296                51.5969                139.1079
## 3        258.3704                51.5969                134.9554
## 4        263.1111                51.5969                132.8792
## 5        267.8519                49.6124                128.7267
## 6        270.2222                49.6124                124.5742
##   number_of_drinks_total
## 1               424.5333
## 2               424.5333
## 3               428.8000
## 4               428.8000
## 5               426.6667
## 6               424.5333
```

```
capitalp <- capital  %>%
   plot_ly(x=~year, y=~number_of_beers, color=~state) %>%
   add_bars() %>% layout(title="Beer consumption by different capital")

htmlwidgets::saveWidget(as_widget(capitalp), "capital.html")
```

```
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```

```
capitalp
```

```
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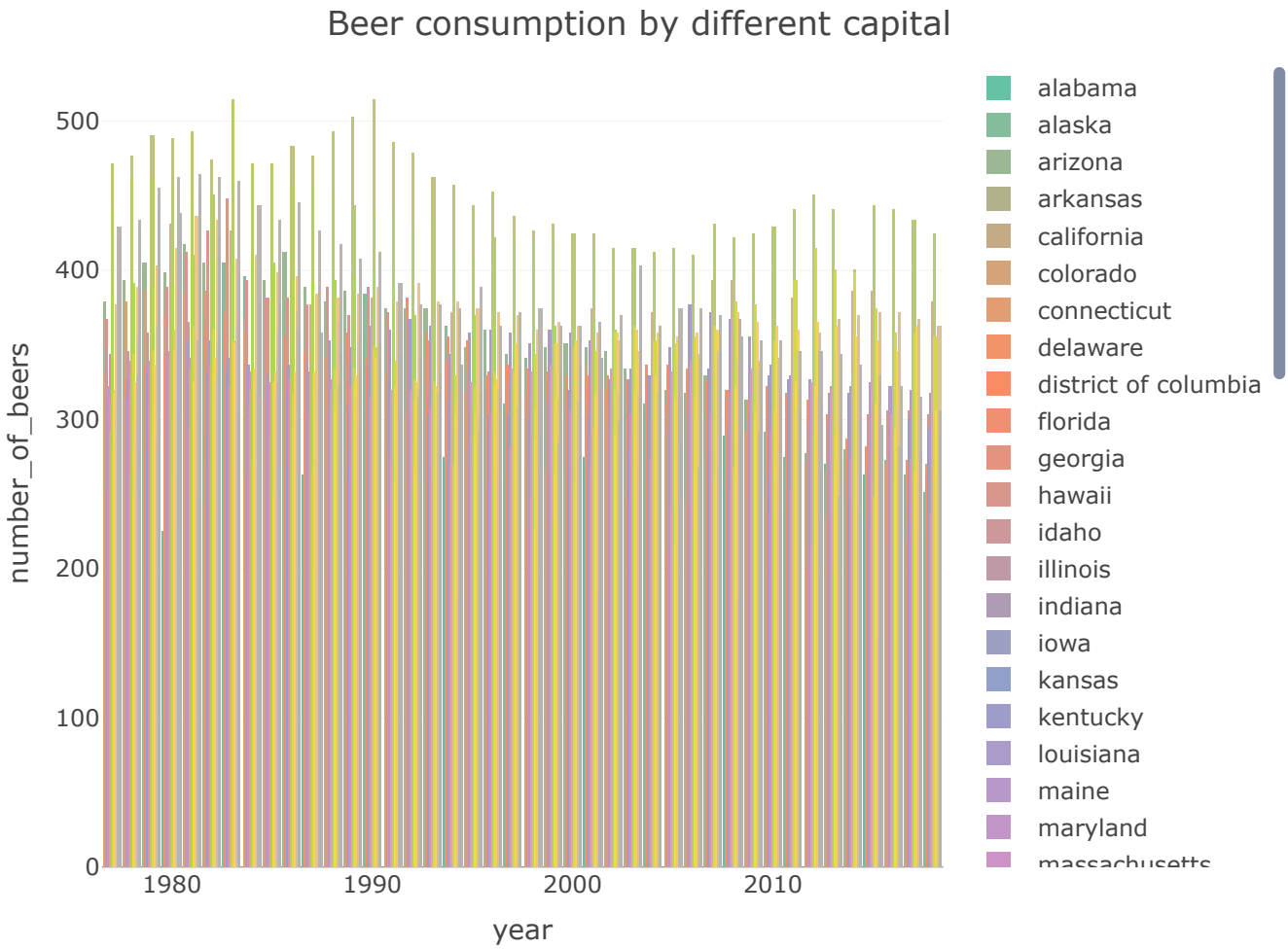


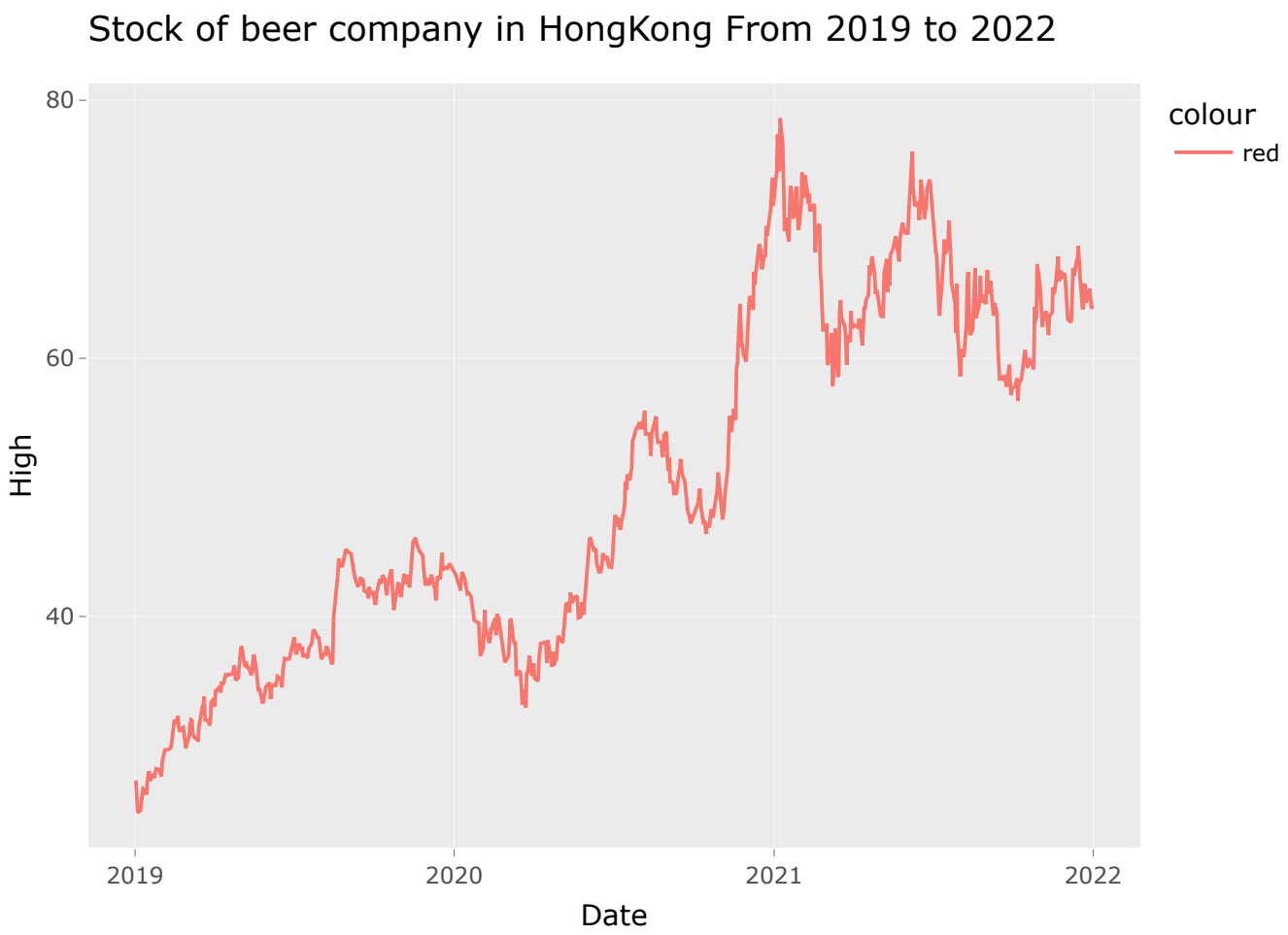

```
HK = read.csv("HK_beer.csv",header=TRUE)
head(HK)
```

```
##         Date  High   Low  Open Close   Volume Adj.Close
## 1 2019-01-02 27.30 25.55 27.30 25.85  7846519  25.44204
## 2 2019-01-03 26.25 24.50 26.00 24.70  8996033  24.31018
## 3 2019-01-04 24.80 24.10 24.45 24.35  8661492  23.96571
## 4 2019-01-07 24.95 24.30 24.65 24.40 19029507  24.01492
## 5 2019-01-08 25.80 24.50 24.85 25.80  7043980  25.39282
## 6 2019-01-09 26.40 25.85 25.85 26.00  7952458  25.58967
```

```
HK$Date<-as.Date(HK$Date,"%Y-%m-%d")

p<- ggplot(HK, aes(x=Date)) +
  geom_line(aes(y=High, colour="red"))+
ggtitle("Stock of beer company in HongKong From 2019 to 2022")

ggplotly(p)
```




```
HK = read.csv("B_beer.csv",header=TRUE)
head(HK)
```

```
##         Date   High    Low   Open  Close Volume Adj.Close
## 1 2019-01-02 237.56 231.57 237.56 235.03 198400    235.03
## 2 2019-01-03 237.69 232.13 232.94 234.74 117000    234.74
## 3 2019-01-04 246.32 230.93 232.02 245.88 175800    245.88
## 4 2019-01-07 249.66 236.38 245.02 244.51 180500    244.51
## 5 2019-01-08 245.71 236.57 245.68 239.14 163200    239.14
## 6 2019-01-09 238.97 231.89 233.37 233.45 245400    233.45
```

```
HK$Date<-as.Date(HK$Date,"%Y-%m-%d")

p<- ggplot(HK, aes(x=Date)) +
  geom_line(aes(y=High, colour="red"))+
ggtitle("Stock of beer company in Boston From 2019 to 2022")

ggplotly(p)
```