FRED-EDA

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Libraries

```
library(RCurl)
library(readxl)
library(dplyr)
library(ggplot2)
library(scales)
```

Data

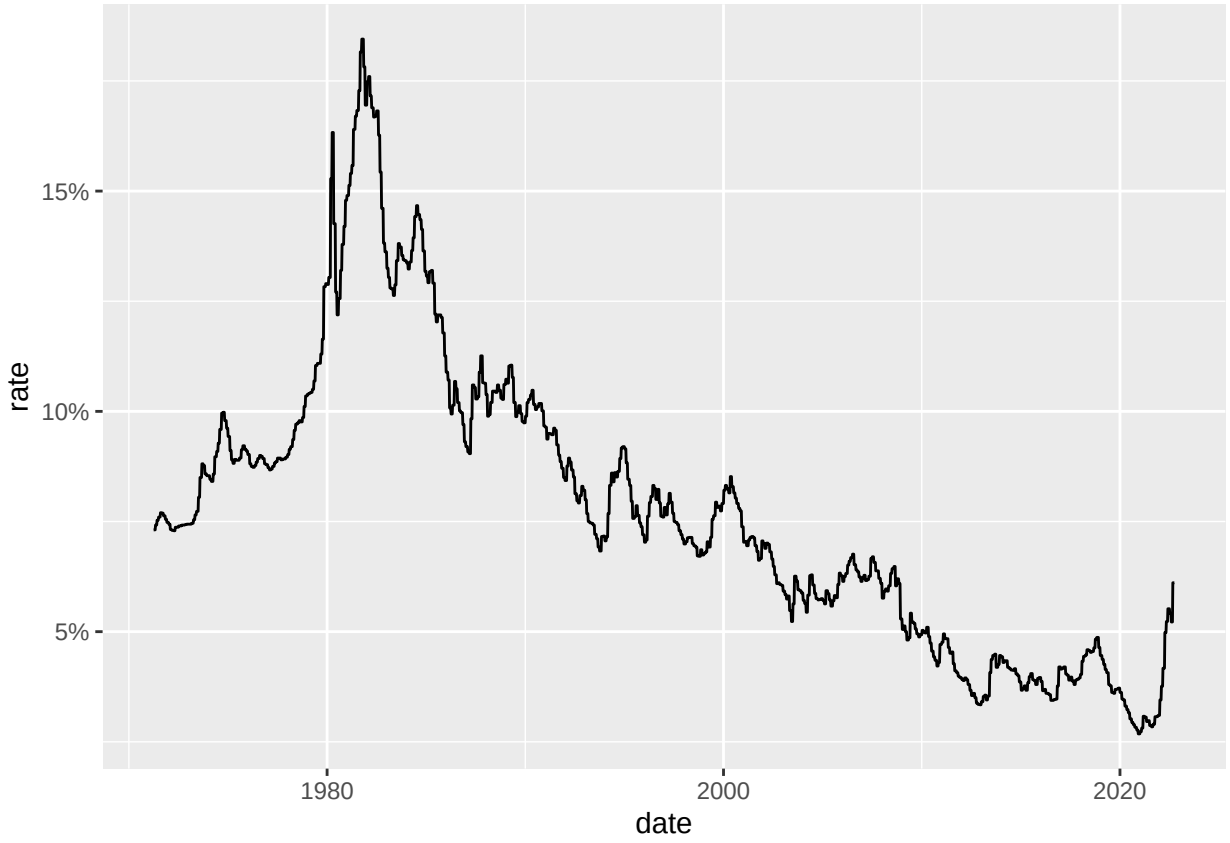
```
temp.file <- paste(tempfile(),".xls",sep = "")
download.file("https://fred.stlouisfed.org/graph/fredgraph.xls?bgcolor=%23e1e9f0&chart_type=line&drp=0&
mort30 <- read_excel(temp.file, skip = 10)
rm(temp.file)
```

Wrangling

```
mort30<-mort30%>%
  rename(date = observation_date,
         rate = MORTGAGE30US)%>%
  mutate(year = substr(date,1,4),
         year_month = substr(date,1,7))%>%
  group_by(year)%>%mutate(avg_yearly_rate = round(mean(rate),2))%>%
  ungroup()%>%
  group_by(year_month)%>%mutate(avg_monthly_rate = round(mean(rate),2))%>%
  ungroup()
```

Visuals

```
mort30%>%
  ggplot()+
  geom_line(aes(x=date,y=avg_monthly_rate/100))+
  scale_y_continuous(labels = scales::percent)+
  ylab("rate")
```



Barriers

```
acceptable = .06
manageable = .09
xmin = min(mort30$date)
xmax = max(mort30$date)
bar <- data.frame(ymin = c(-Inf,acceptable,manageable),
                  ymax   = c(acceptable,manageable,Inf),
                  col    = c("green","yellow","red"))
```

Visual with barriers

```
ggplot()+
  geom_line(data=mort30,
            aes(x=date,y=avg_monthly_rate/100))+
```

```
  scale_y_continuous(labels = scales::percent)+
  ylab("rate")+
  geom_rect(data=bar,
            aes(xmin=xmin,xmax=xmax,
                ymin=ymin,ymax=ymax,
                fill = col),
            alpha=0.3,show.legend = FALSE)+
  scale_fill_manual(values = c("darkgreen","darkred","darkorange"))
```