

# FIN580 - HW1

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This is the proxy for our future report (just to make sure that staff is working)

Reading data into one large dataframe (will be hidden in the final version):

```
setwd("/Users/Paulina/Documents/Princeton/FIN 580 - Quant Data Analysis in Finance/HWs/HW1")

get.data = function(name, filename, df){
  fx_data = read.csv(filename)
  df[name] = fx_data$Close
  remove(fx_data)
  return(df)
}

aud = read.csv("AUDUSD.csv")
fx.df = data.frame(date = aud$date, aud = aud$Close)
remove(aud)

fx.df = get.data('cad', "CADUSD.csv", fx.df)
fx.df = get.data('chf', "CHFUSD.csv", fx.df)
fx.df = get.data('eur', "EURUSD.csv", fx.df)
fx.df = get.data('gbp', "GBPUSD.csv", fx.df)
fx.df = get.data('jpy', "JPYUSD.csv", fx.df)
fx.df = get.data('nok', "NOKUSD.csv", fx.df)
fx.df = get.data('nzd', "NZDUSD.csv", fx.df)
fx.df = get.data('sek', "SEKUSD.csv", fx.df)
```

## Data Preprocessing:

1. Calculating the returns on the 5-minute data and store it in the dataframe

```
calculate.returns = function(x){ diff(x)/x[1:length(x)-1] }
calculate.volatility = function(x){ var(x) }

fx.returns.df = apply(fx.df[,2:10],2,calculate.returns)
fx.returns.df = as.data.frame(fx.returns.df)
fx.returns.df$date = fx.df$date[2:dim(fx.df)[1]]
```

2. Create the date, month, year and weekid for the further aggregation of the data

```
fx.returns.df$date = as.Date(fx.returns.df$date, "%m/%d/%Y")
fx.returns.df$month = months(fx.returns.df$date)
fx.returns.df$year = format(fx.returns.df$date, format="%Y")

fx.returns.daily = aggregate(fx.returns.df[,1:9],by=list(fx.returns.df$date), function(x){ sqrt(var(x))*
fx.returns.monthly = aggregate(fx.returns.df[,1:9],by=list(fx.returns.df$month, fx.returns.df$year), fun
fx.returns.daily$week.id = rep(1:7, times = dim(fx.returns.daily)[1]/7)
```