STAT 631 Handout 1

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8/22/24

```
library(quantmod)
```

```
Warning: package 'quantmod' was built under R version 4.3.3
```

```
Loading required package: xts
```

```
Warning: package 'xts' was built under R version 4.3.3
```

```
Loading required package: zoo
```

```
Warning: package 'zoo' was built under R version 4.3.3
```

```

Attaching package: 'zoo'
```

```
The following objects are masked from 'package:base':

    as.Date, as.Date.numeric
```

```
Loading required package: TTR
```

```
Warning: package 'TTR' was built under R version 4.3.3
```

```
Registered S3 method overwritten by 'quantmod':
  method            from
  as.zoo.data.frame zoo
```

```r
getSymbols("NVDA", from = "2023-8-18", to  = "2024-08-18")
```

```
[1] "NVDA"
```

```r
head(NVDA, n = 3)
```

```
           NVDA.Open NVDA.High NVDA.Low NVDA.Close NVDA.Volume NVDA.Adjusted
2023-08-18    42.635    43.578   41.660     43.299   583768000      43.28604
2023-08-21    44.494    47.065   44.222     46.967   692573000      46.95294
2023-08-22    48.135    48.187   45.333     45.668   755293000      45.65433
```

```r
tail(NVDA)
```

```
           NVDA.Open NVDA.High NVDA.Low NVDA.Close NVDA.Volume NVDA.Adjusted
2024-08-09    105.64    106.60   103.43     104.75   290844200        104.75
2024-08-12    106.32    111.07   106.26     109.02   325559900        109.02
2024-08-13    112.44    116.23   111.58     116.14   312646700        116.14
2024-08-14    118.53    118.60   114.07     118.08   339246400        118.08
2024-08-15    118.76    123.24   117.47     122.86   318086700        122.86
2024-08-16    121.94    125.00   121.18     124.58   302589900        124.58
```

```r
NVDA.monthly = to.monthly(NVDA); NVDA.monthly
```

```
         NVDA.Open NVDA.High NVDA.Low NVDA.Close NVDA.Volume NVDA.Adjusted
Aug 2023    42.635    50.266   41.660     49.355  7542430000      49.34023
Sep 2023    49.762    49.800   40.980     43.499  8579273000      43.48957
Oct 2023    44.030    47.609   39.230     40.780 10141101000      40.77115
Nov 2023    40.884    50.548   40.869     46.770  9144618000      46.75985
Dec 2023    46.525    50.433   45.010     49.522  7411887000      49.51561
Jan 2024    49.244    63.493   47.320     61.527  9706237000      61.51906
Feb 2024    62.100    82.394   61.650     79.112 11077899000      79.10179
Mar 2024    80.000    97.400   79.435     90.356 12149218000      90.34858
Apr 2024    90.299    92.225   75.606     86.402 10074181000      86.39491
May 2024    85.077   115.819   81.255    109.633  9647971000     109.62400
Jun 2024   113.621   140.760  112.003    123.540  7442539100     123.54000
Jul 2024   123.470   136.150  102.540    117.020  6405438600     117.02000
Aug 2024   117.530   125.000   90.690    124.580  4659668500     124.58000
```

```r
Vo(NVDA.monthly)
```

```
         NVDA.Volume
Aug 2023  7542430000
Sep 2023  8579273000
Oct 2023 10141101000
Nov 2023  9144618000
Dec 2023  7411887000
Jan 2024  9706237000
Feb 2024 11077899000
Mar 2024 12149218000
Apr 2024 10074181000
May 2024  9647971000
Jun 2024  7442539100
Jul 2024  6405438600
Aug 2024  4659668500
```

```r
diff(log(Ad(NVDA.monthly)))
```

```
         NVDA.Adjusted
Aug 2023            NA
Sep 2023   -0.12621869
Oct 2023   -0.06454628
Nov 2023    0.13705022
Dec 2023    0.05726297
Jan 2024    0.21705905
Feb 2024    0.25138850
Mar 2024    0.13293977
Apr 2024   -0.04474659
May 2024    0.23812763
Jun 2024    0.11950866
Jul 2024   -0.05422017
Aug 2024    0.06260326
```

```r
monthlyReturn(Ad(NVDA), type = "log")
```

```
           monthly.returns
2023-08-31      0.13090954
```

```
2023-09-29     -0.12621869
2023-10-31     -0.06454628
2023-11-30      0.13705022
2023-12-29      0.05726297
2024-01-31      0.21705905
2024-02-29      0.25138850
2024-03-28      0.13293977
2024-04-30     -0.04474659
2024-05-31      0.23812763
2024-06-28      0.11950866
2024-07-31     -0.05422017
2024-08-16      0.06260326
```

```
getSplits("NVDA", from = "2023-08-18", to = "2024-08-18")
```

```
           NVDA.spl
2024-06-10      0.1
```