Cripto_updated

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2023-09-05

Passo 1: Importazione delle librerie necessarie

In primo luogo, per eseguire il nostro processo di creazione di strategie di trading, dobbiamo importare le librerie necessarie nel nostro ambiente. In tutto questo processo, utilizzeremo alcune delle librerie finanziarie più popolari in R, ovvero Quantmod, TTR e Performance Analytics. Utilizzando la funzione library in R, possiamo importare i nostri pacchetti richiesti.

```
library(quantmod)
```

```
## Loading required package: xts
```

```
## Loading required package: zoo
```

```
##
## Attaching package: 'zoo'
```

```
## The following objects are masked from 'package:base':
##
##     as.Date, as.Date.numeric
```

```
## Loading required package: TTR
```

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

```
library(TTR)
library(PerformanceAnalytics)
```

```
##
## Attaching package: 'PerformanceAnalytics'
```

```
## The following object is masked from 'package:graphics':
##
##     legend
```

Passaggio 2: Estrazione dei dati da Yahoo e Plotting di base

Durante tutto il nostro processo, lavoreremo con i dati del prezzo delle cryptovalute Bitcoin, Ethereum, Binance, Cardano e XRP. Estraiamo i dati di queste valute da Yahoo in R.

```
getSymbols("BTC-USD", src = "yahoo", from = "2019-01-01")
```

```
## [1] "BTC-USD"
```

```
getSymbols("ETH-USD", src = "yahoo", from = "2019-01-01")
```

```
## [1] "ETH-USD"
```

```
getSymbols("BNB-USD", src = "yahoo", from = "2019-01-01")
```

```
## [1] "BNB-USD"
```

```
getSymbols("ADA-USD", src = "yahoo", from = "2019-01-01")
```

```
## [1] "ADA-USD"
```

```
getSymbols("XRP-USD", src = "yahoo", from = "2019-01-01")
```

```
## [1] "XRP-USD"
```

Ora facciamo un po' di visualizzazione dei nostri dati estratti! Il seguente codice produce un grafico a barre finanziario dei prezzi delle azioni insieme al volume.

```
barChart(`BTC-USD`, theme = chartTheme('black'))
```

```
barChart(`BNB-USD`,theme = chartTheme('black'))
```

```
barChart(`ETH-USD`,theme = chartTheme('black'))
```

```
barChart(`ADA-USD`,theme = chartTheme('black'))
```

```
barChart(`XRP-USD`,theme = chartTheme('black'))
```

Creazione di indicatori tecnici

Ci sono molti indicatori tecnici utilizzati per l'analisi finanziaria ma, per la nostra analisi, utilizzeremo e creeremo sei dei più famosi indicatori tecnici, ovvero: Media mobile semplice (SMA), Parabolic Stop And Reverse (SAR), Indice del canale delle materie prime (CCI), Tasso di variazione (ROC), Indice del momento stocastico (SMI) e infine Williams %R. Facciamolo!

Media mobile semplice (SMA):

L'intervallo di tempo standard che prenderemo è di 20 giorni SMA e 50 giorni SMA. Ma non ci sono restrizioni nell'uso di qualsiasi intervallo di tempo.

Il seguente codice calcolerà la SMA di tre aziende per 20 giorni e 50 giorni insieme ad un grafico:

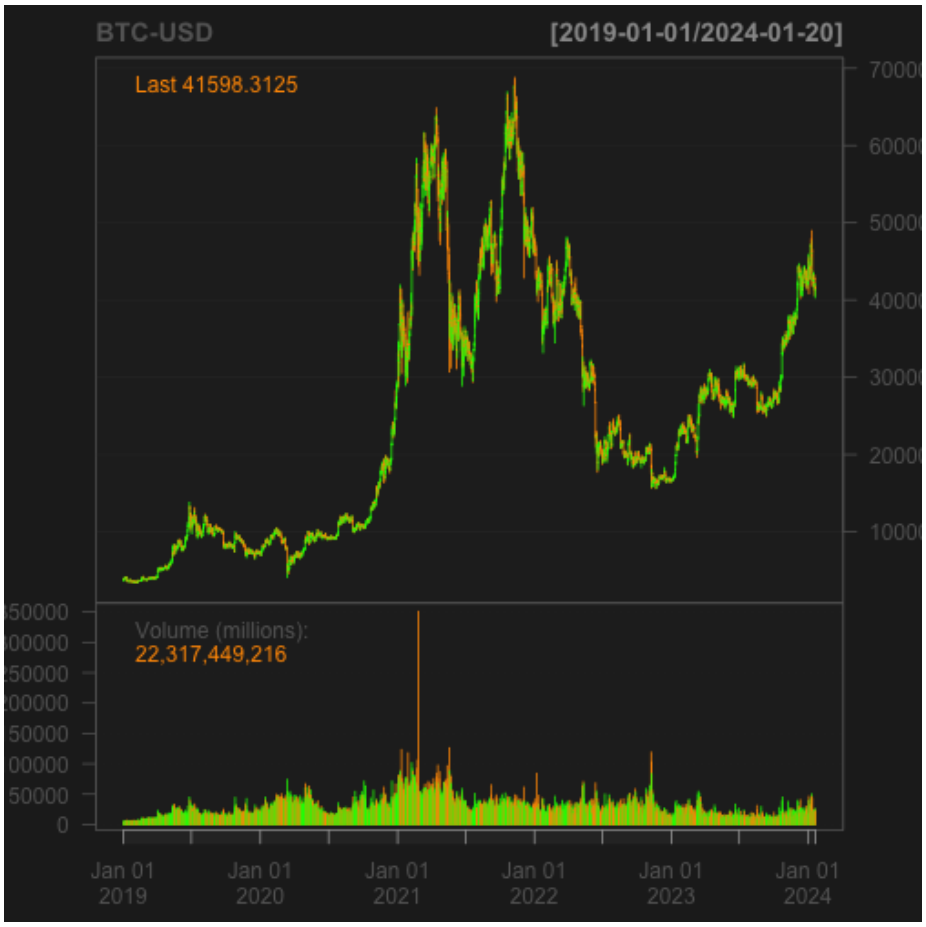


Figure 1: plot of chunk unnamed-chunk-3

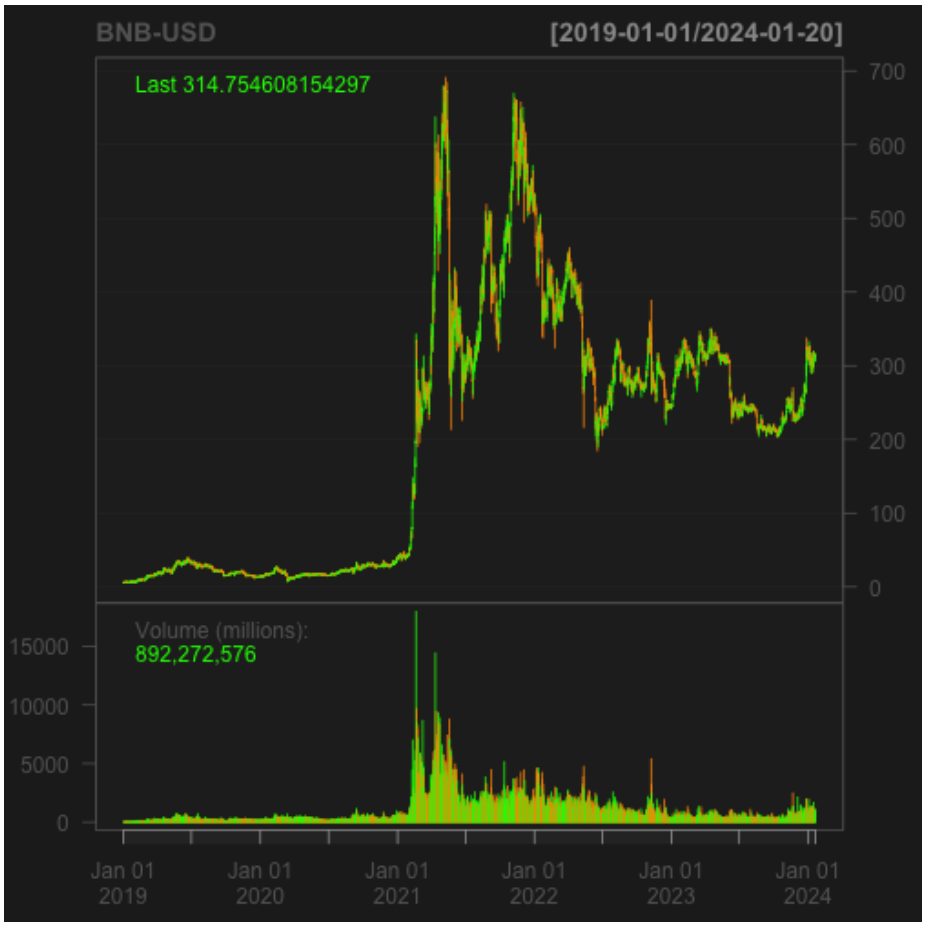


Figure 2: plot of chunk unnamed-chunk-3

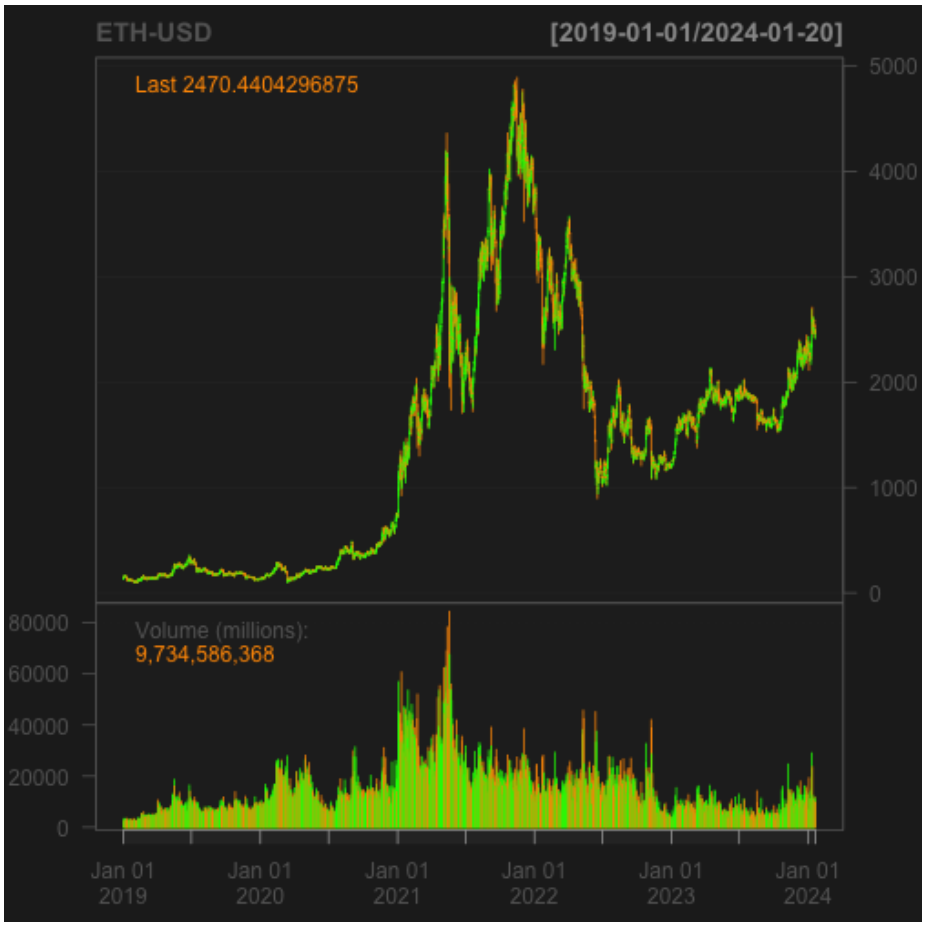


Figure 3: plot of chunk unnamed-chunk-3

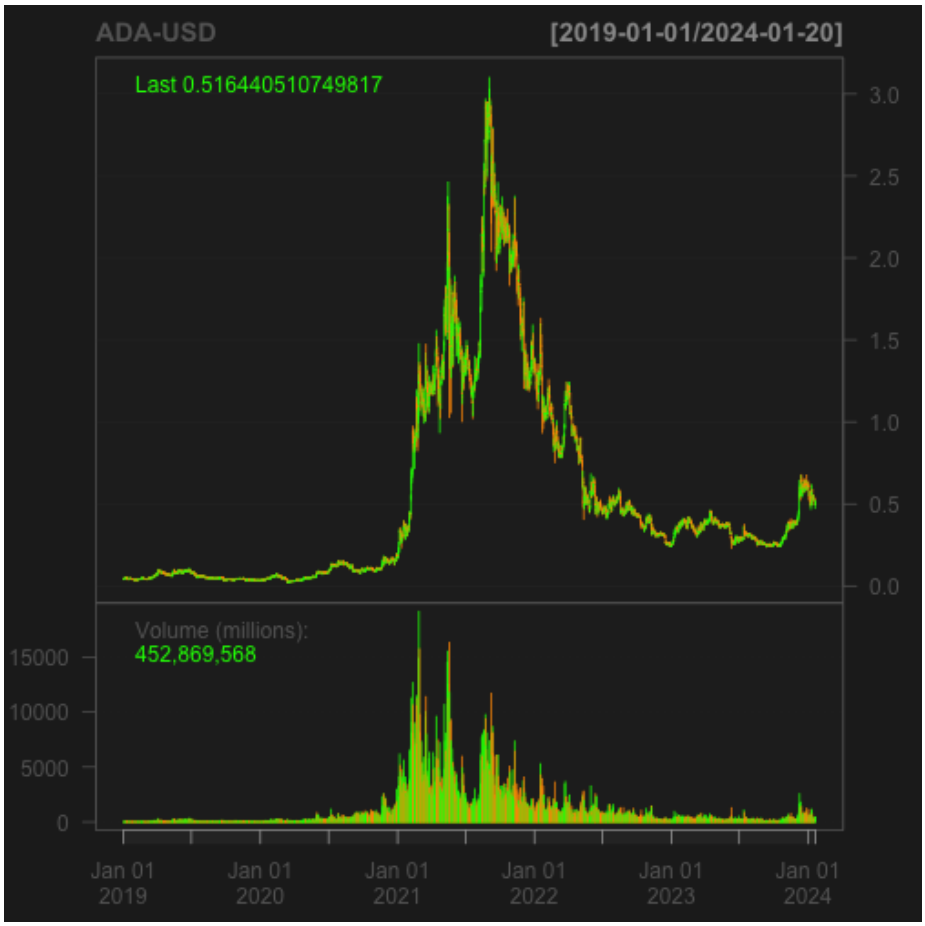


Figure 4: plot of chunk unnamed-chunk-3

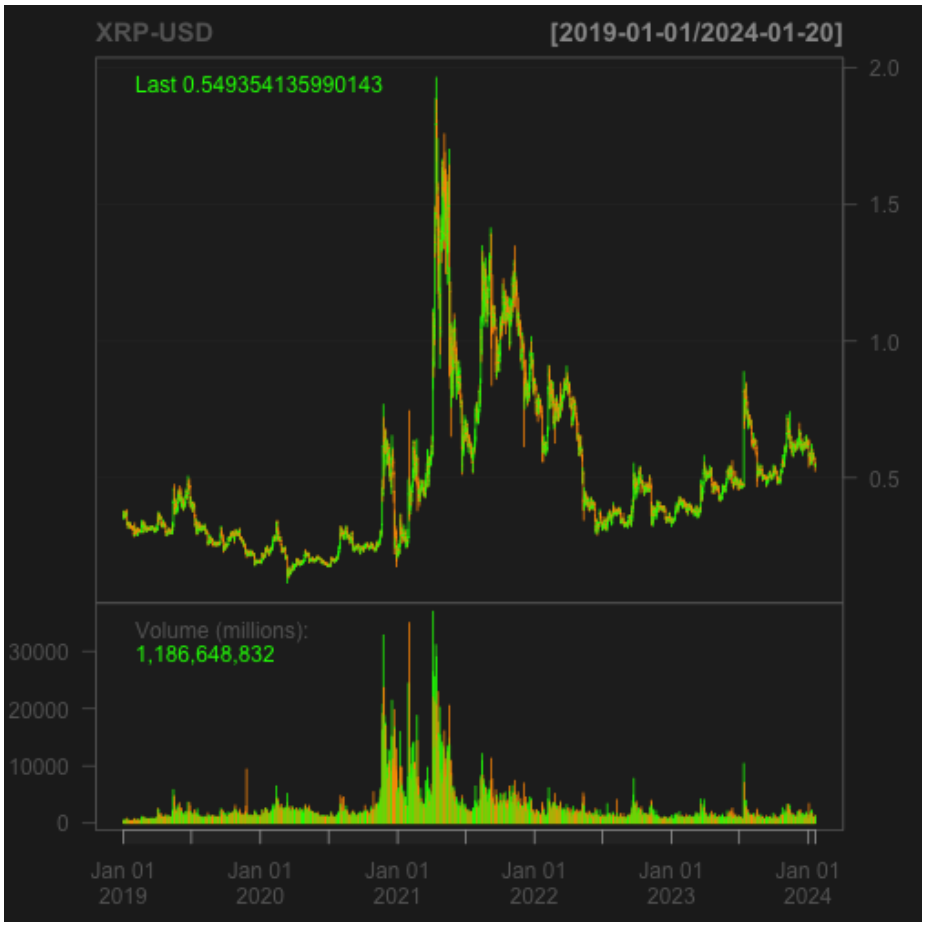


Figure 5: plot of chunk unnamed-chunk-3

```
BTC <- `BTC-USD`
ETH <- `ETH-USD`
BNB <- `BNB-USD`
ADA <- `ADA-USD`
XRP <- `XRP-USD`

# 1. BTC-USD
sma50_btc <- SMA(BTC$`BTC-USD.Close`, n = 50)
sma100_btc <- SMA(BTC$`BTC-USD.Close`, n = 100)
lineChart(`BTC-USD`, theme = chartTheme('black'))
```

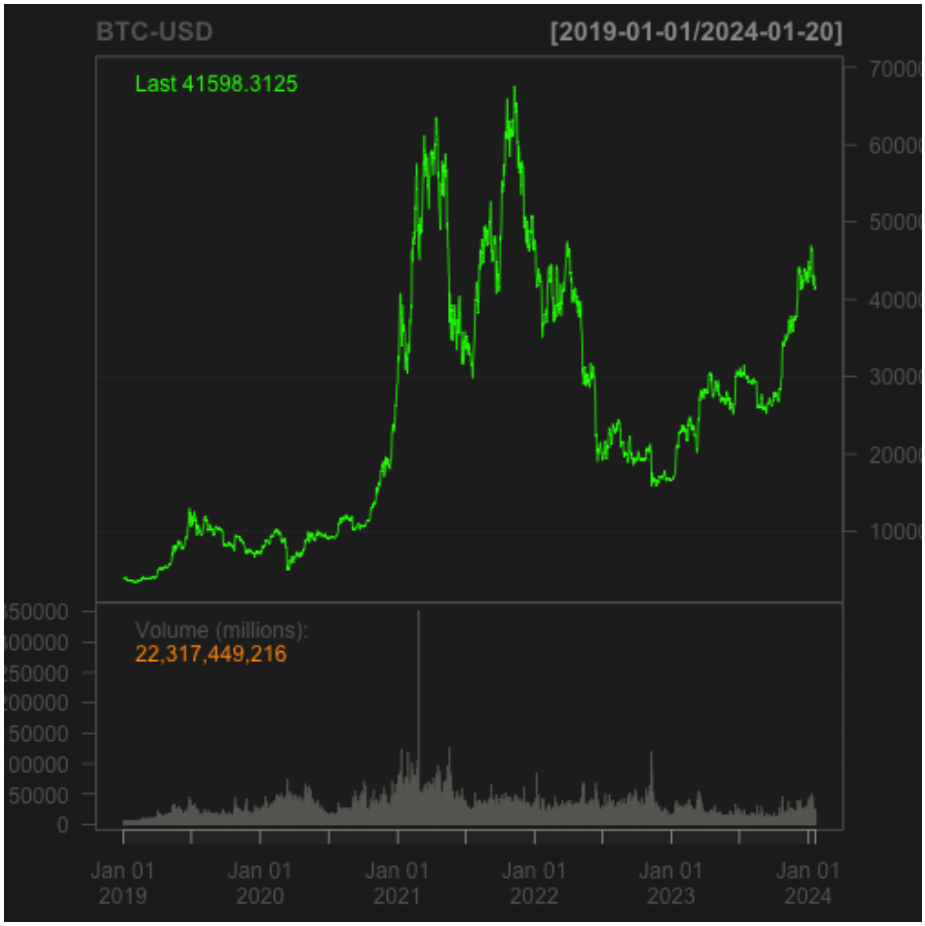


Figure 6: plot of chunk unnamed-chunk-5

```
addSMA(n = 50, col = 'blue')

addSMA(n = 100, col = 'orange')
legend('left', col = c('green','blue','orange'),
```

Figure 7: plot of chunk unnamed-chunk-5

```
       legend = c('BTC-USD','SMA50','SMA100'), lty = 1, bty = 'n',
       text.col = 'white', cex = 0.8)
```

Figure 8: plot of chunk unnamed-chunk-5

```
# 2. ETH-USD
sma50_btc <- SMA(ETH$`ETH-USD.Close`, n = 50)
sma100_btc <- SMA(ETH$`ETH-USD.Close`, n = 100)
lineChart(`ETH-USD`, theme = chartTheme('black'))

addSMA(n = 50, col = 'blue')

addSMA(n = 100, col = 'orange')
legend('left', col = c('green','blue','orange'),
       legend = c('ETH-USD','SMA50','SMA100'), lty = 1, bty = 'n',
       text.col = 'white', cex = 0.8)

sma50_btc <- SMA(ADA$`ADA-USD.Close`, n = 50)
```

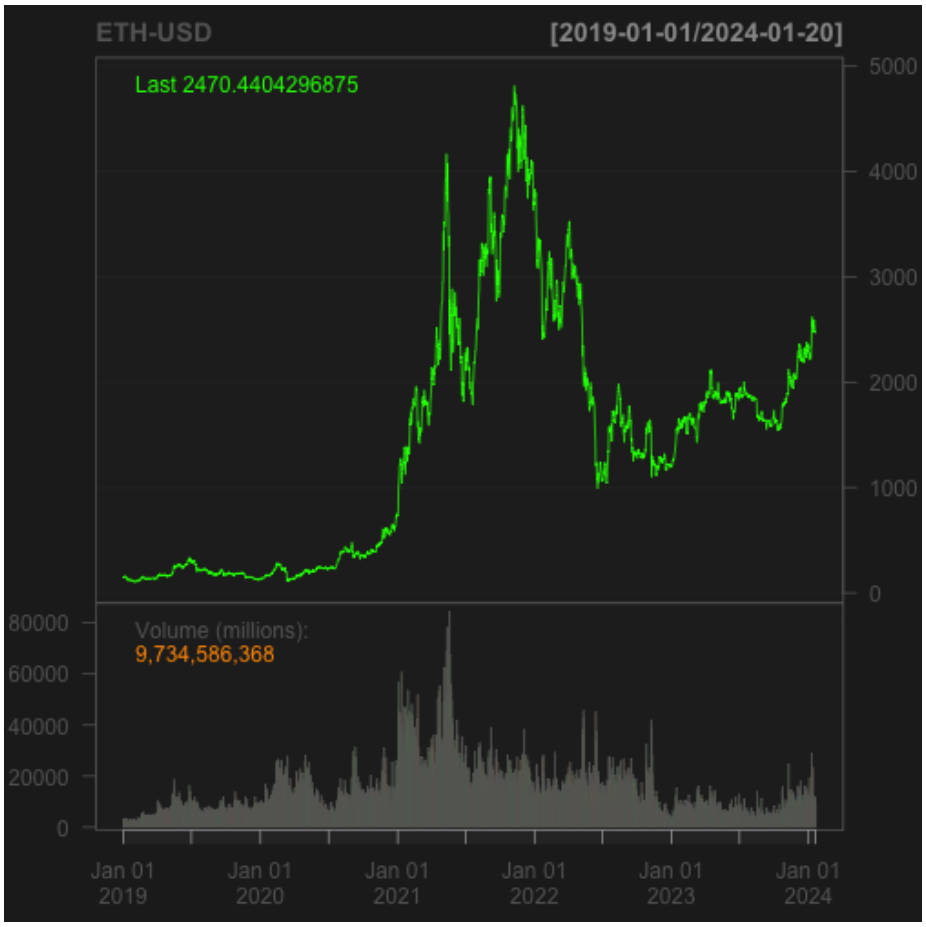


Figure 9: plot of chunk unnamed-chunk-6

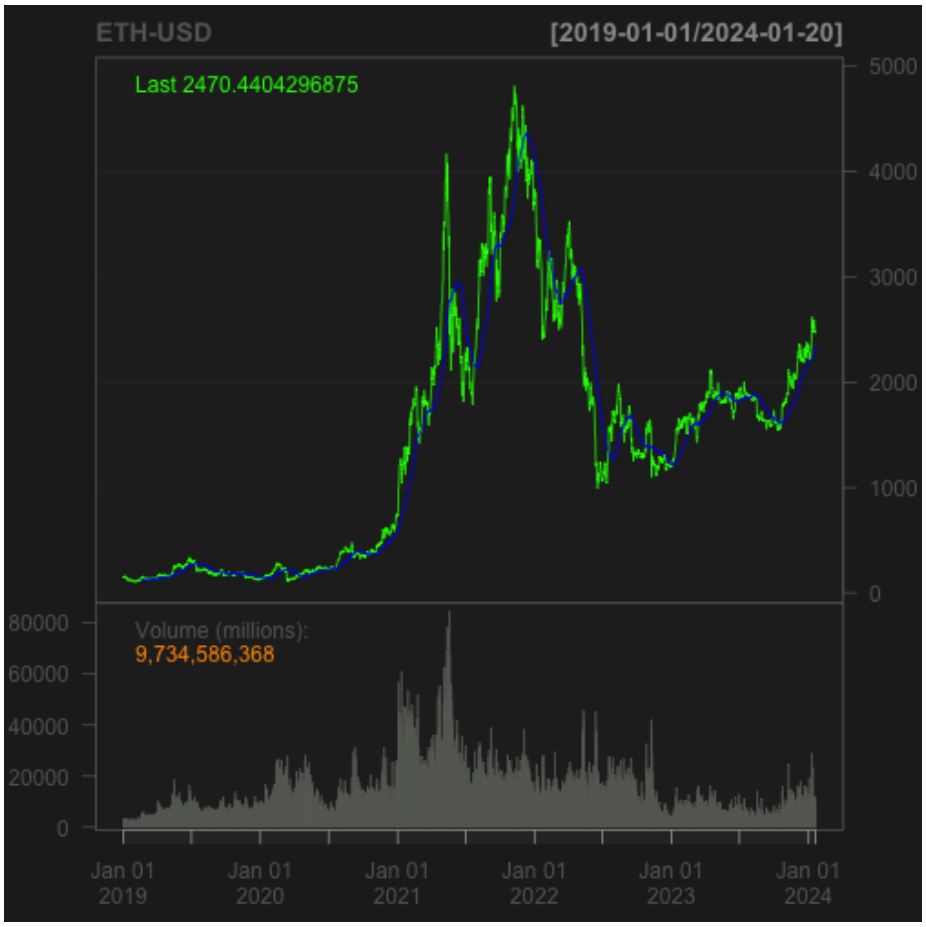


Figure 10: plot of chunk unnamed-chunk-6

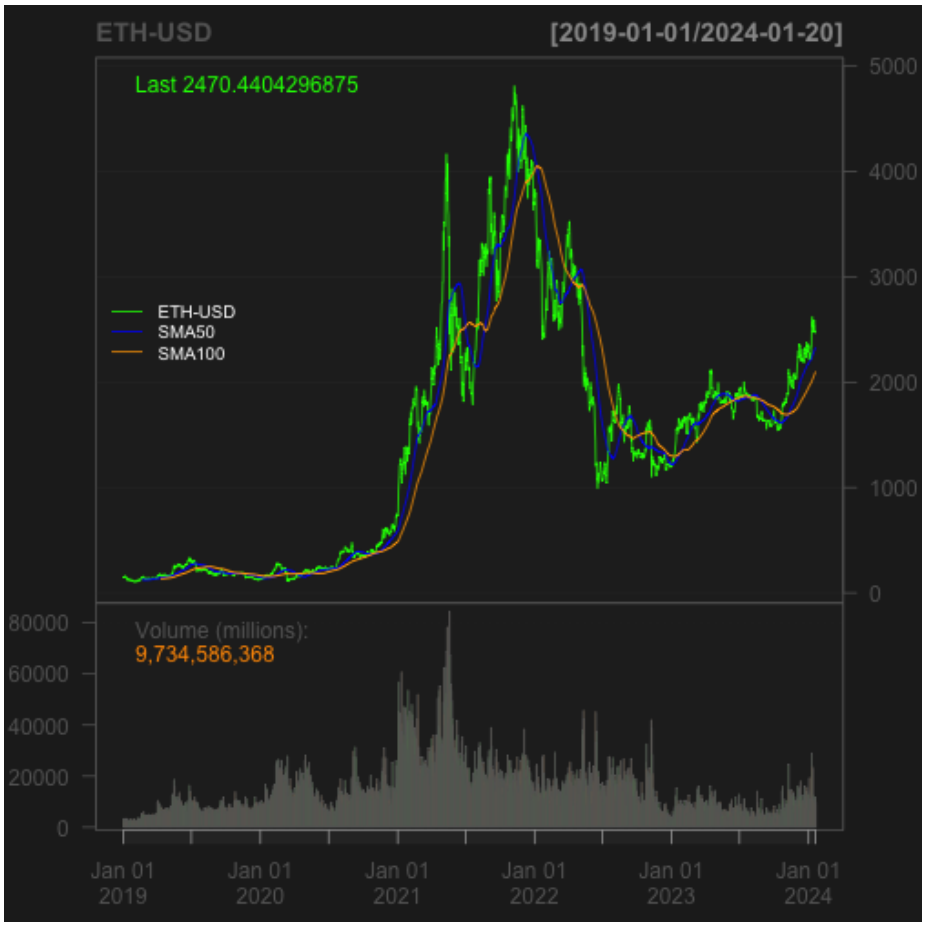


Figure 11: plot of chunk unnamed-chunk-6

```
sma100_btc <- SMA(ADA$`ADA-USD.Close`, n = 100)
lineChart(`ADA-USD`, theme = chartTheme('black'))
```

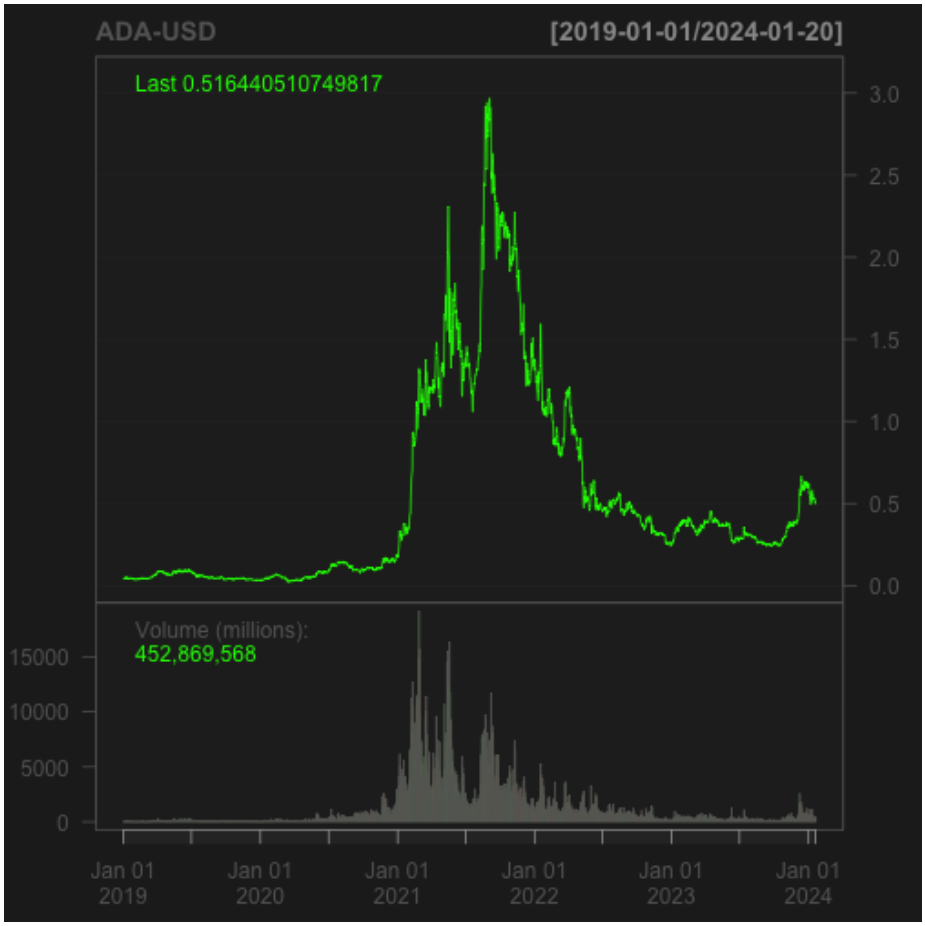


Figure 12: plot of chunk unnamed-chunk-7

```
addSMA(n = 50, col = 'blue')
```

```
addSMA(n = 100, col = 'orange')
legend('left', col = c('green','blue','orange'),
       legend = c('ADA-USD','SMA50','SMA100'), lty = 1, bty = 'n',
       text.col = 'white', cex = 0.8)
```

```
sma50_btc <- SMA(BNB$`BNB-USD.Close`, n = 50)
sma100_btc <- SMA(BNB$`BNB-USD.Close`, n = 100)
lineChart(`BNB-USD`, theme = chartTheme('black'))
```

```
addSMA(n = 50, col = 'blue')
```

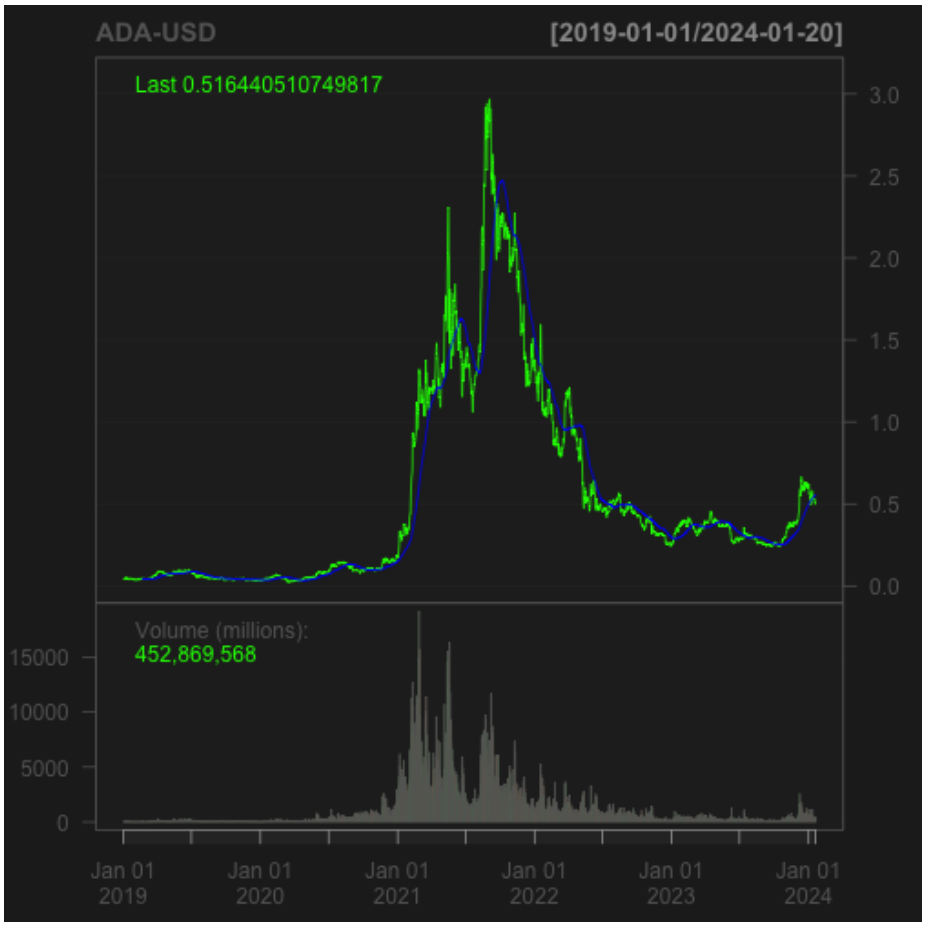


Figure 13: plot of chunk unnamed-chunk-7

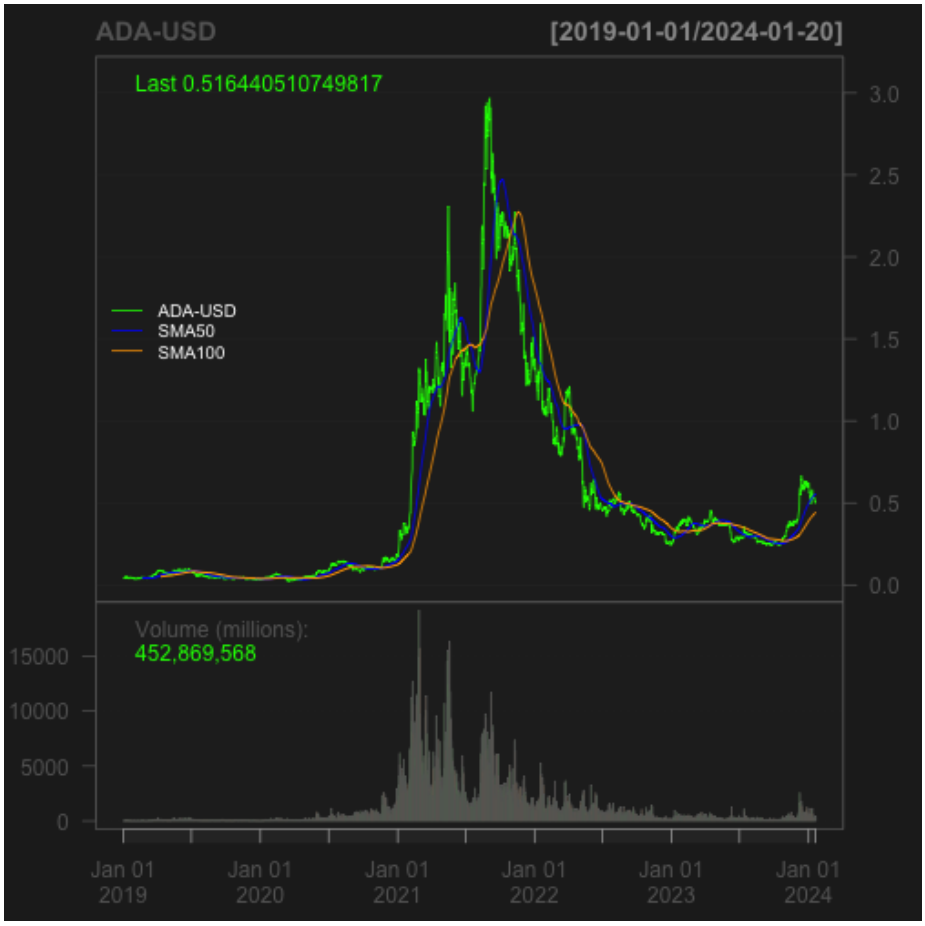


Figure 14: plot of chunk unnamed-chunk-7

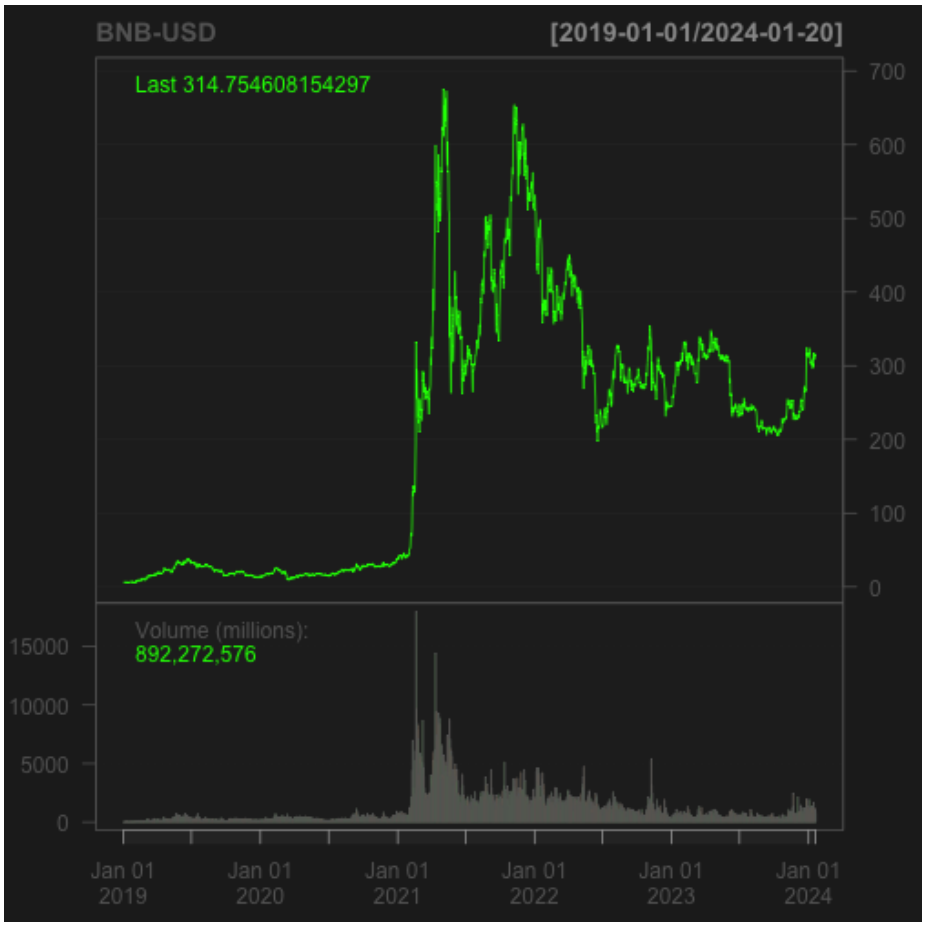


Figure 15: plot of chunk unnamed-chunk-8

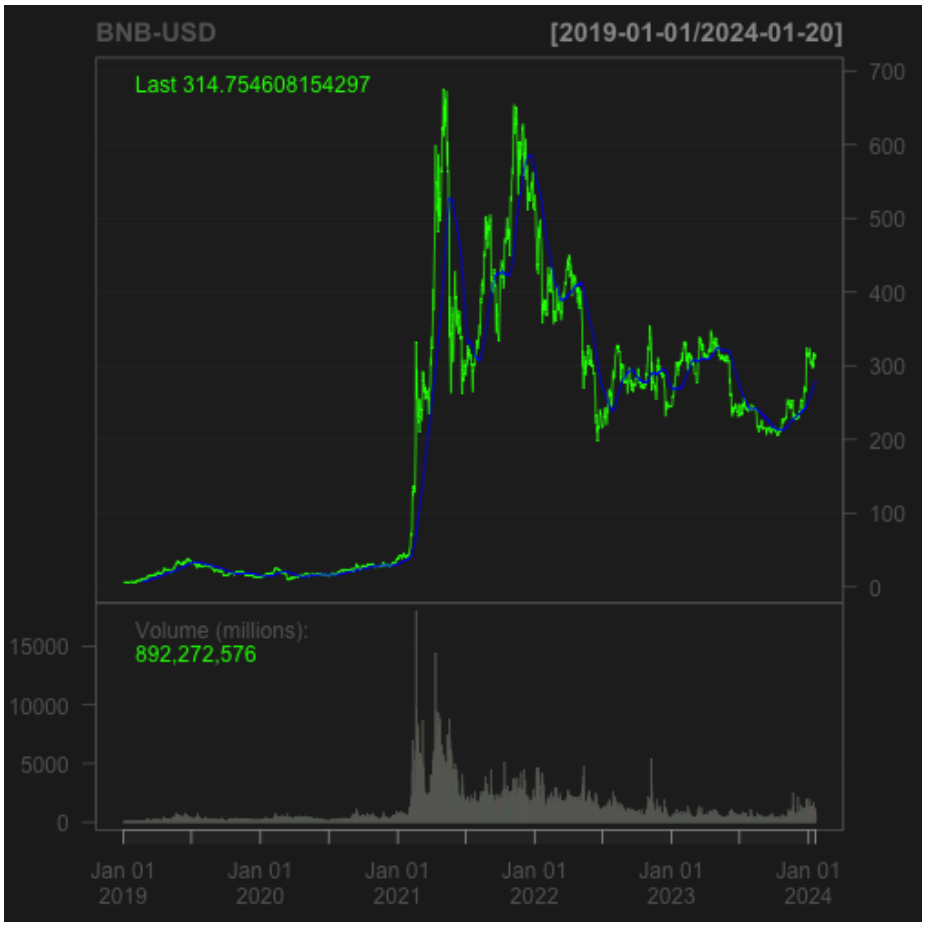


Figure 16: plot of chunk unnamed-chunk-8

```
addSMA(n = 100, col = 'orange')
legend('left', col = c('green','blue','orange'),
       legend = c('BNB-USD','SMA50','SMA100'), lty = 1, bty = 'n',
       text.col = 'white', cex = 0.8)
```

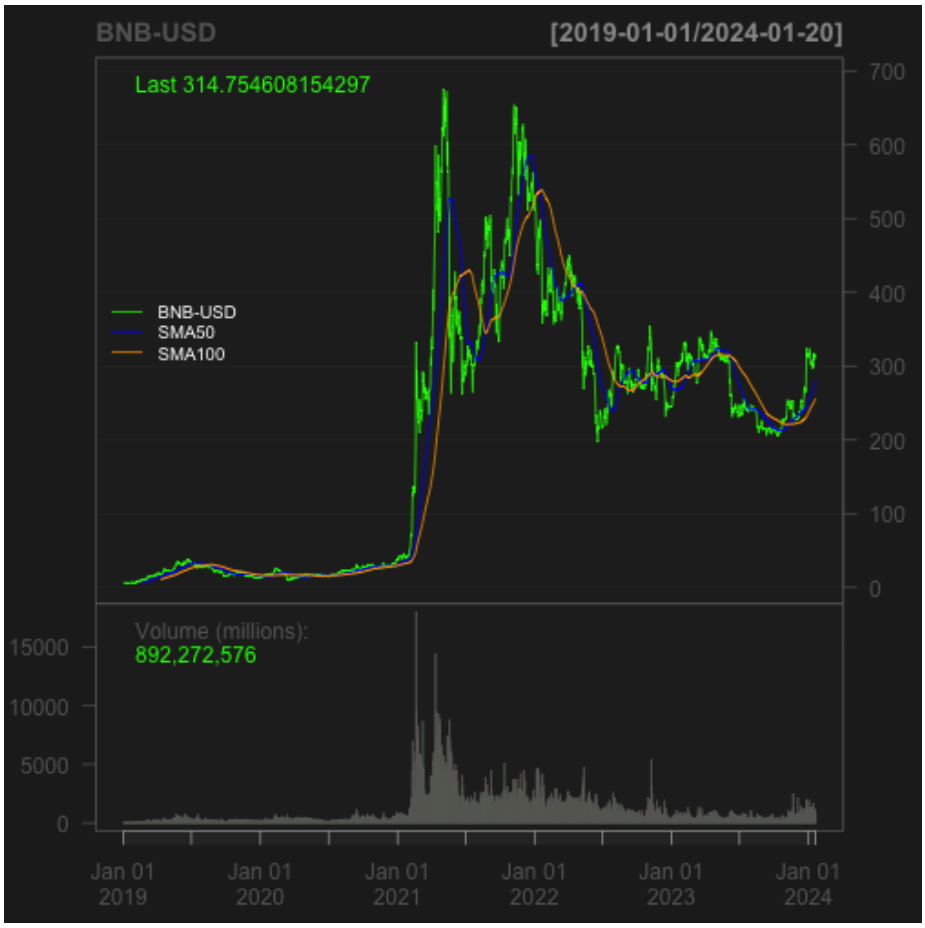


Figure 17: plot of chunk unnamed-chunk-8

```
sma50_btc <- SMA(XRP$`XRP-USD.Close`, n = 50)
sma100_btc <- SMA(XRP$`XRP-USD.Close`, n = 100)
lineChart(`XRP-USD`, theme = chartTheme('black'))

addSMA(n = 50, col = 'blue')

addSMA(n = 100, col = 'orange')
legend('left', col = c('green','blue','orange'),
       legend = c('BNB-USD','SMA50','SMA100'), lty = 1, bty = 'n',
       text.col = 'white', cex = 0.8)
```

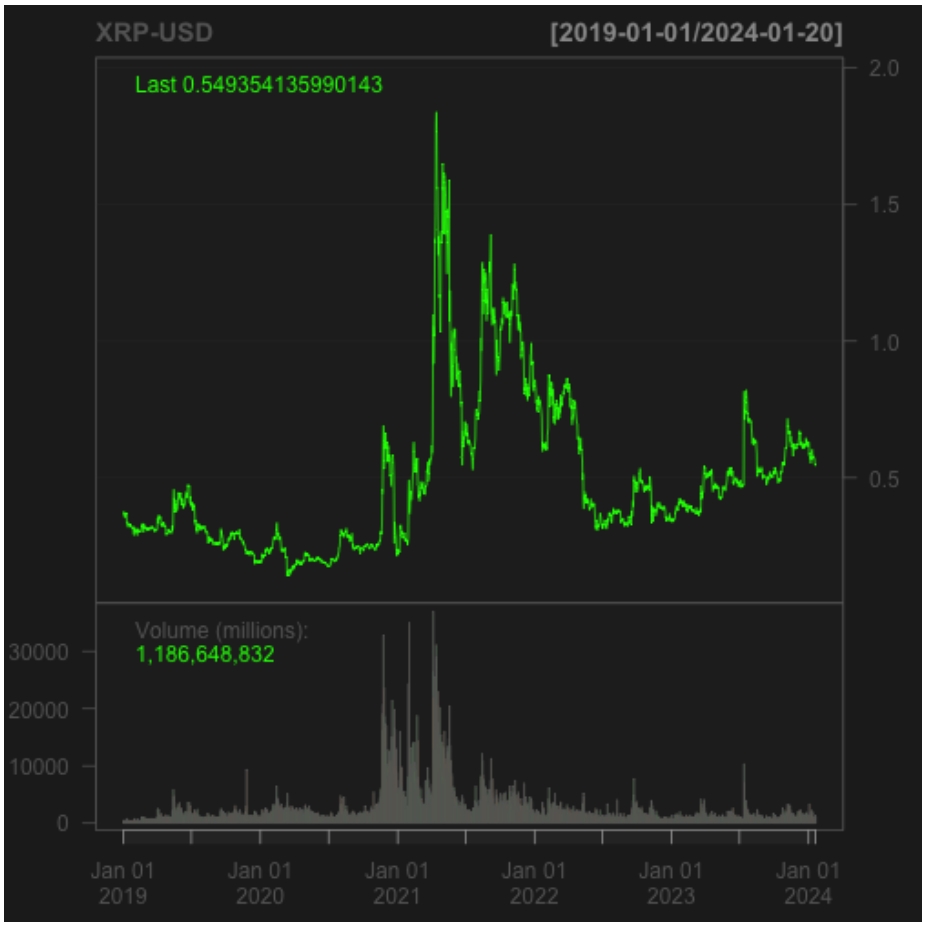


Figure 18: plot of chunk unnamed-chunk-9

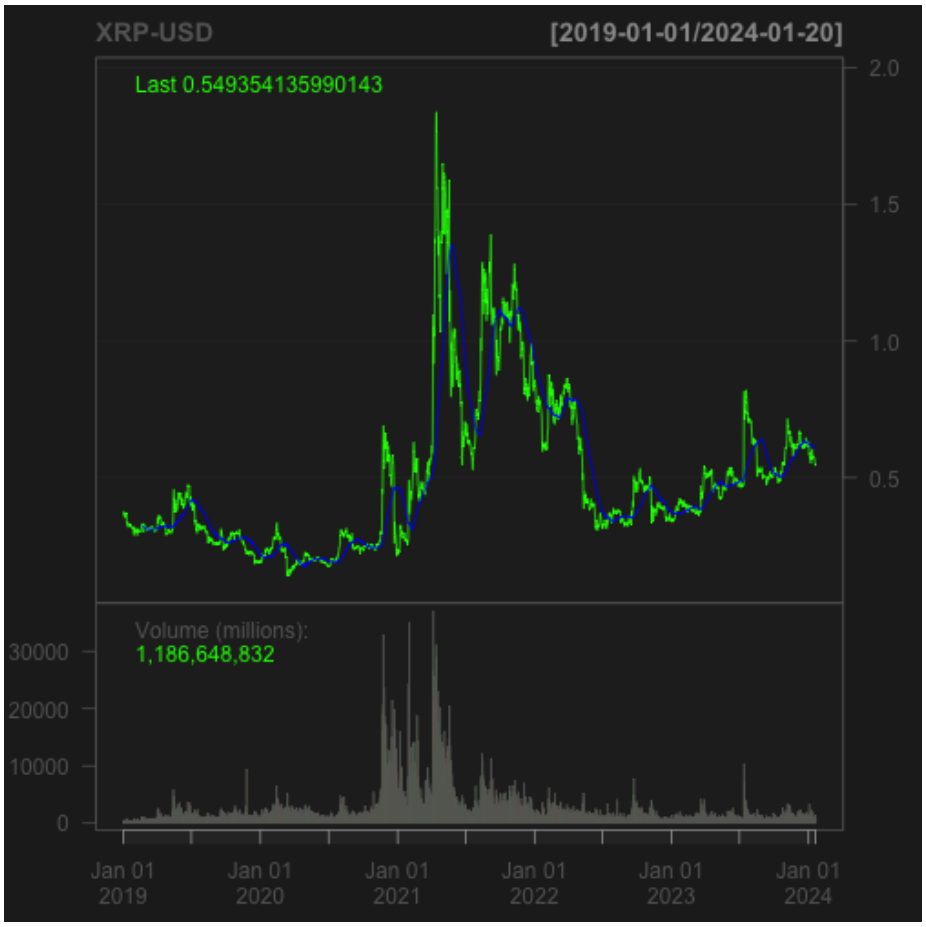


Figure 19: plot of chunk unnamed-chunk-9

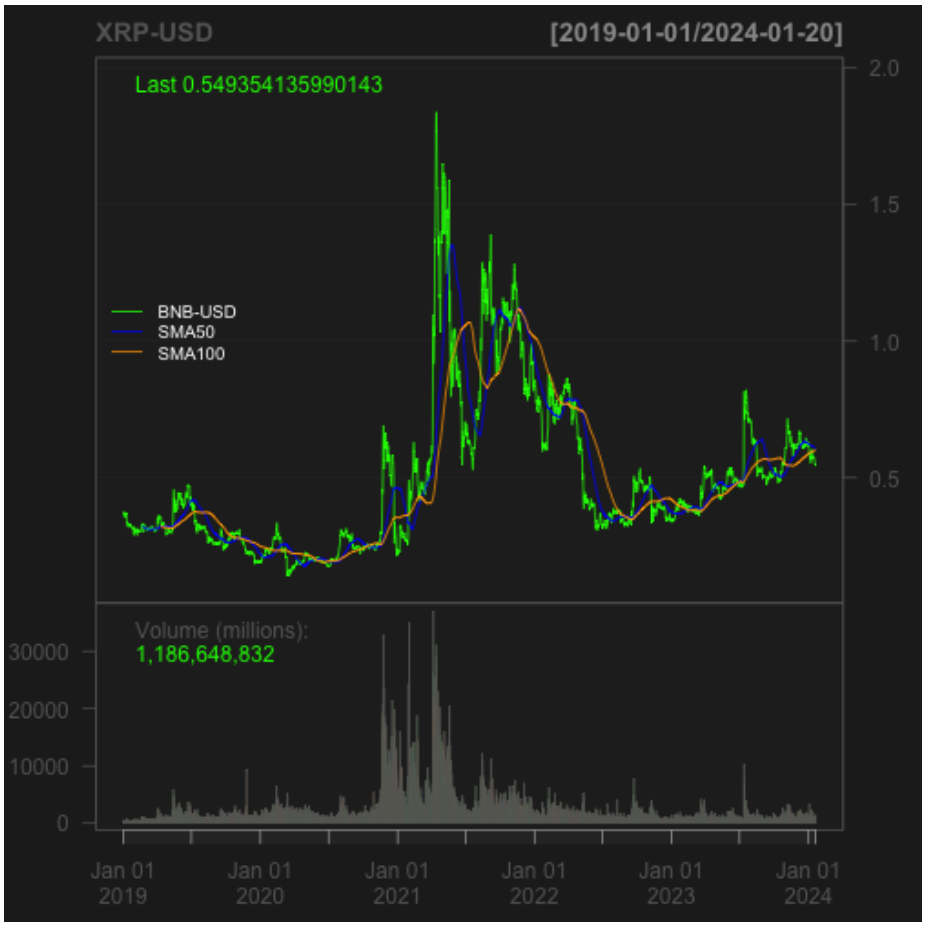


Figure 20: plot of chunk unnamed-chunk-9

Indice del Canale delle Materie Prime (CCI):

Per calcolare il CCI, dobbiamo considerare i prezzi giornalieri di massimo, minimo e chiusura delle aziende insieme a un periodo di tempo specificato e un valore costante. In questo passaggio, prenderemo 20 giorni come periodo di tempo e 0,015 come valore costante.

Il seguente codice calcolerà il CCI delle aziende insieme a un grafico:

```
# 1.BTC
cci_BTC <- CCI(HLC(BTC), n = 20, c = 0.015)
barChart(BTC, theme = 'black')
```

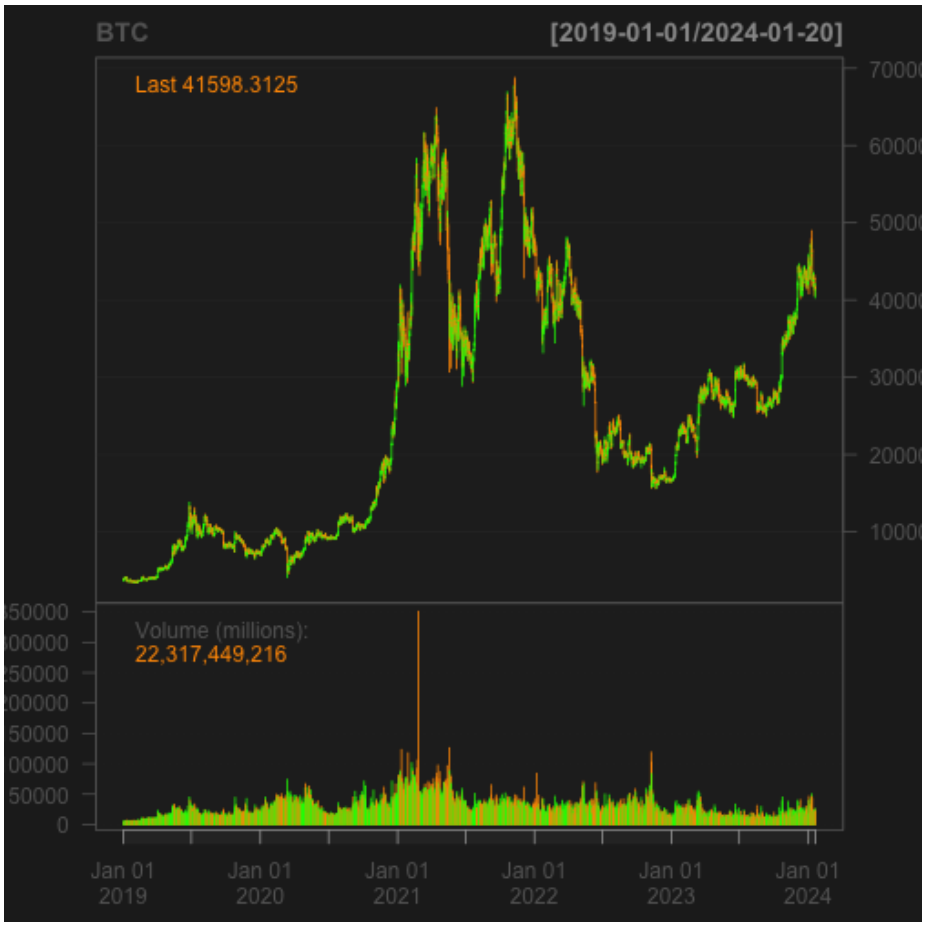


Figure 21: plot of chunk unnamed-chunk-10

```
addCCI(n = 20, c = 0.015)
```

```
# 2.ETH
```

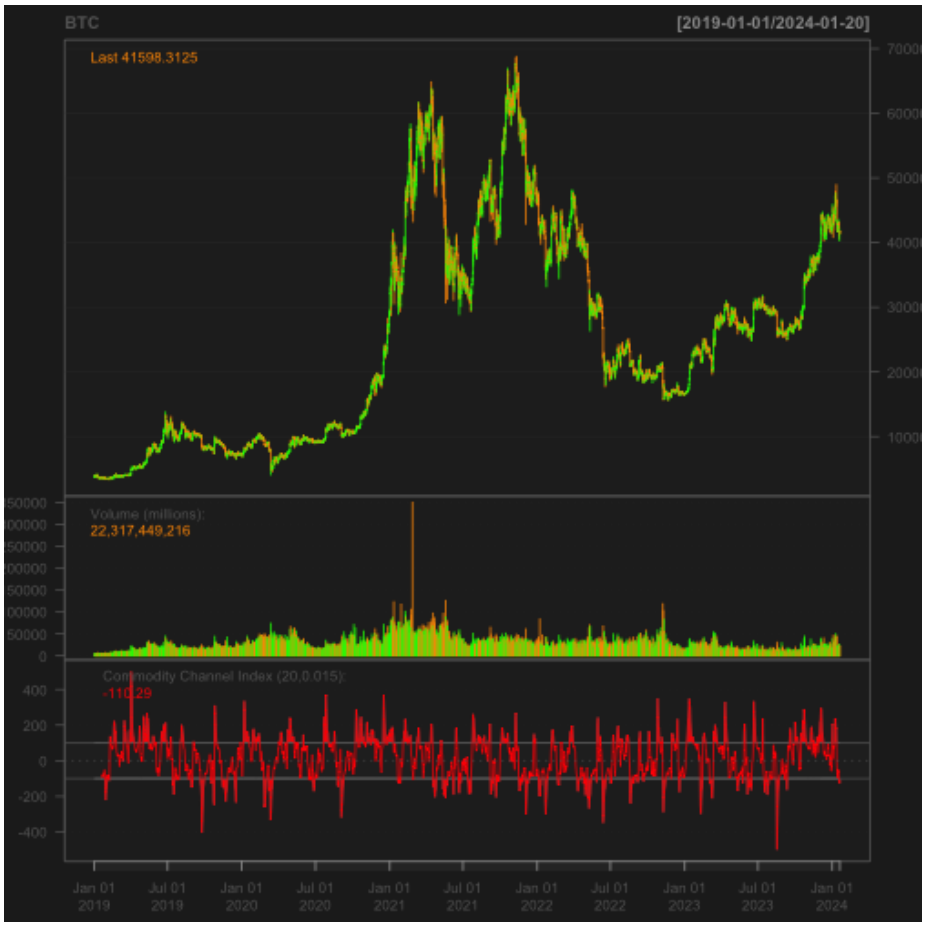


Figure 22: plot of chunk unnamed-chunk-10

```r
cci_eth <- CCI(HLC(ETH), n = 20, c = 0.015)
barChart(ETH, theme = 'black')
```

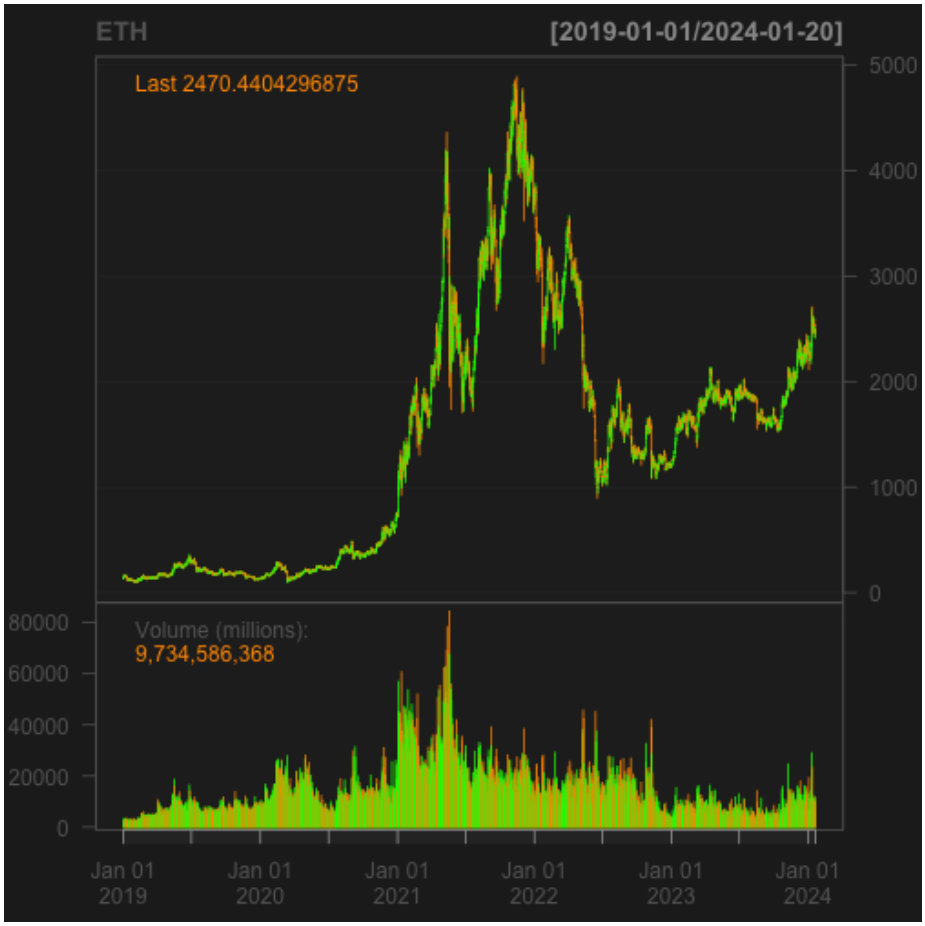


Figure 23: plot of chunk unnamed-chunk-10

```r
addCCI(n = 20, c = 0.015)

# 3.BNB
cci_BNB <- CCI(HLC(BNB), n = 20, c = 0.015)
barChart(BNB, theme = 'black')

addCCI(n = 20, c = 0.015)

# 4. XRP

cci_XRP <- CCI(HLC(XRP), n = 20, c = 0.015)
barChart(XRP, theme = 'black')
```

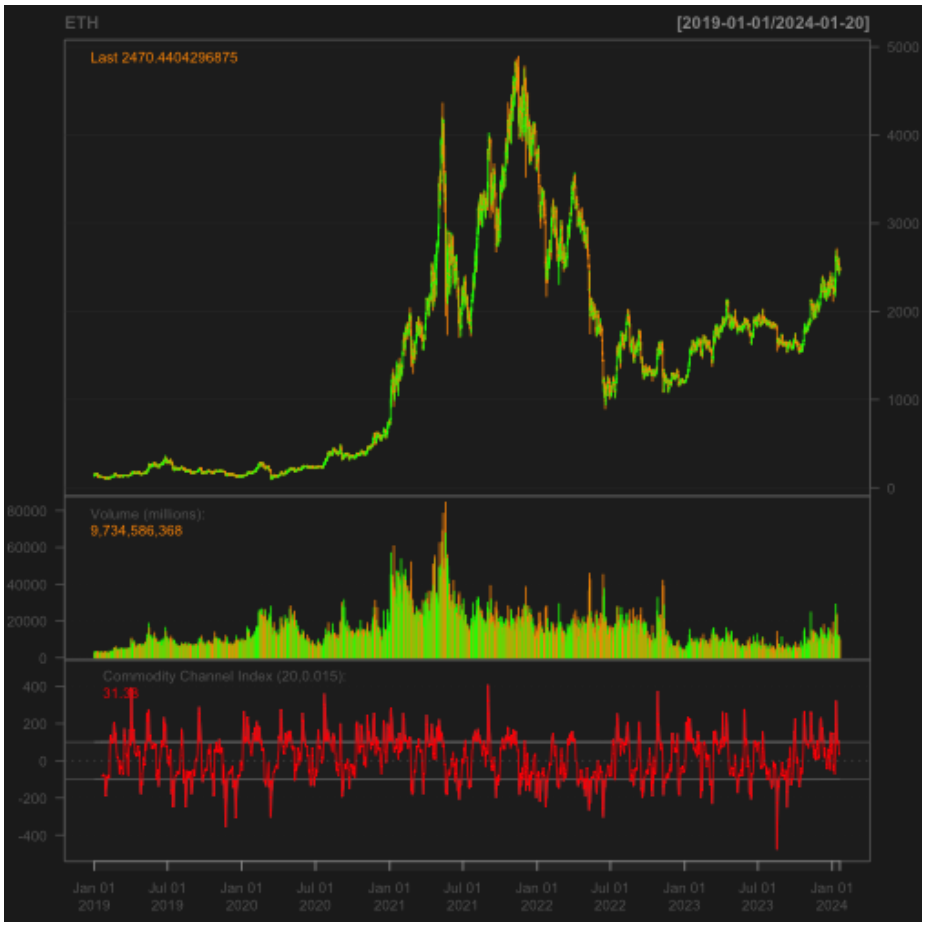


Figure 24: plot of chunk unnamed-chunk-10

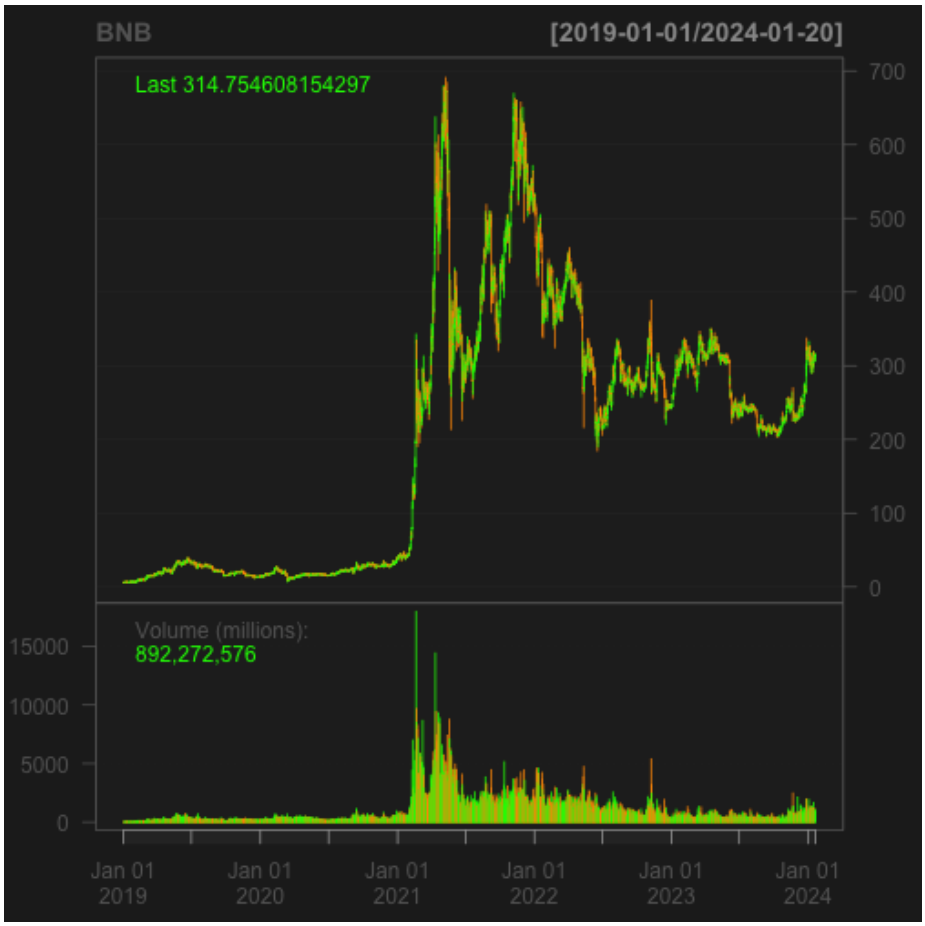


Figure 25: plot of chunk unnamed-chunk-10

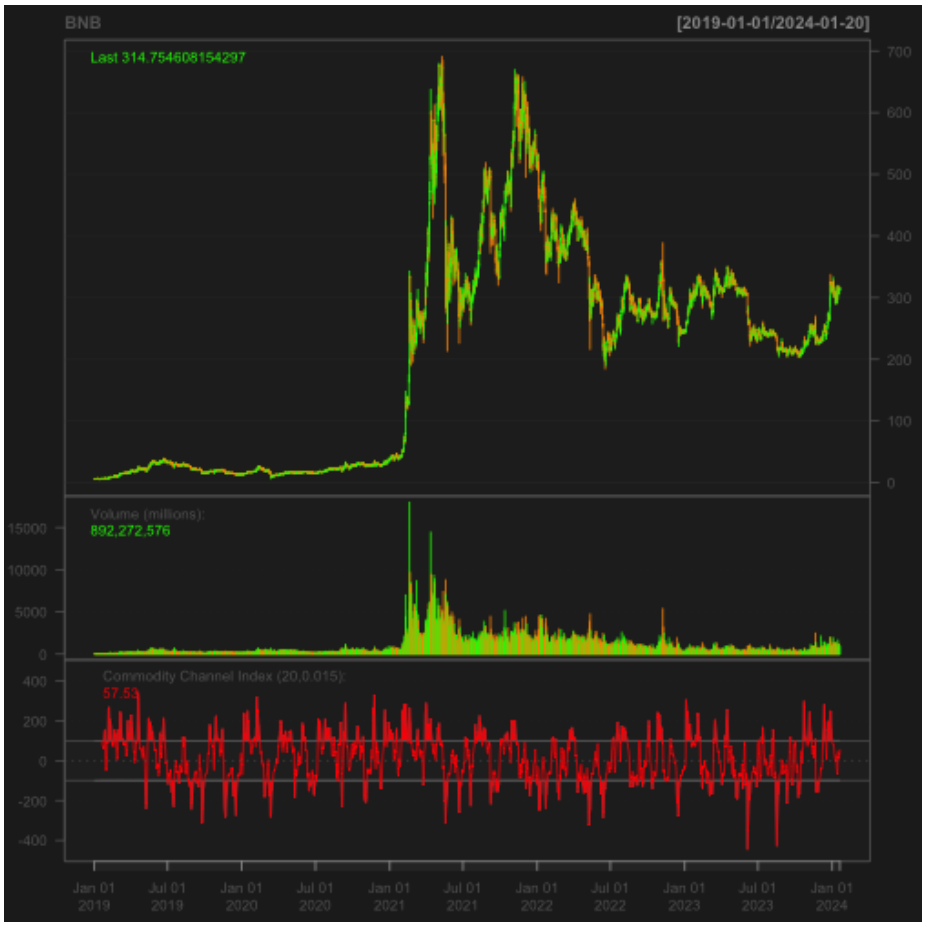


Figure 26: plot of chunk unnamed-chunk-10

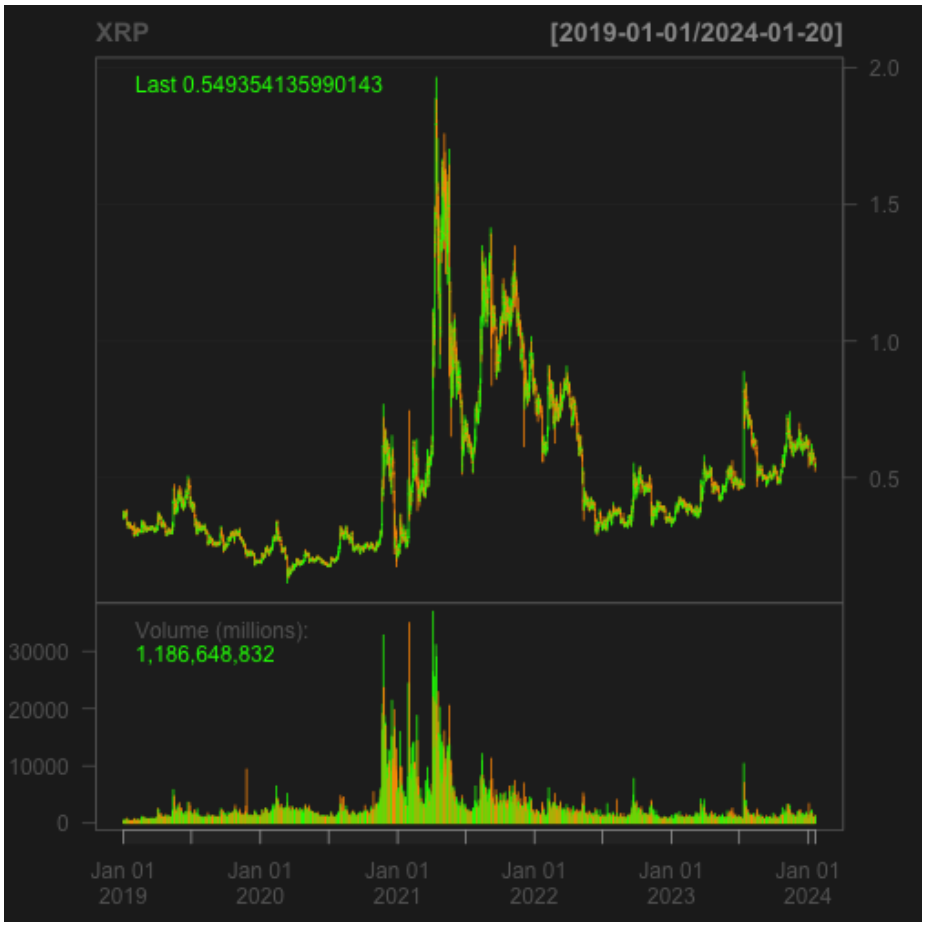


Figure 27: plot of chunk unnamed-chunk-10

```
addCCI(n = 20, c = 0.015)
```

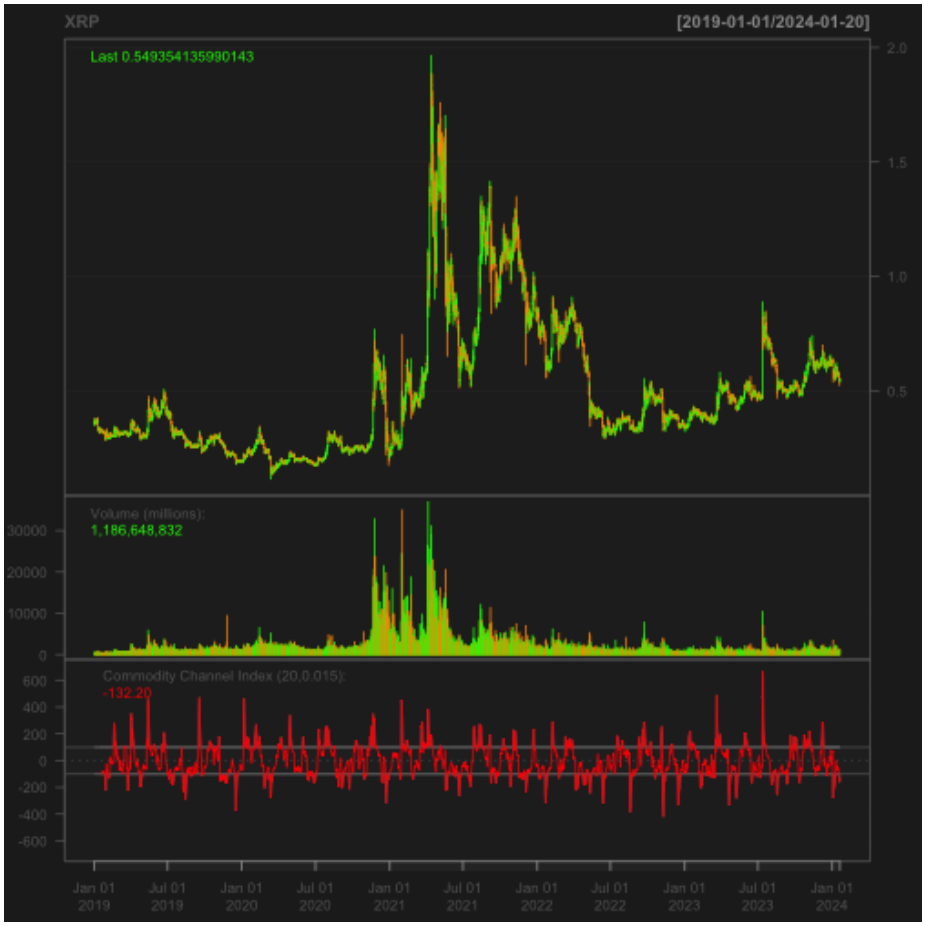


Figure 28: plot of chunk unnamed-chunk-10

```
# 5.ADA

cci_ADA <- CCI(HLC(ADA), n = 20, c = 0.015)
barChart(ADA, theme = 'black')

addCCI(n = 20, c = 0.015)
```

Tasso di variazione (ROC)

Per calcolare il ROC, dobbiamo considerare un intervallo di tempo specificato e non ci sono restrizioni nell'utilizzare qualsiasi periodo. In questo passaggio, prenderemo 25 giorni come periodo di tempo.

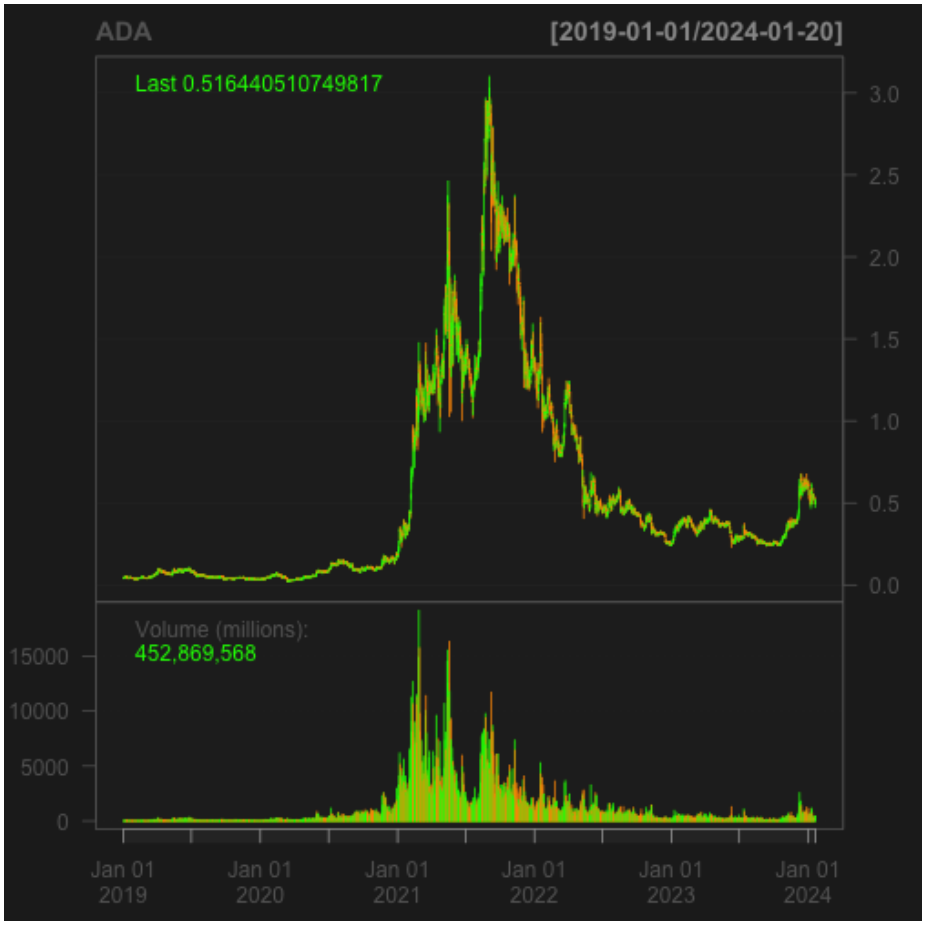


Figure 29: plot of chunk unnamed-chunk-10

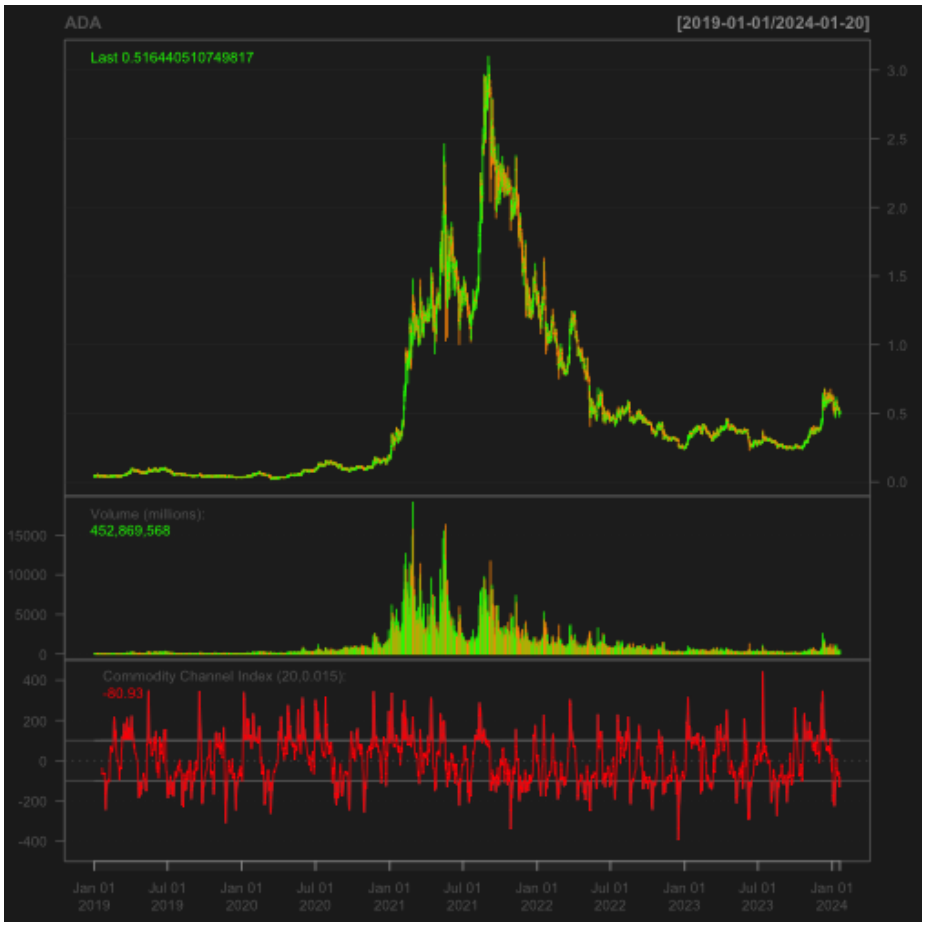


Figure 30: plot of chunk unnamed-chunk-10

Il codice seguente calcolerà il ROC delle aziende insieme a un grafico:

```
# 1. BTC
roc_btc <- ROC(BTC$`BTC-USD.Close`, n = 25)
barChart(BTC, theme = 'black')
```

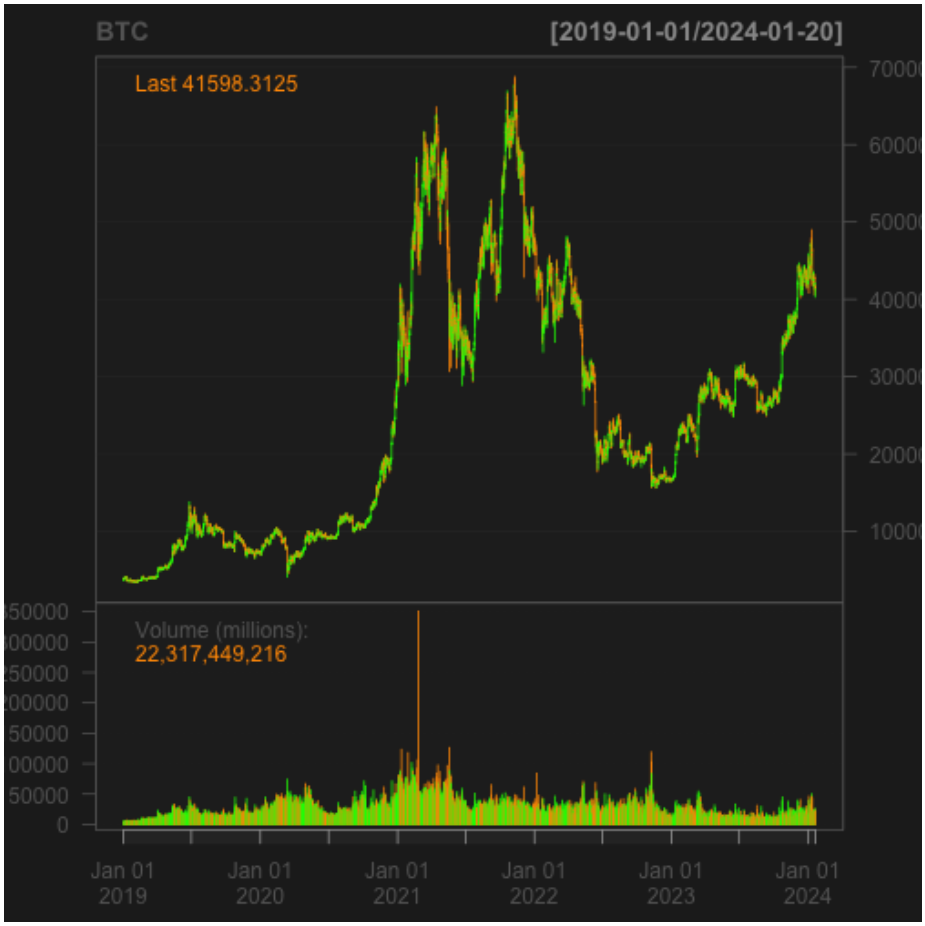


Figure 31: plot of chunk unnamed-chunk-11

```
addROC(n = 25)
legend('left', col = 'red', legend = 'ROC(25)', lty = 1, bty = 'n',
       text.col = 'white', cex = 0.8)
```

```
roc_ETH <- ROC(ETH$`ETH-USD.Close`, n = 25)
barChart(ETH, theme = 'black')
```

```
addROC(n = 25)
legend('left', col = 'red', legend = 'ROC(25)', lty = 1, bty = 'n',
       text.col = 'white', cex = 0.8)
```

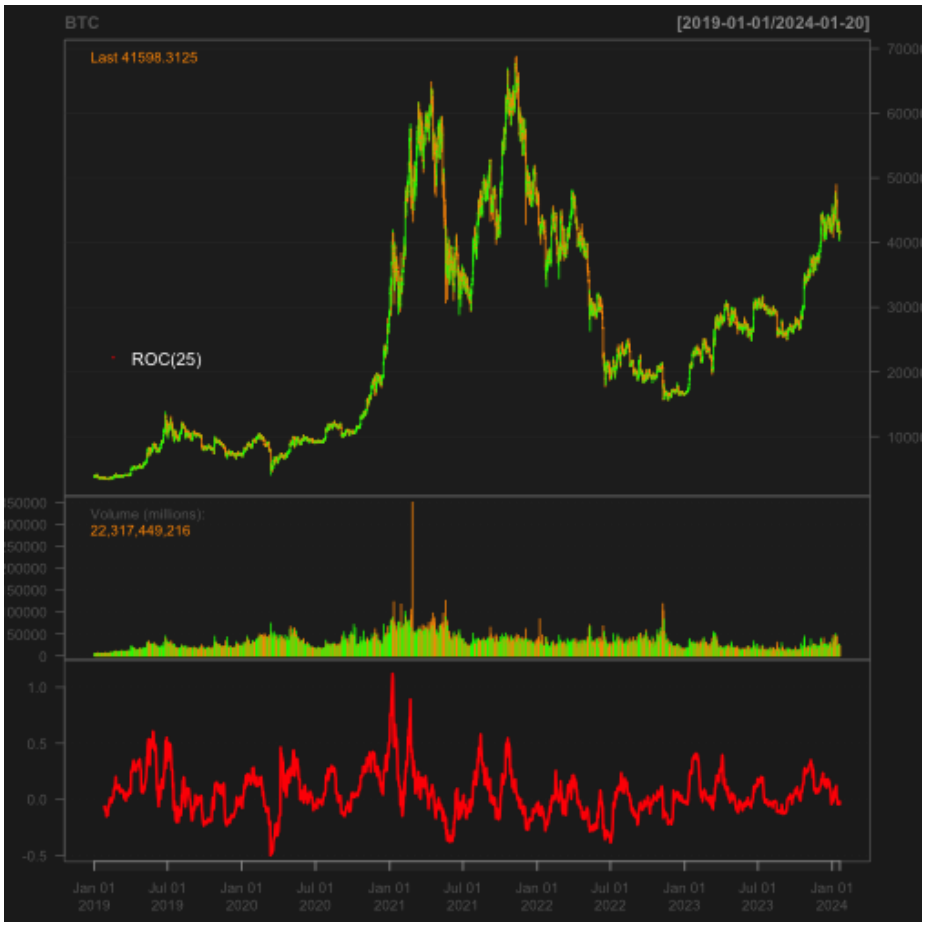


Figure 32: plot of chunk unnamed-chunk-11

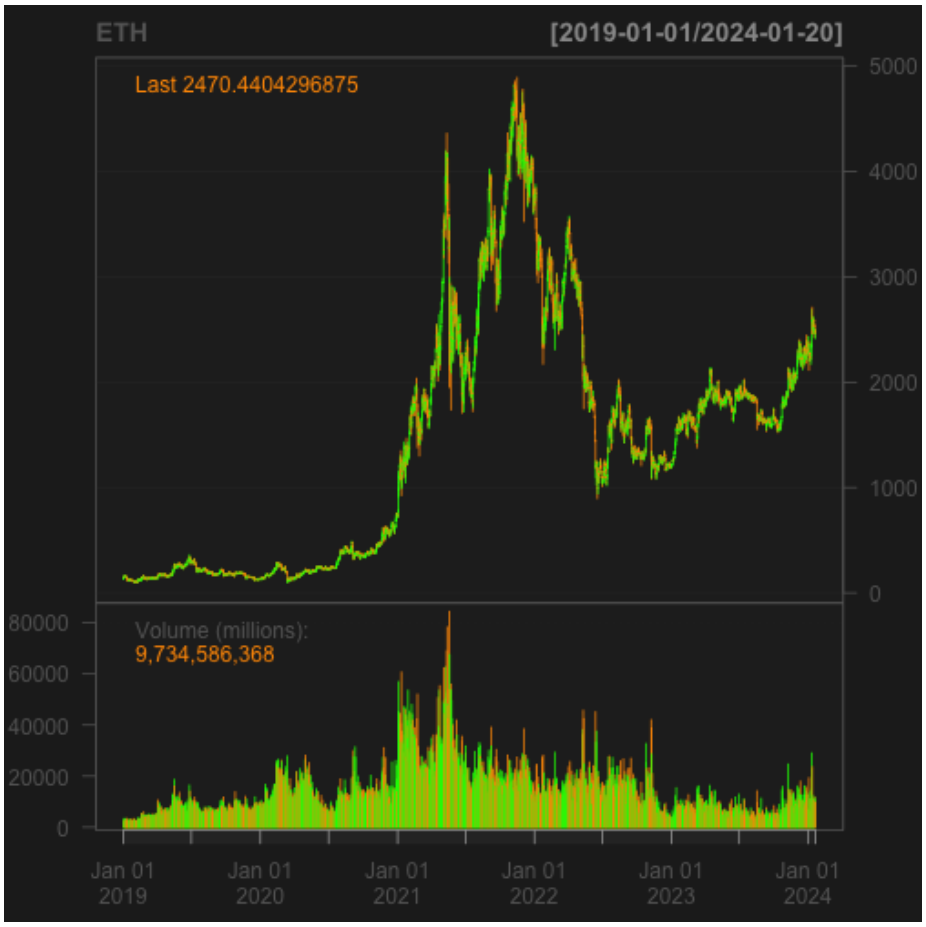


Figure 33: plot of chunk unnamed-chunk-11

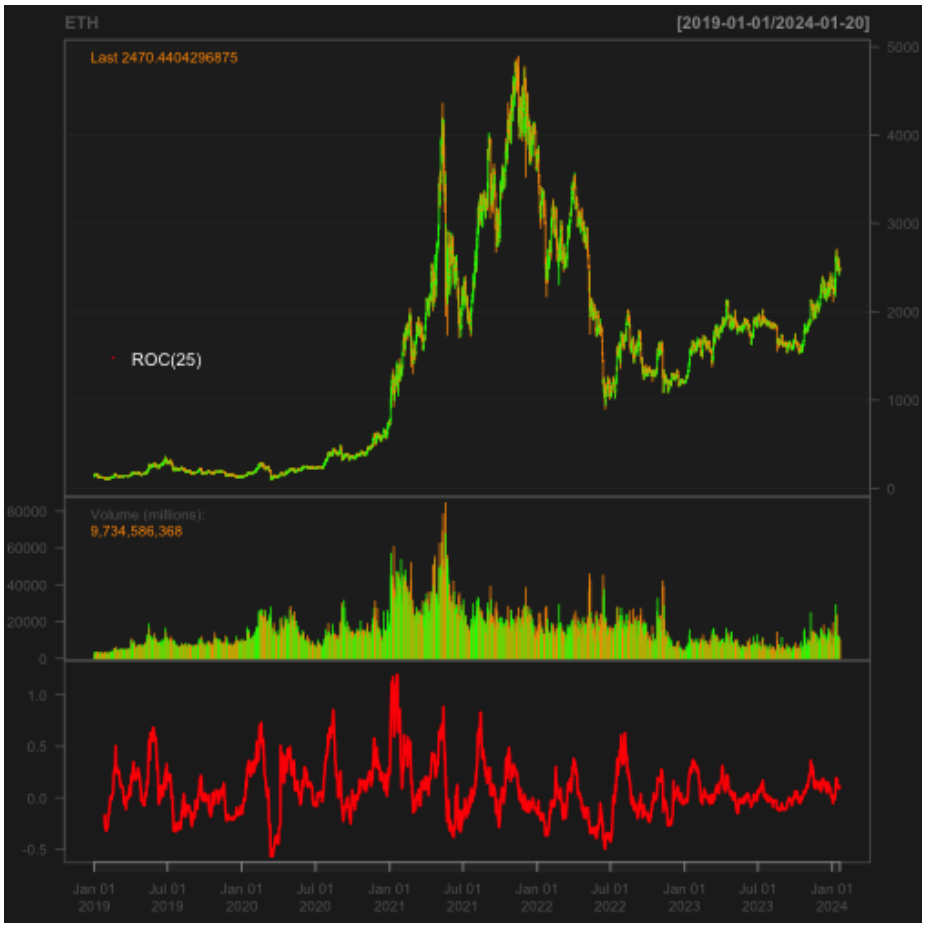


Figure 34: plot of chunk unnamed-chunk-11

```
roc_BNB <- ROC(BNB$`BNB-USD.Close`, n = 25)
barChart(BNB, theme = 'black')

addROC(n = 25)
legend('left', col = 'red', legend = 'ROC(25)', lty = 1, bty = 'n',
       text.col = 'white', cex = 0.8)

roc_XRP <- ROC(XRP$`XRP-USD.Close`, n = 25)
barChart(XRP, theme = 'black')

addROC(n = 25)
legend('left', col = 'red', legend = 'ROC(25)', lty = 1, bty = 'n',
       text.col = 'white', cex = 0.8)

roc_ADA <- ROC(ADA$`ADA-USD.Close`, n = 25)
barChart(ADA, theme = 'black')
```

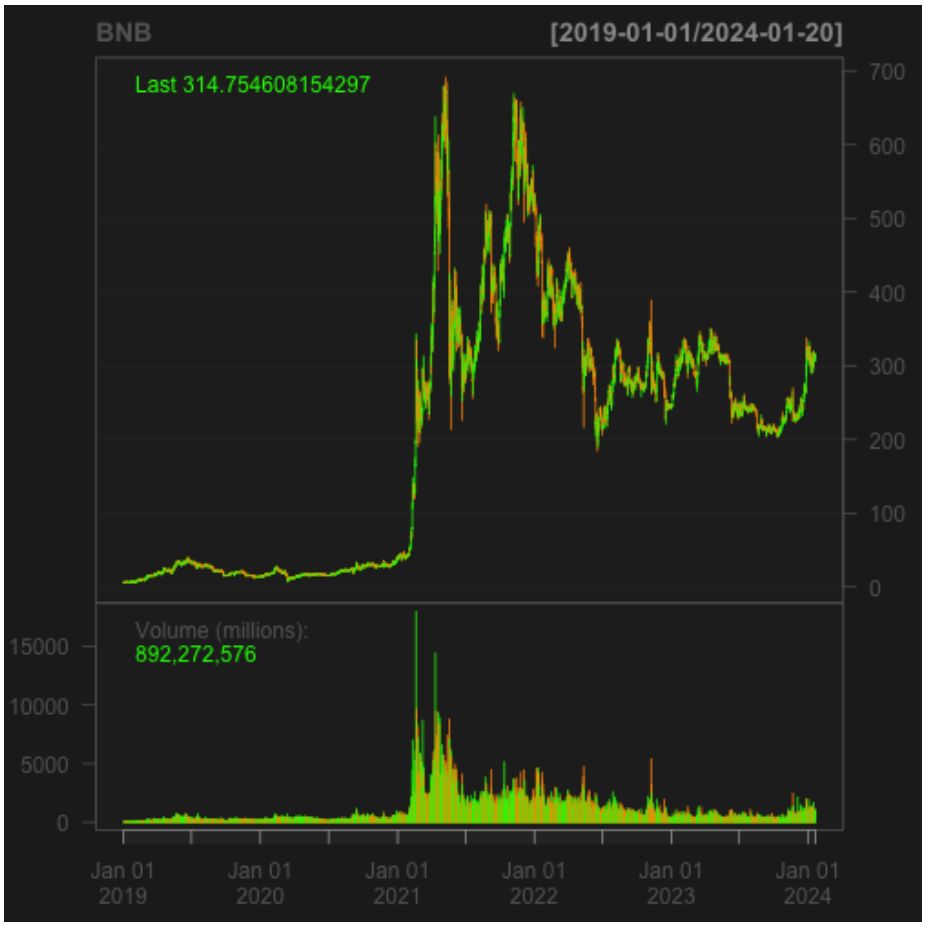


Figure 35: plot of chunk unnamed-chunk-11

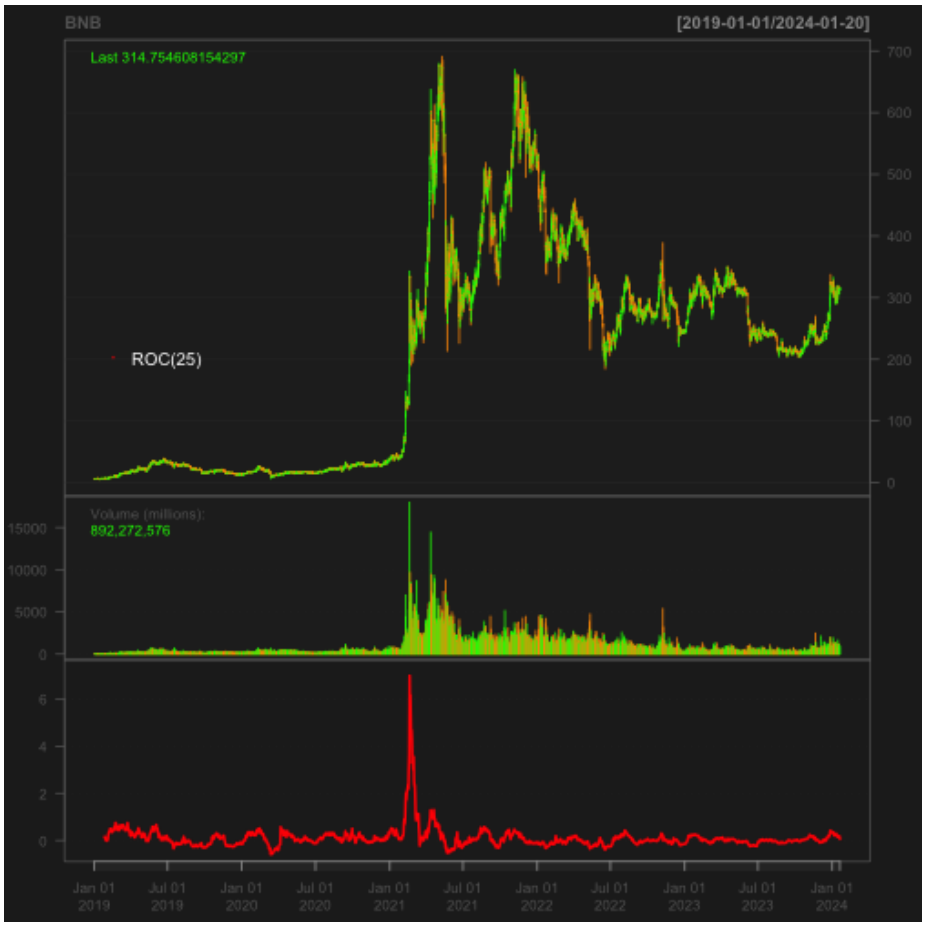


Figure 36: plot of chunk unnamed-chunk-11

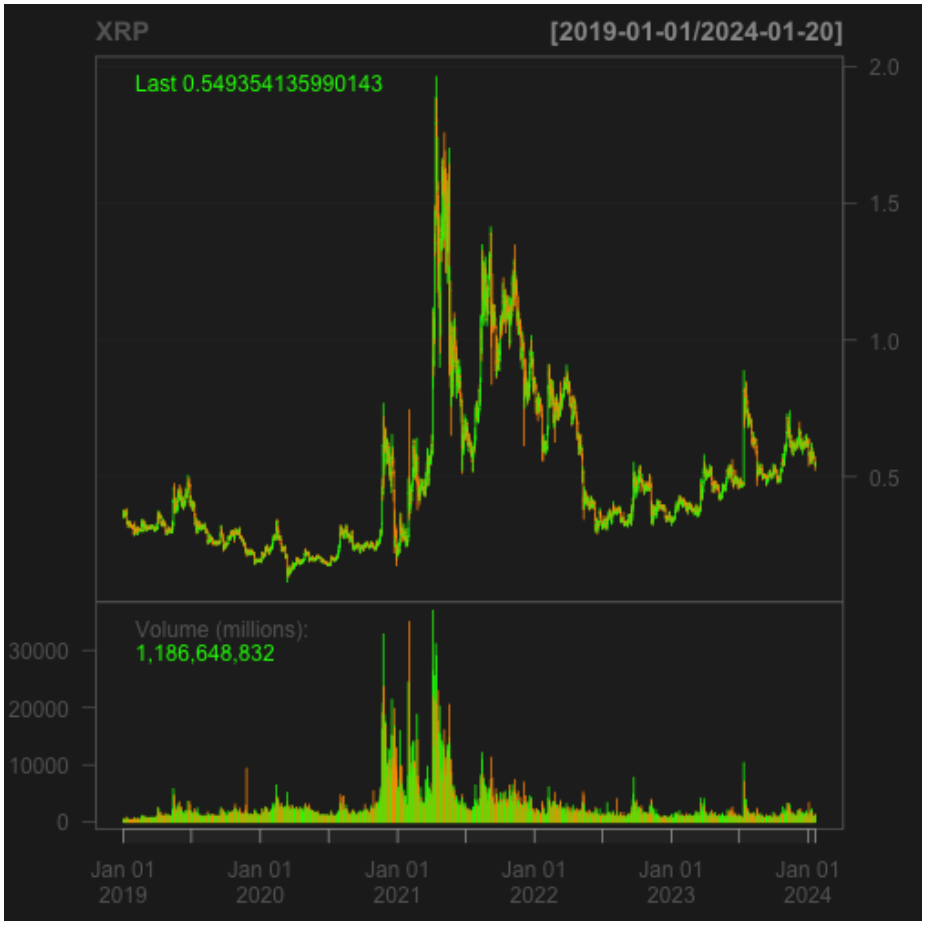


Figure 37: plot of chunk unnamed-chunk-11

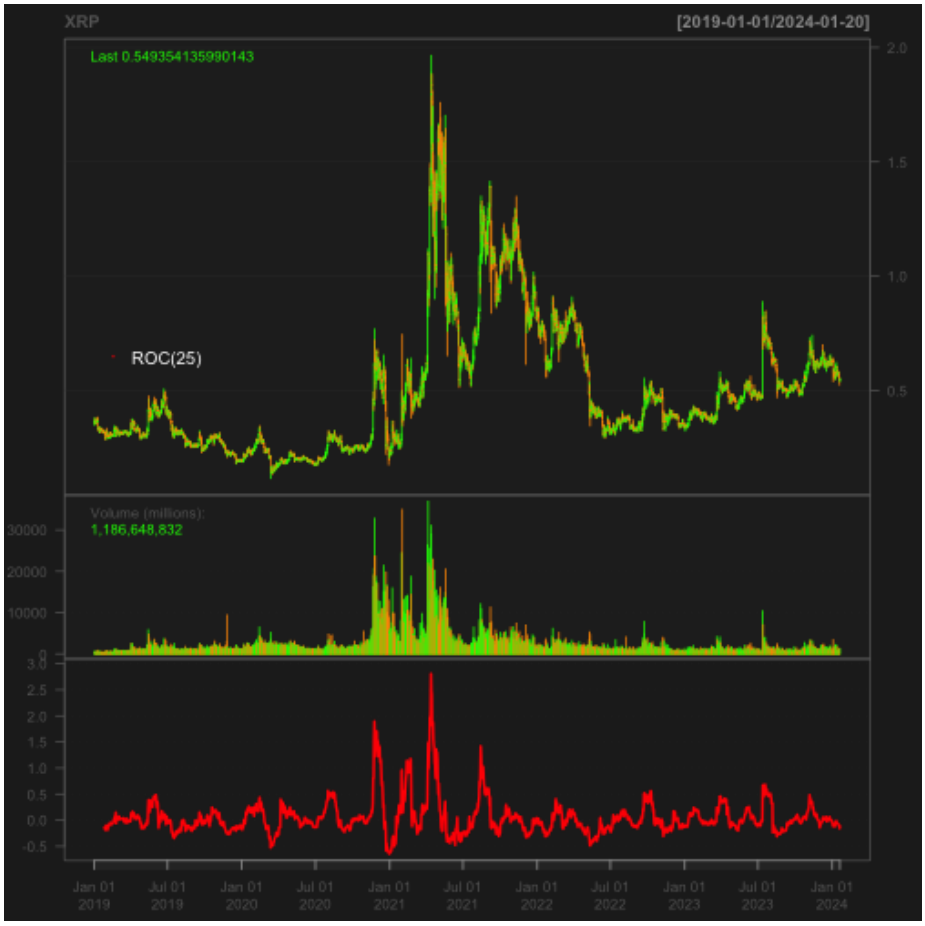


Figure 38: plot of chunk unnamed-chunk-11

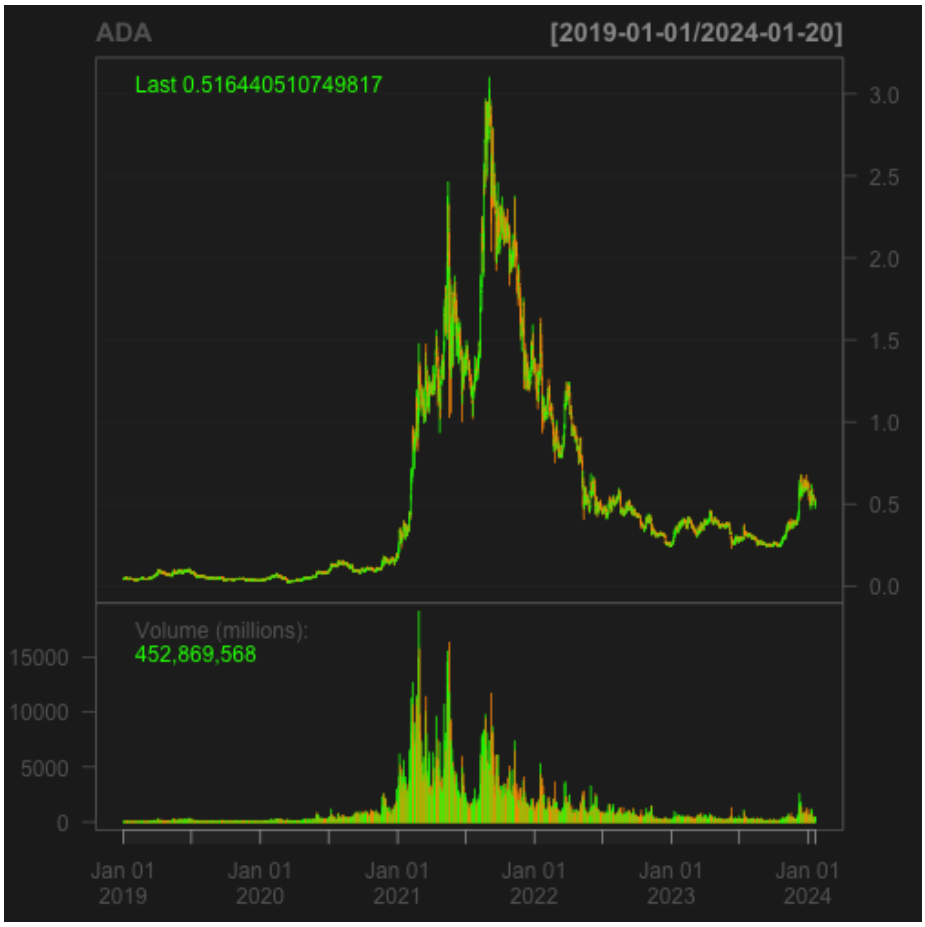
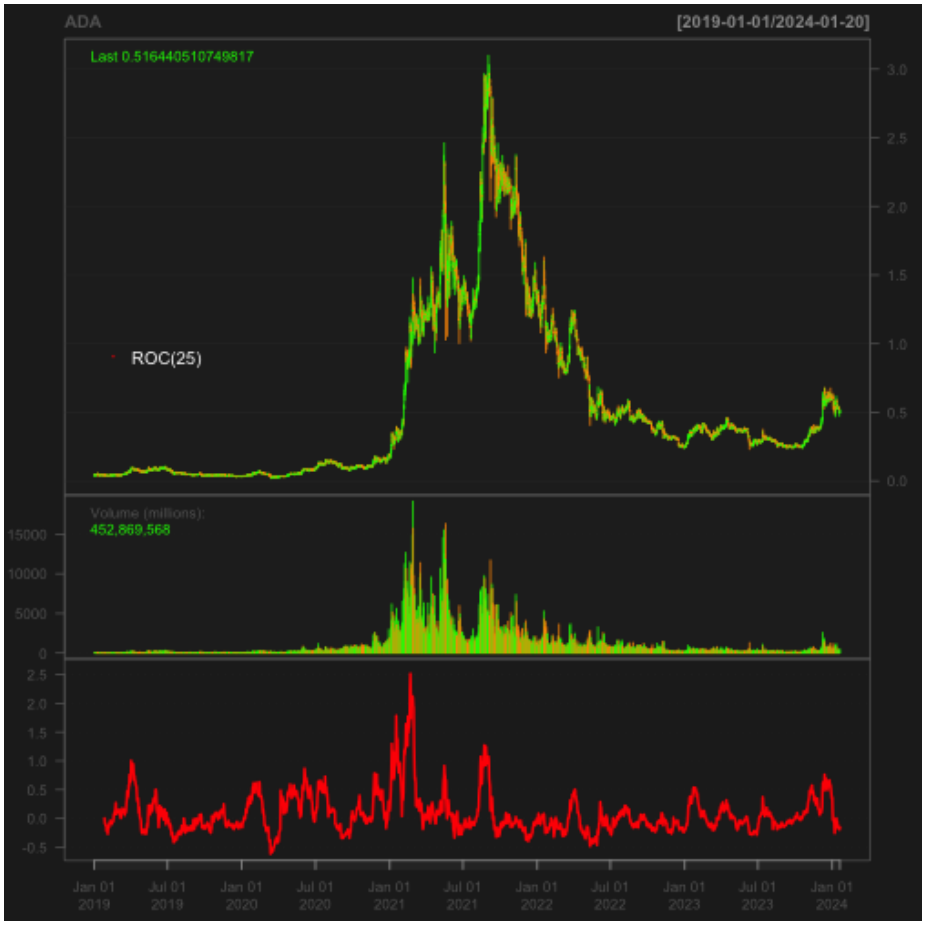


Figure 39: plot of chunk unnamed-chunk-11

```
addROC(n = 25)
legend('left', col = 'red', legend = 'ROC(25)', lty = 1, bty = 'n',
       text.col = 'white', cex = 0.8)
```



verifico i cambiamenti nel git

ancora un altra prova