SFite\_Homework11

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library(tseries)

## Warning: package 'tseries' was built under R version 3.4.1

library(backports)  
library(rmarkdown)

## Warning: package 'rmarkdown' was built under R version 3.4.1

SNPdata <- get.hist.quote('^gspc',quote="Close")

## 'getSymbols' currently uses auto.assign=TRUE by default, but will  
## use auto.assign=FALSE in 0.5-0. You will still be able to use  
## 'loadSymbols' to automatically load data. getOption("getSymbols.env")  
## and getOption("getSymbols.auto.assign") will still be checked for  
## alternate defaults.  
##   
## This message is shown once per session and may be disabled by setting   
## options("getSymbols.warning4.0"=FALSE). See ?getSymbols for details.

##   
## WARNING: There have been significant changes to Yahoo Finance data.  
## Please see the Warning section of '?getSymbols.yahoo' for details.  
##   
## This message is shown once per session and may be disabled by setting  
## options("getSymbols.yahoo.warning"=FALSE).

## time series ends 2017-07-25

SNPret <- log(lag(SNPdata)) - log(SNPdata)  
  
SNPvol <- sd(SNPret) \* sqrt(250) \* 100  
  
  
  
## volatility  
  
Vol <- function(d, logrets)  
 {  
 var = 0  
 lam = 0  
 varlist <- c()  
 for (r in logrets)   
 {  
  
 lam = lam\*(1 - 1/d) + 1  
 var = (1 - 1/lam)\*var + (1/lam)\*r^2  
 varlist <- c(varlist, var)  
 }  
 sqrt(varlist)  
}  
  
# Recreate Figure 6.12 in the text on page 155  
  
volest <- Vol(10,SNPret)  
  
volest2 <- Vol(30,SNPret)  
  
volest3 <- Vol(100,SNPret)  
  
plot(volest,type="l")  
  
lines(volest2,type="l",col="red")  
  
lines(volest3, type = "l", col="blue")

