Homework11\_SP500

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## R Markdown

## Uncomment and install packages if you don't have it  
#install.packages("tseries")  
  
library(tseries)

## Warning: package 'tseries' was built under R version 3.3.3

## S&P 500 (^GSPC)  
### SNP - SNP Real Time Price. Currency in USD  
  
# TODO: Download the data of SP500 '^gspc'.  
SNPdata <- get.hist.quote('^gspc',quote="Close")  
  
# TODO: Calculate the log returns, which is the subtractration of log(lag(SNPdata)) and log(SNPdata)  
SNPret <- log(lag(SNPdata))-log(SNPdata)  
  
# TODO: Calculate volatility measure that is to multiply sd(SNPret),sqrt(250), 100  
SNPvol <- sd(SNPret)\*sqrt(250)\*100  
   
   
## Define getVol function for volatility  
getVol <- 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)  
}  
  
  
# Calculate volatility over entire length of series for various three different decay factors: 10 30. 100  
  
# TODO: call getVol function with the parameters: 10,SNPret  
  
volest <- getVol(10,SNPret)  
  
# TODO: call getVol function with the parameters: 30,SNPret  
volest2 <- getVol(30,SNPret)  
  
# TODO: call getVol function with the parameters: 100,SNPret  
volest3 <- getVol(100,SNPret)  
  
# Plot the results, overlaying the volatility curves on the data, just as was done in the S&P example.  
plot(volest,type="l")  
  
# TODO: Add connected line segments for volest2 with the parameters: type="l",col="red"  
# hint: look at oilExerciseCode.R file at the live discussion  
  
lines(volest2,col='red', type='l')  
  
# TODO: Add connected line segments for volest3 with the parameters: type="l",col="blue"  
lines(volest2,col='blue', type='l')

