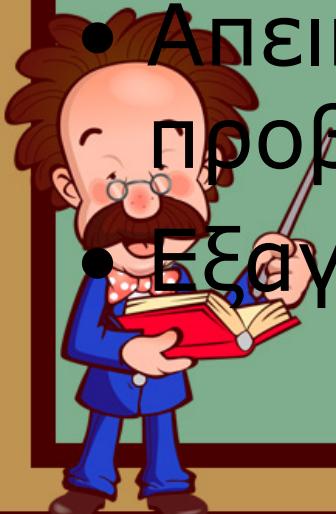
A cartoon illustration of a teacher with brown hair, a mustache, and glasses, wearing a blue suit and red bow tie. He is holding a red book and pointing a stick at a green chalkboard. The chalkboard has a gold border and contains the word "IntRoduction".

# IntRoduction

# ΣΤÓΧΟΙ

- Εισαγωγή δεδομένων
- Απεικόνιση δεδομένων
- Αποεποχικοποίηση
- Πρόβλεψη
- Απεικόνιση δεδομένων και προβλέψεων
- Εξαγωγή δεδομένων (.csv)



# Install Required Packages

- `install.packages("fpp", dependencies=TRUE)`
- `install.packages("forecast", dependencies=TRUE)`
- `install.packages("Matrix", dependencies=TRUE)`
- `install.packages("tseries", dependencies=TRUE)`



# Getting Help with R

- # Search for terms  
`help.search("forecasting")`
- # Detailed help  
`help(forecast)`
- # Worked examples  
`example("forecast.ar")`
- # Similar names  
`apropos("forecast")`
- #Help on package  
`help(package="fpp")`



# Εισαγωγή δεδομένων

#make a new vector

- `x<-c(7437115, 7483934, 7551117, 7647675,  
7743831, 7824909, 7912398, 7996861)`
- `read.table(file, sep = "", skip = 0)`
- `read.csv(file, header = TRUE, sep = ",", dec =  
".", fill = TRUE)`
- `xts<-ts(x,frequency = 3) #more at help`



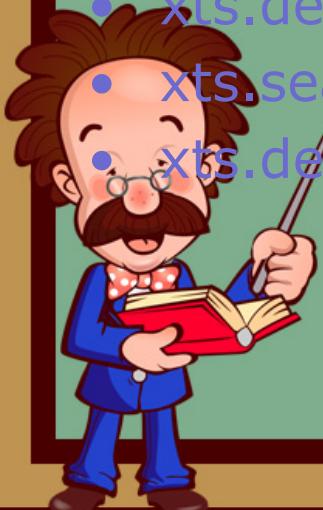
# Απεικόνιση δεδομένων

- *plot(x, type="l", main=example, col = "blue")*
- *plot(xts.naive\$mean, type="l", main=example, col = "blue")*



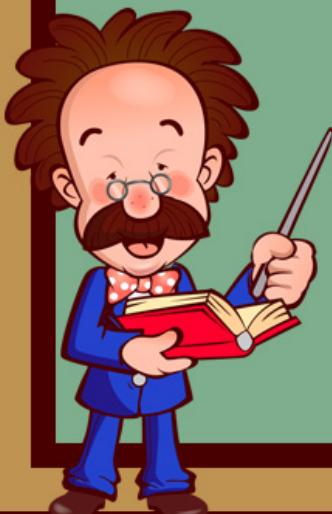
# Αποεποχικοποίηση

- #decomposition of xts
- xts.decomp<-decompose(xts, type = c("multiplicative"))
- #take seasonal indices
- xts.decomp\$seasonal
- #Take the deseasonilised ts and seasonalise
- xts.deseason<- seasadj(decompose(xts,"multiplicative"))
  - xts.seasonalindices<-xts.decomp\$seasonal[(1:8)]
  - xts.deseason\*(xts.seasonalindices)



# Πρόβλεψη

- *xts.naive<-naive(xts, h=3)*
- *xts.naive\$mean*
- *plot(xts.naive)*
- *mean(xts)*
- *summary(xts.naive)*
- *plot(summary(xts.naive))*



# Πρόβλεψη

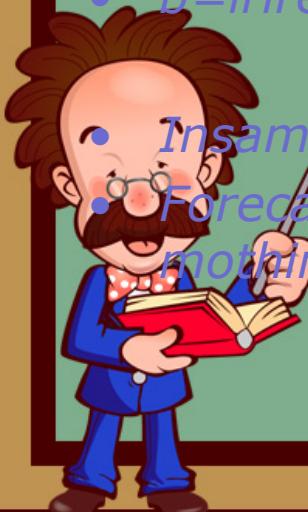
- `#damped`
- `xts.damped<-holt(xts, h=3, level=c(80,95),  
initial=c("optimal","simple"),damped=TRUE,  
alpha=NULL, beta=NULL)`
- `xts.damped$mean`
- `xts.damped$residuals`
- `xts.damped$fitted`



# Πρόβλεψη - #lrl

- `forecastingHorizon<-3`
- `aaperiod=c(1: length(xts)) #dianusma time (1, 2, 3,4,5,...,261)`
- `aaperiodforecast=c((length(xts)+1):(length(xts)+forecastingHorizon)) #dianusma provlepsewn`
- `lrlresults <- lm(formula = xts ~ aaperiod) #ti mpainei sto arg formula tis lm`
- `a=lrlresults$coefficients[1]`
- `b=lrlresults$coefficients[2]`

- `Insamplelrl<- a+b*aaperiod`
- `Forecastlrl<- a+b*aaperiodforecast #it is just a numeric vector nothing more`



# Εξαγωγή δεδομένων (.csv)

- *#make a table to export*
- *forecasttable<-matrix(data=NA, nrow=5, ncol=3)*
- *forecasttable[1,] <- xts.naive\$mean*
- *forecasttable[2,] <- xts.ses\$mean*
- *forecasttable[3,] <- xts.holt\$mean*
- *forecasttable[4,] <- xts.damped\$mean*
- *forecasttable[5,] <- ForecastIrl*
- *write.table(forecasttable, file = "C:/Users/zabbeta/Desktop/seminaR0.csv", append = FALSE, quote = TRUE, sep = ",", row.names = TRUE, col.names = TRUE, dec = ".")*



# EυχαΡιστώ για την προσοχή σας!

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