Week 1 DATA624 Time Series Graphics Exercises

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2.3 Download some monthly Australian retail data from the book website. These represent retail sales in various categories for different Australian   
states, and are stored in a MS-Excel file.  
  
a. You can read the data into R with the following script:  
retaildata <- readxl::read\_excel("retail.xlsx", skip=1)

* Reading in the data:

retaildata <- readxl::read\_excel("retail.xlsx", skip=1)

b. Select one of the time series as follows (but replace the column name with   
your own chosen column):  
myts <- ts(retaildata[,"A3349873A"],  
 frequency=12, start=c(1982,4))

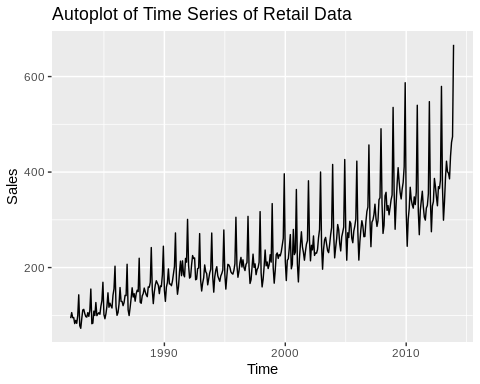
* Let’s first read the data and see the column names and replace it with a column I choose. I’ll choose say the 10th column.

column\_name <- names(retaildata)[10] # 10th column  
myts <- ts(retaildata[,column\_name],  
 frequency=12, start=c(1982,4))

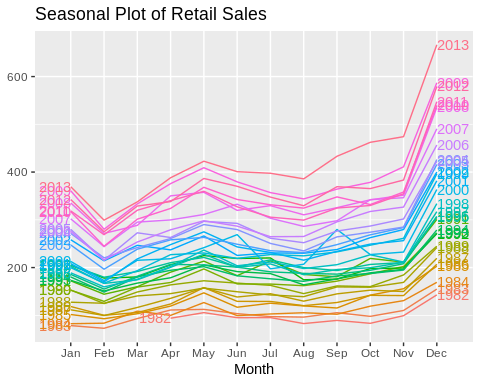
c. Explore your chosen retail time series using the following functions:  
autoplot(), ggseasonplot(), ggsubseriesplot(), gglagplot(), ggAcf()  
Can you spot any seasonality, cyclicity and trend? What do you learn about the series?

* Load the ggplot2 library and plot as requested and spot any trends, seasonality and cyclicity.

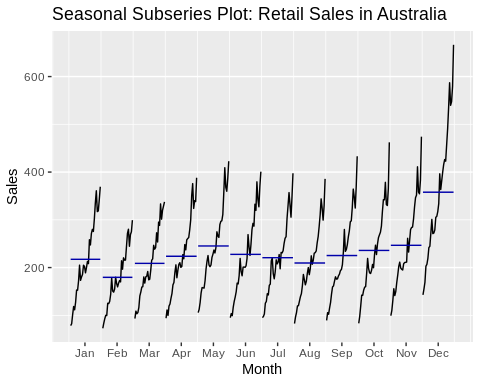
library(ggplot2)  
library(ggfortify)  
library(forecast)  
  
#autoplot  
autoplot(myts) +   
 ggtitle("Autoplot of Time Series of Retail Data") +  
 xlab("Time") +  
 ylab("Sales")



#ggseasonplot  
ggseasonplot(myts, year.labels=TRUE, year.labels.left=TRUE) +  
 ggtitle("Seasonal Plot of Retail Sales")



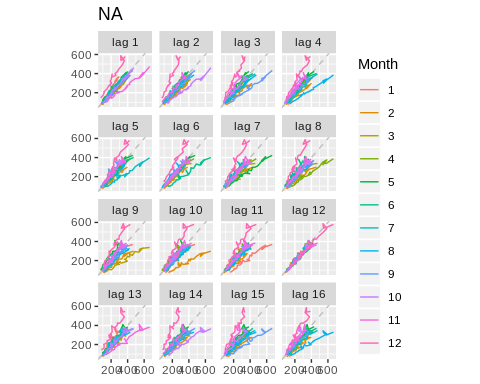
# ggsubseriesplot  
ggsubseriesplot(myts) +   
 ylab("Sales") +  
 xlab("Month") +  
 ggtitle("Seasonal Subseries Plot: Retail Sales in Australia")



## gglagplot  
retail <- window(myts, start=1982)

## Warning in window.default(x, ...): 'start' value not changed

gglagplot(retail)



# ggAcf  
ggAcf(retail, lag=50)

