Stock Backtesting Shiny App

Ansel Andro Santos

Using shiny to create a stock backtesting app which uses technical indicators

R Packages

Analysis

- dplyr, tidyr, bizdays
- TTR

UI

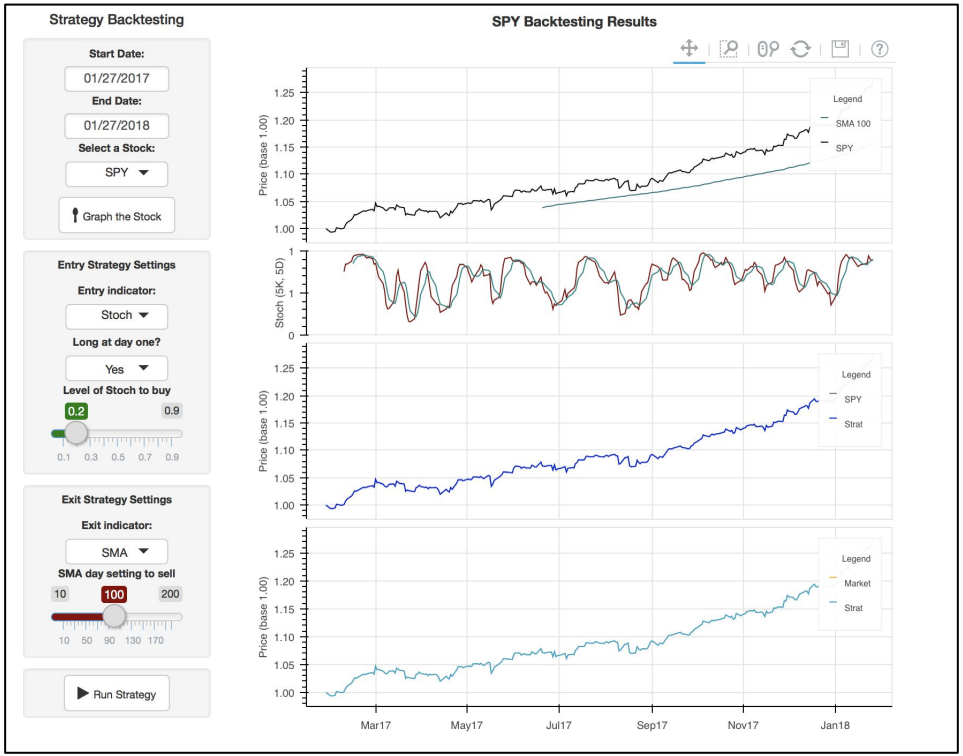
- shinyjs, shinyBS

Plotting

- rbokeh

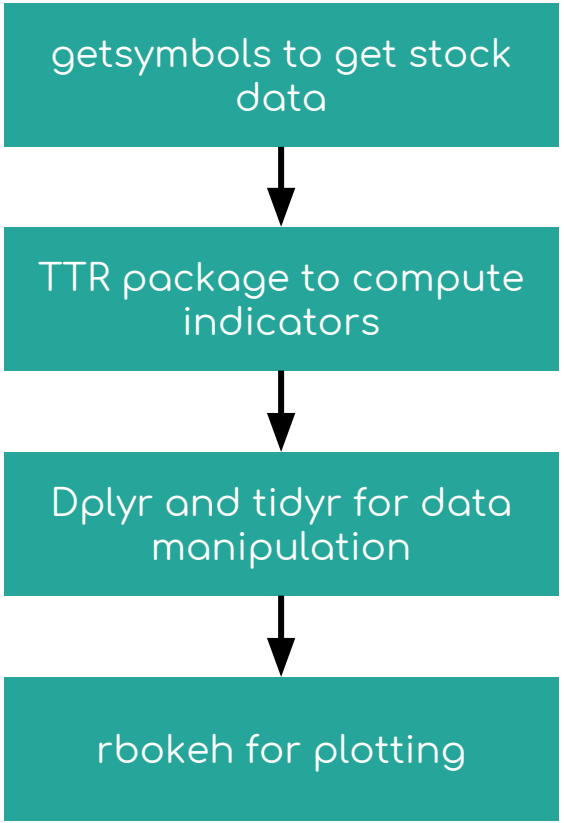
User Interface

1. Date and stock ticker input
2. For the entry and exit strategy inputs, I used conditionalPanel to save space
3. Customizations were done to make the panels and font smaller
4. Plots were built using rbokeh



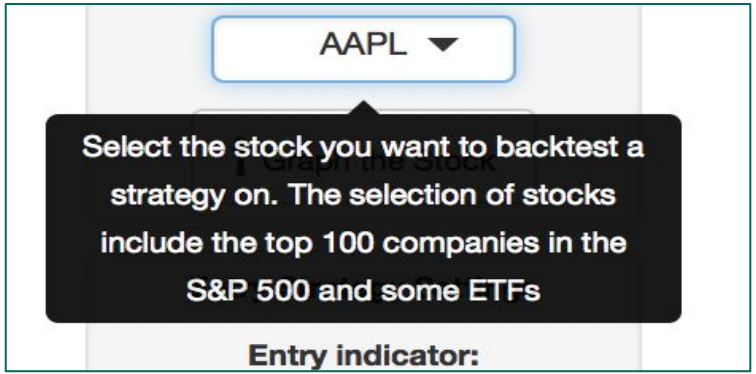
Server

1. Getsymbols function to pull data from yahoo finance
2. Used TTR package to calculate SMA, RSI and stochastics
3. Used dplyr and tidyr to manipulate the data before plotting
4. Used eventReactive to allow loading of different symbols and indicators every click of the actionButton

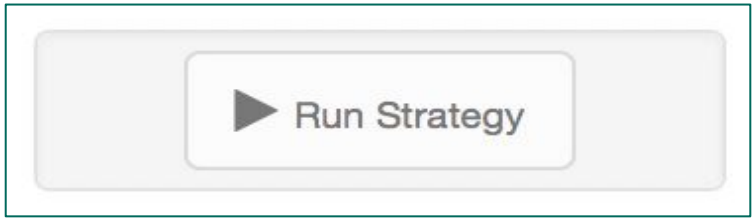


Features

- Tooltips using shinyBS



- Disabling of buttons



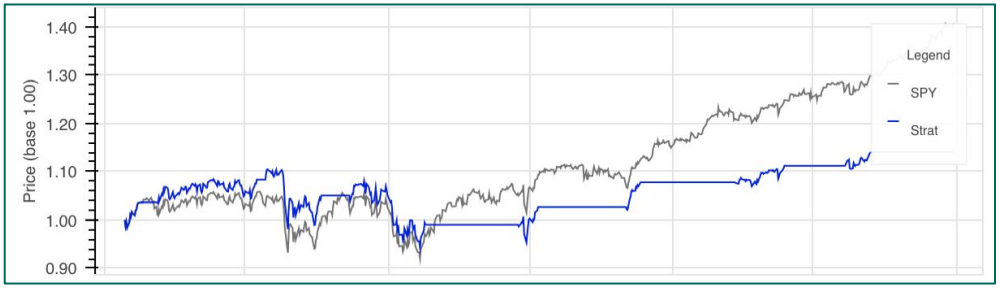
Features

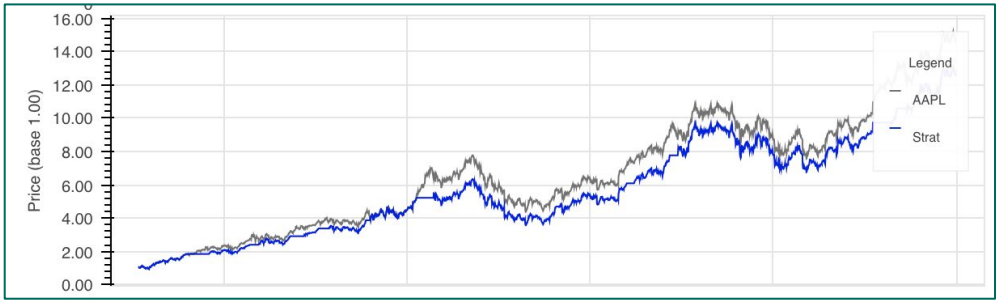
- Plot viewing tools of rbokeh

- Hide/show using shinyjs

Some interesting results using the app

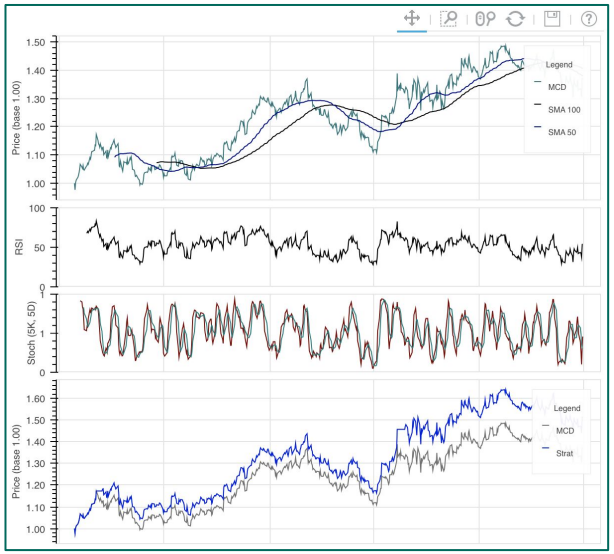
- It is very hard to beat a trending US market using any backtest strategy, you're better off just holding on to your stock/ETF (2009-2017)

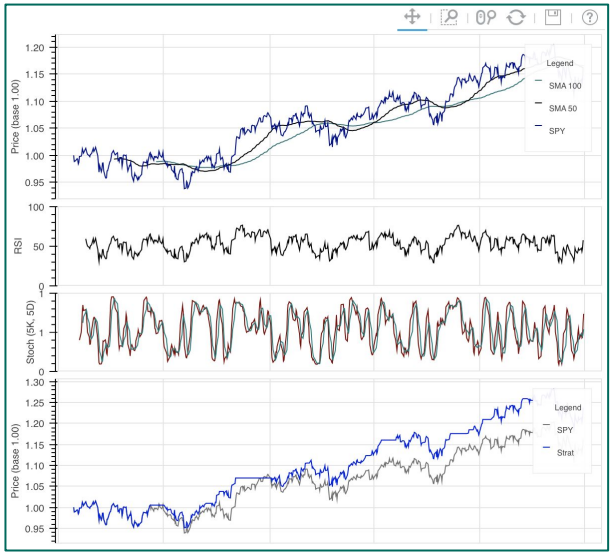




Some interesting results using the app

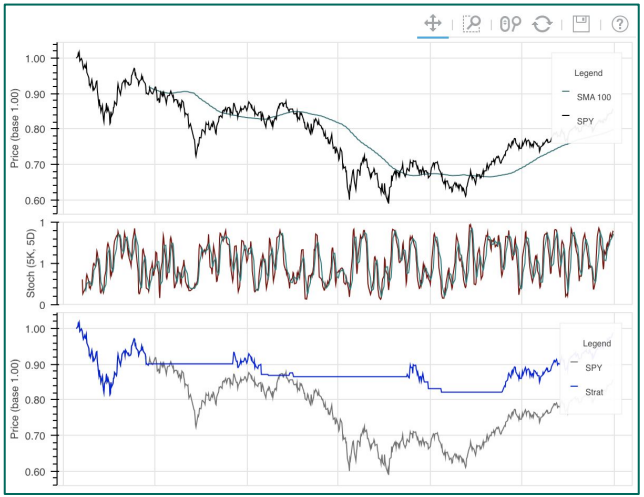
- On a sideways market (2004 to 2006) it was easier to find a strategy which outperformed the US market (1/1/2004 to 7/1/2006, Stoch/RSI, RSI/RSI, SMA/SMA)





Some interesting results using the app

- On a toppish market, the 100D SMA exit strategy will protect your capital but you might miss out on huge rallies because the market can keep on going higher despite overvaluation (2001 to 2003 (Stoch/SMA), 2007 to 2009 (Stoch/SMA))



Some interesting results using the app

- Using RSI and Stoch on emerging market ETFs produce good results (2013 to 2018 MCHI RSI/RSI, INDA Stoch/Stoch)