Stat 107: Introduction to Business and Financial Statistics

Homework 7: Due Friday, November 18th

Homework policy

Homework is due by 8am EST of the assigned date. Homework is to be handed in electronically via the Canvas system. Late homework will not be accepted.

You are encouraged to discuss homework problems with other students (and with the instructor and TFs, of course), but you must write your final answer in your own words. Solutions prepared "in committee" or by copying someone else's paper are not acceptable. **Please review the course's Academic Honesty and Collaboration policy on the class website to know what is considered appropriate conduct. Everyone must submit their own homework assignment consisting of their individual effort.**

1) Use the neural net routine in R shown in the class notes to learn the $y = x^2$ function. Generate training data including both positive and negative x values, then show how it does on new data.

2) This problem is a little open ended. Read about volume weighted moving averages here(and also read the R help for function `VMA`):

   http://www.financialwisdomforum.org/gummy-stuff/VMA.htm

   Using data on SPY from 2015-01-01, implement the buy/sell rules discussed in the article:

   When **VMA** - (5-day) > **A** then we BUY.
   When **VMA** - (5-day) < **B** then we SELL.

   For values of A and B that you decide on, run your code to see how this rule does from 2015-01-01 to present. Extra credit if one wants to optimize the values of A and B but a simple run through using values picked from a visual chart inspection is fine.