COMPUTER SYSTEMS RESEARCH
Code Writeup of your program, example report form 2008-2009

1. Your name: Preetam D'Souza, Period: 1
2. Date of this version of your program: 10/31/08
3. Project title: Applications of Stochastic Processes in Asset Price Modeling
4. Describe how your program runs as of this version. Include

   The files that compose my program so far are as follows:

   Core Classes:

   RSS_Quote.java – grab current price via RSS quotes for an arbitrary stock

   Parser.java – Given a .csv file with historical prices this program parses the input and outputs a file that can be easily graphed through gnuplot for analysis.

   Stat.java – A convenience class that has methods for calculating the mean, variance, and standard deviation of a data set

   Wiener.java – The first basic Brownian motion model that steps through the stochastic process and returns the price change of a stock for every time step.

   GeoBrownian.java – The more accurate Geometric Brownian motion model that returns the price change of a given stock for every time step.

   Test files

   Stat_test.java – calculate the mean, variance, and standard deviation of a sample data file

   Wiener_test.java – simulate IBM stock price using the standard Brownian motion model for 223 trading days. Inputs include stock drift, volatility and time interval. Outputs stock price at the end of each trading day.

   Brownian_test.java – simulate IBM stock price using the Geometric Brownian motion model for 255 trading days. Inputs include stock drift, volatility and time interval. Outputs the stock price at the end of each trading day.

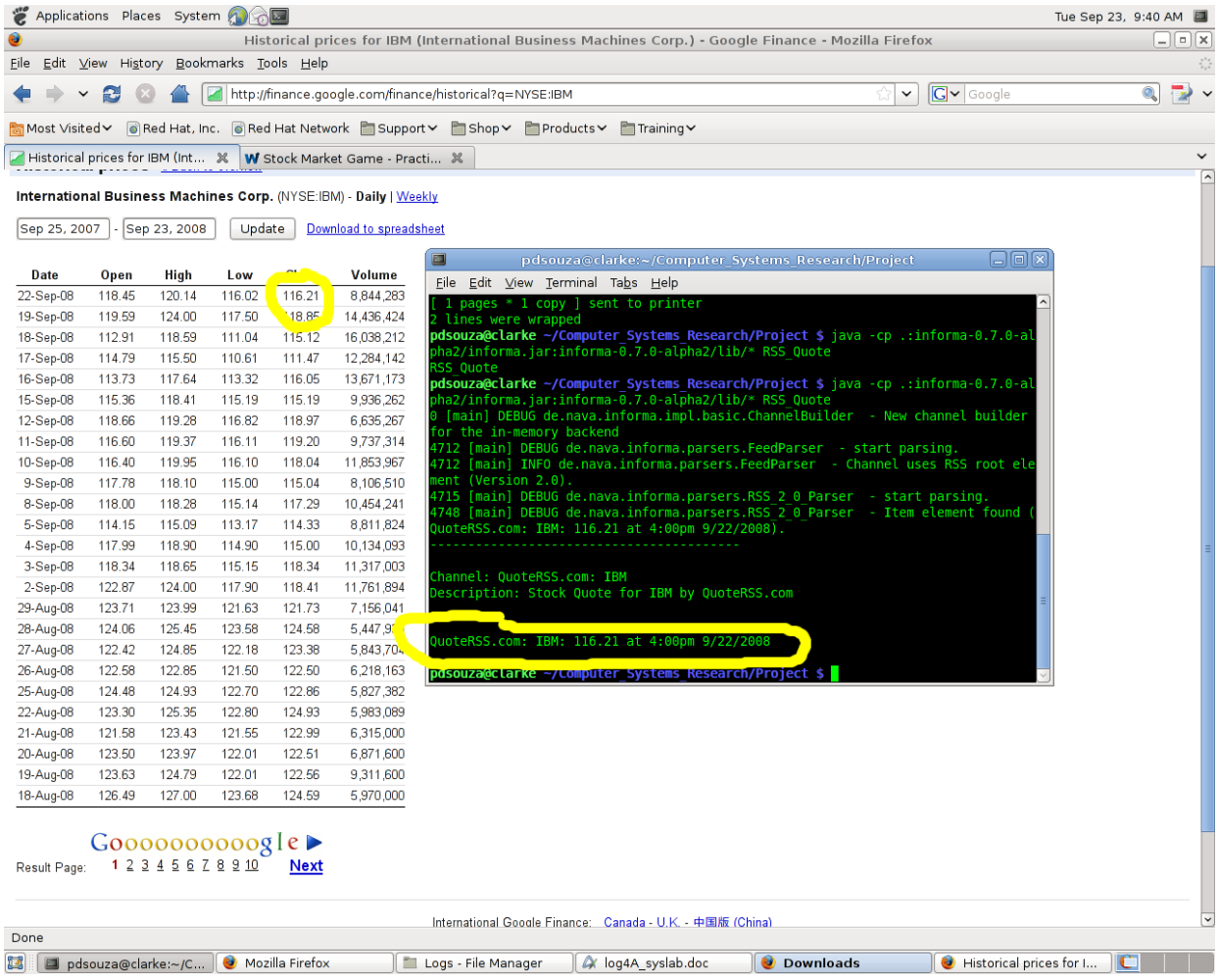
   My Parser.java program throws a FileNotFoundException if the correct input file is unavailable. Otherwise, my programs do not have any other error catching methods.

   So far I have tested my programs by creating seperate test files and checking the output to verify accuracy. I have tested my RSS class, Parser class, and Stat class with data sets. I have also tested my Brownian motion models by plotting the output with gnuplot.

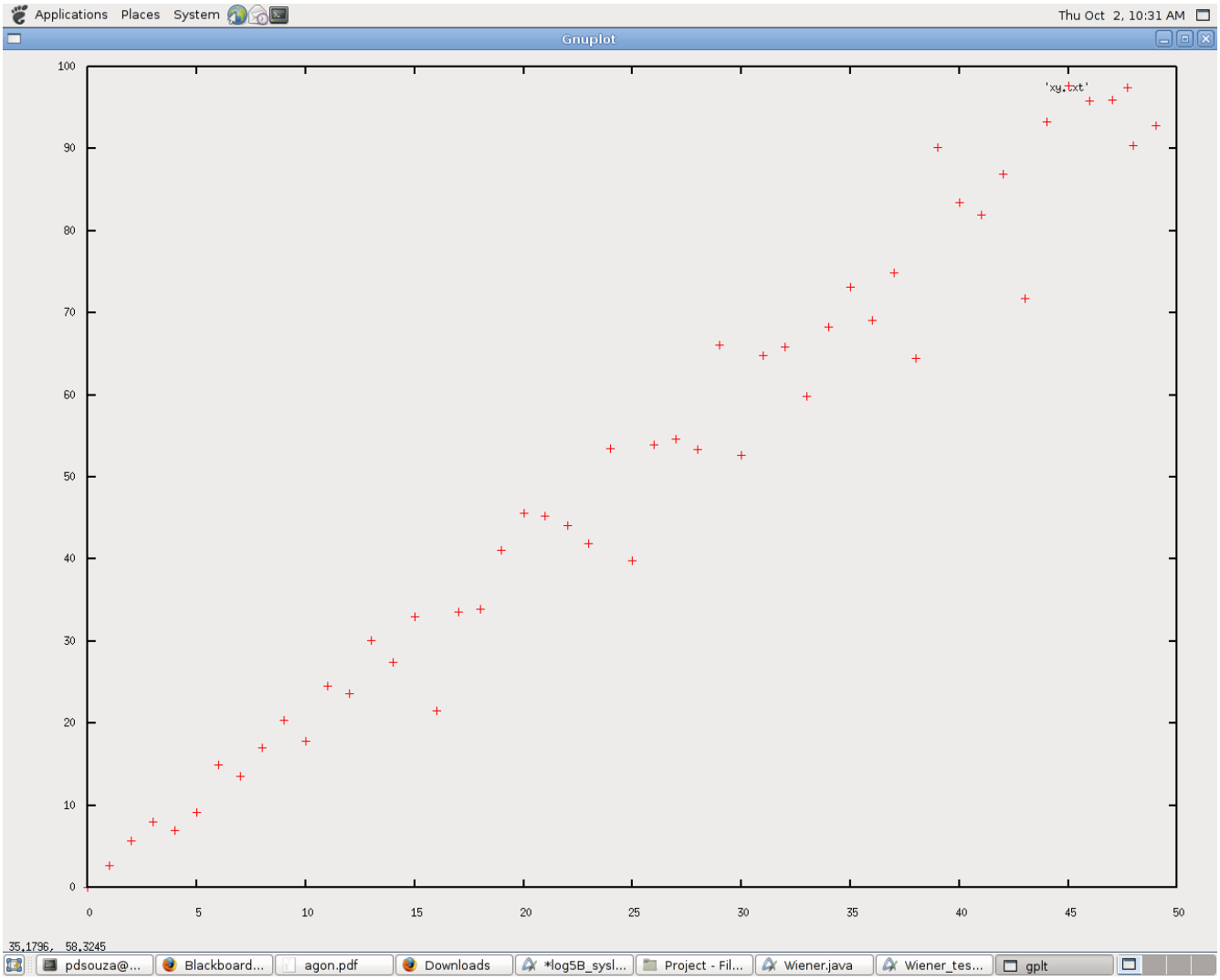
   *****See attachments for actual code for all of these files*****

Screenshots:

RSS_Quote.java test



Wiener_test.java



Brownian_test.java

5. What do you expect to work on next quarter, in relation to the goal of your project for the year?

Next quarter I will write a program to use the Pearson correlation test to determine how close my simulated run of the IBM stock price is to the empirical data. I will also work on improvements to the current models and I may implement more complex models.