Topic: Dow Jones Industrial Average Prediction and Stock
Analysis
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OVERVIEW

The files in this directory predict future Dow Jones
Industrial Average data based on past data. They also can
chart and analyze past data for any stock.

WHERE TO START
Program requires an internet connection.

To begin, run the djiaStockGUI.m file. This opens a
graphical user interface that allows the user to input
variables and see results.

The first tab that appears is the 'DJIA Predictor' tab. In
this tab the user can use the model to predict future
values of the DJIA.

The other tab 'Stock Charter' allows the user to choose a
stock, either from the drop down menu or enter a stock of
their choosing. The user can also calculate hypothetical
profit and return for any stock over any time interval. Ex:
calculate how much profit would have been made off 1000
shares of Apple bought on the date of the IPO. 'Stock
Charter' also features an up-to-date table showing values
for 5 pre-determined stocks. All stock data is pulled from
YAHOO Finance.

DATA INPUT
Input for Tab 1: DJIA Predictor
1. Input numerical data for number of past data points used
and future data points desired
3. Click 'Calculate' to calculate DJIA prediction values
4. To repeat process click 'Clear' and repeat steps 1-3

Input for Tab 2:
1. Select a stock from the stock drop-down menu or select

'Other' and enter stock information
2. Select a time interval from the time interval drop down menu
3. If spreadsheet of stock data is desired, press 'Export Data'
4. Enter buy date for stock in the 'Buy Date' box
5. Enter sell date for stock in the 'Sell Date' box
6. Enter number of shares purchased in the 'Shares Bought' box
7. Click 'calculate' to determine profit and return from stock

OUTPUT FILES
1. djiaAnalysis.txt – text file with results from DJIA prediction. Number of days past and future inputted are printed along with predicted DJIA value at final predicted day.

2. stock_selected(time_interval).csv – spreadsheet of date,open,high,low,close,volume,and adjusted close for selected stock over selected time interval.
      ex: Apple charted over the past ten years would be 'Apple(10-years).csv'

CALCULATION FUNCTIONS
1. djiaModel.m – calculates future DJIA values using linear prediction with past values.

2. profitReturn.m – calculates profit and return for a stock. User chooses the stock, buy date, sell date, and number of shares.

3. stockWebPull.m – pulls stock data from YAHOO Finance for a chosen stock over a chosen time interval.

SUPPORT FUNCTIONS
1. djiaStockGUI.m – Opens graphical user interface.

2. datetickzoom.m – updates dateticks when zoom is used on the graph.

3. dateCursor.m – makes the data cursor show dates instead of date numbers.

USEFUL DEFINITIONS
1. Dow Jones Industrial Average(DJIA) – Most widely used stock index. Track's the trading of 30 large publicly owned companies.
ex: Apple, Coca-Cola, Pfizer

2. Stock split – When a company issues new shares to current stock holders in proportion to current number of shares owned.
ex: If someone currently owns 10 shares of Company A and there is a 2:1 stock split, they now own 20 shares, each at half the price of an original share.

3. Split-Adjusted Value: Current value of stock with stock splits taken into account. Allows for easy comparison of stock values before and after stock splits.