Python Stock Prediction

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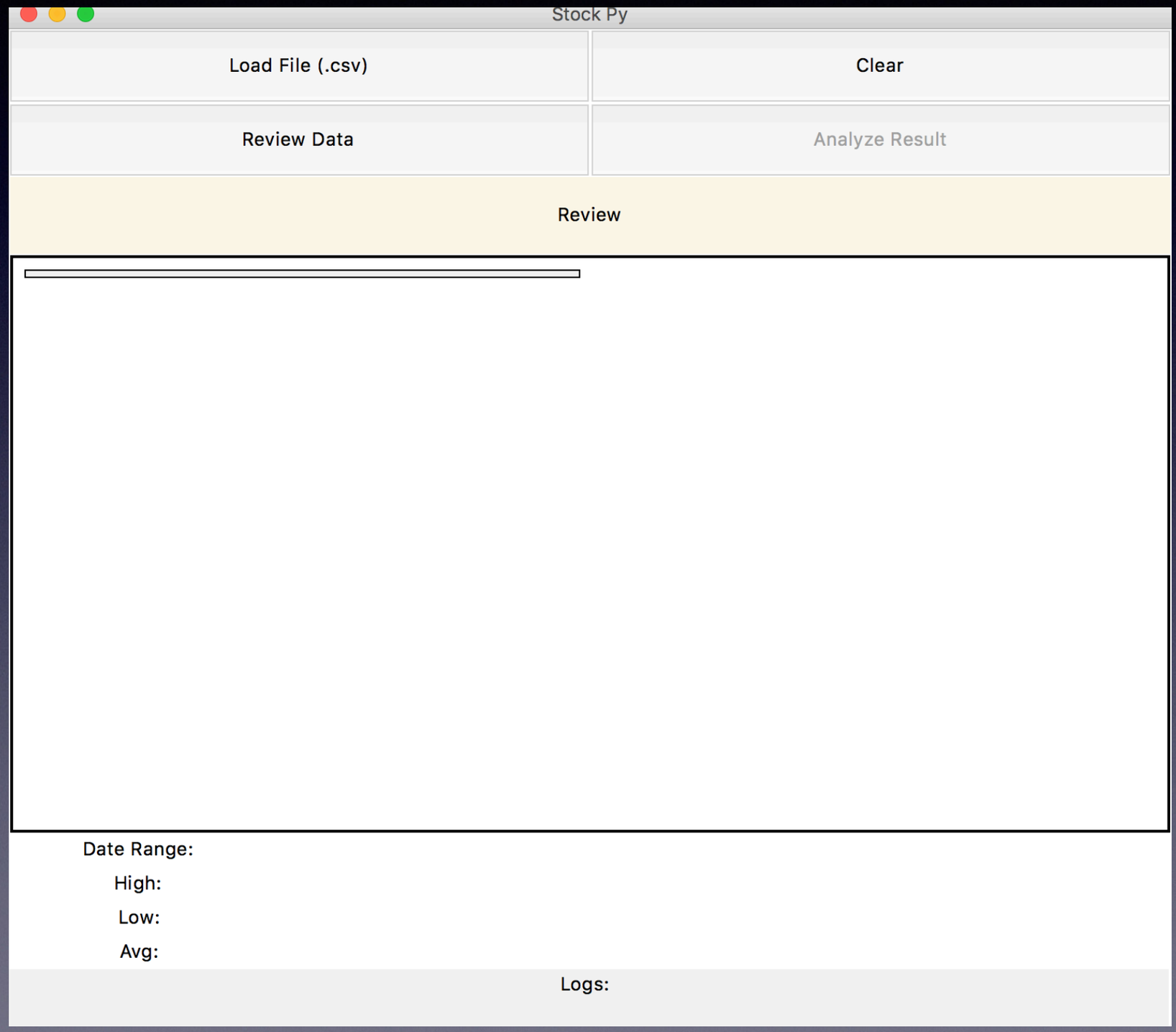
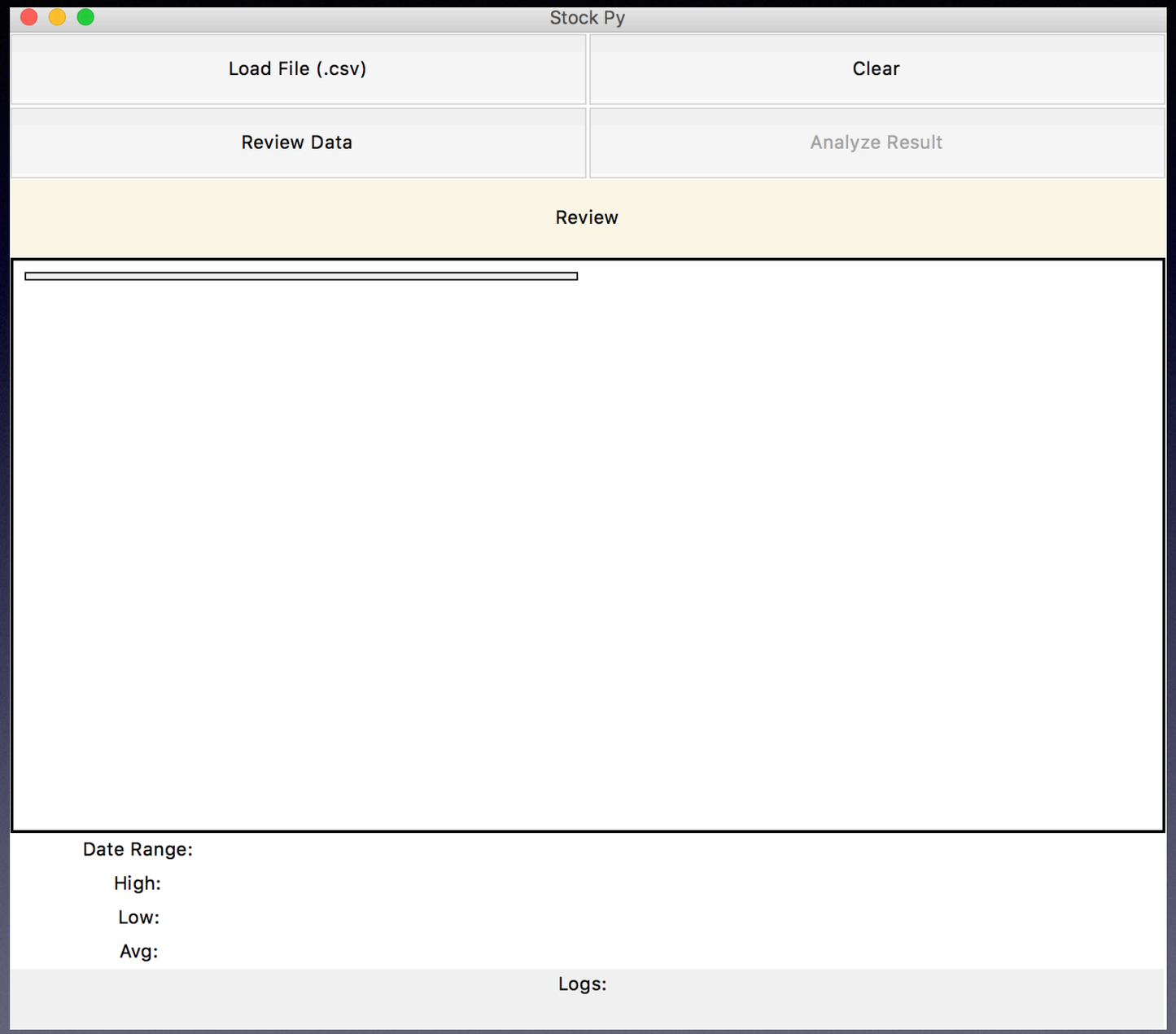
UI Components

- Landing Screen
- No data loaded
- Empty canvas and review data
- Analyze button disabled



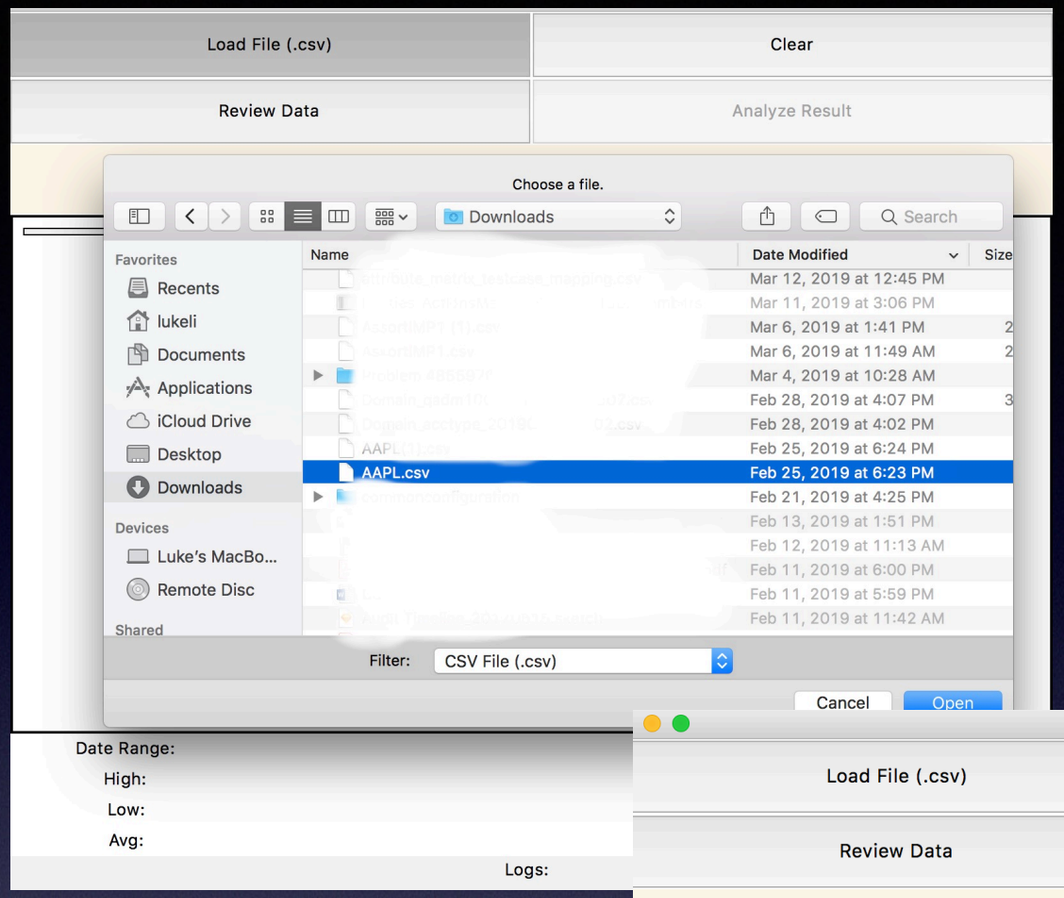
UI Sections

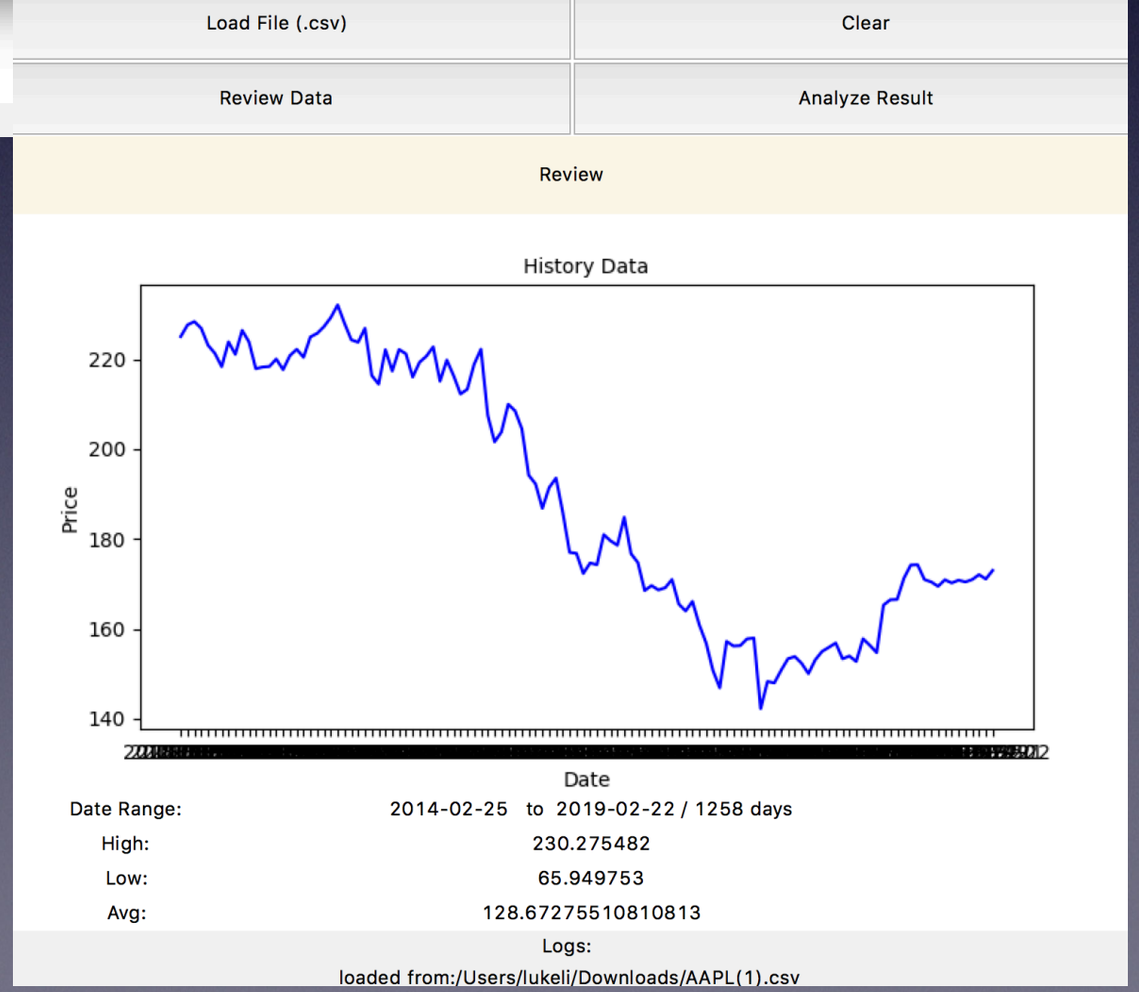
- Buttons ->
- Frame Title ->
- Figure Canvas ->
- Raw Data ->
- Status Bar ->



Load Data

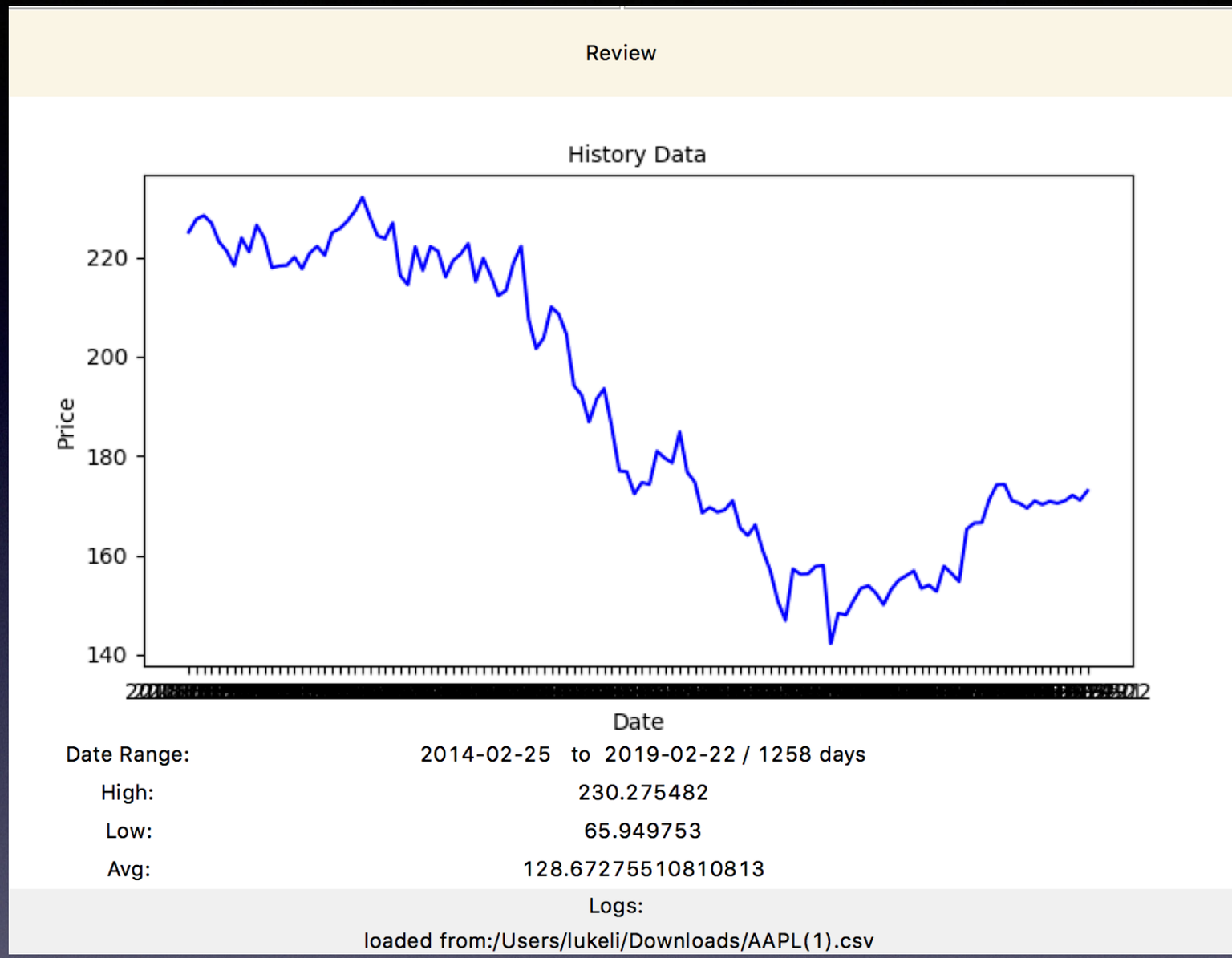
- Click Load Data
- Select .csv file
- Show history data figure
- Analyze button is enabled
- Review data board and logs updated



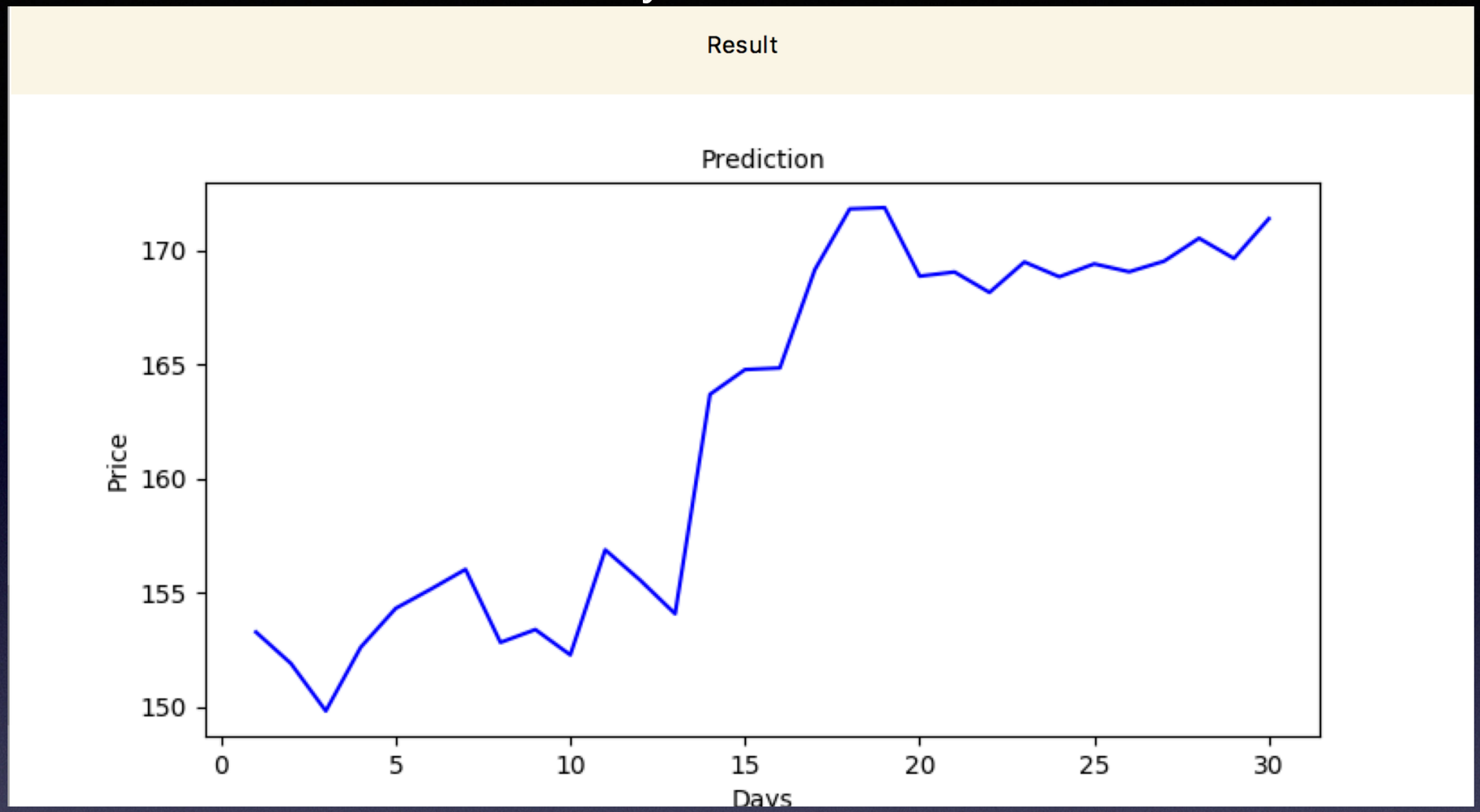


Review Data

- Canvas title shows Review
- Figure should be History Data
- Plotted figure shows price for the past 120 days
- Data review board shows raw data date range, high, low and average price
- Log status shows the loaded file's dir and file name



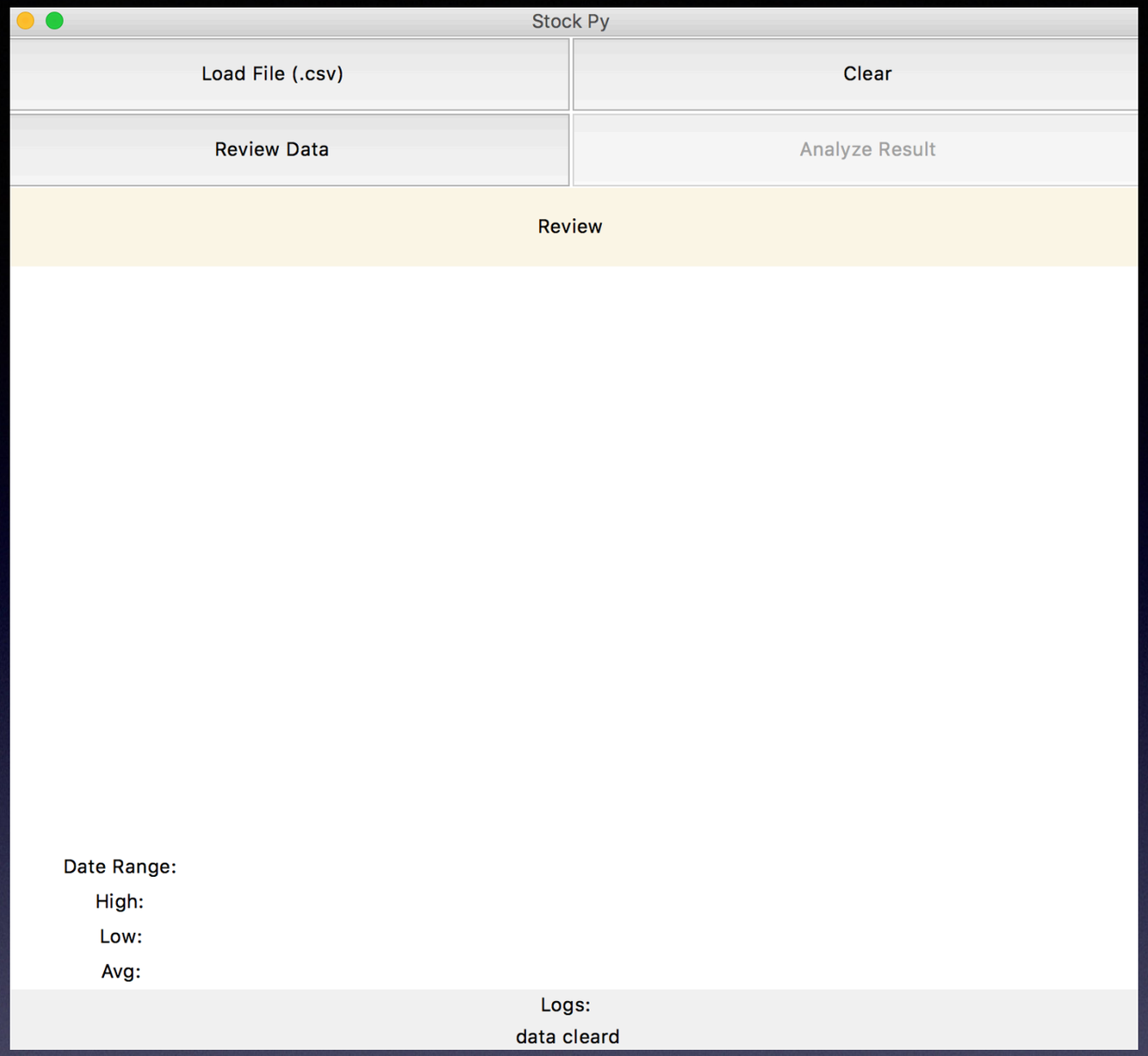
Analyze Result



- Click analyze result
- Canvas title shows Result
- Canvas figure shows prediction for upcoming 30 days

Analyze Result

- Analyze uses historic data for training and using linear regression to build a prediction model
- Apply the prediction model to 30 day's data to predict the trends for the upcoming 30 day
- History data should be longer than 120 days and is recommended to be longer as possible



- Review Data will switch figure to history data
- Clear will clear all loaded data and canvas figure and logs, and since no data cached, analyze button will be disabled.

Python Modules

- The app has two file modules, main file “stock.py” and util file “analyze.py”.

- Tkinter is used for UI, buttons, frames, canvas, labels are used for different components. filedialog is used to select file.

- “CSV”, “pandas” are used to import data and format to list or data columns.

- “numpy” is used for math and array computations

- “matplotlib” is used to plot stock figure

- “sklearn” is used for data training and linear regression computation for stock prediction

Python Methods Used

- OOP is used in this app. Since the app has three methods are used for calculate and switch canvas figure when switch between Review and Result, those methods are grouped into one object class.
- Multi modules. “analyze.py” is an util module which can be used to compute prediction result and review data. They are purely functions have no relations with UI components, so they are better to put in a separated module. Main module can import it and use the functions inside.