|  |  |
| --- | --- |
|  | System Administrator Guide  Dawn Belbin |

Contents

[**Introduction** 2](#_Toc126951877)

[**Adding New Data** 2](#_Toc126951878)

[**Updating the Model in Python** 4](#_Toc126951879)

[**Updating the Model in GitHub** 4](#_Toc126951880)

[**Updating the Model in Streamlit** 6](#_Toc126951881)

[**References** 7](#_Toc126951882)

# **Introduction**

The Phoenix price predictor model begins in Python with the model built in a Jupyter notebook called Cap.ipynb. Within the project there are also pages of python code for each page of the Streamlit app including: Homepage.py, Page1.py, Page2.py, Page3.py, Page4.py and prediction.py. Lastly there is the app.py page which compiles each of the Streamlit pages into one app. The following guide will walk through updating the data as well as the model from Python to Streamlit.

The repository can be found at GitHub: <https://github.com/dbelbin/Capstone.git>

The app can be found at Streamlit App: <https://dbelbin-capstone-app-mp6x0y.streamlit.app/>

# **Adding New Data**

To keep the model current and ensure that the accuracy of the model is maintained, it is important to add new data every three months. The data for the model is downloaded from Redfin in batches of up to 350 properties that are single family homes that have sold for less than $500,000 in a City of Phoenix zip code. When there are more than 250 properties that have sold in the previous three months, the data can be downloaded by zip code with up to five zip codes in each search.

Graphical user interface, map

Description automatically generated

Using the download all feature, the non-proprietary fields will be downloaded into a csv file.

Graphical user interface, map

Description automatically generated

These files will need to be moved into the working directory of the model for the model to ingest and process.

The second set of files are downloaded from the Freddie Mac website by week. The data is downloaded into an excel file. There are two data fields used from this download, the week date and the US 30 yr. FRM fields. These fields need to be expanded to the day level and copied into the historicaldata.xlsx file that is stored in the same directory as the model.

To scale the model and include additional zip codes or change the price range beyond 500,000, the model will need to be updated. These adjustments will need to be made in the following section.

Graphical user interface, text, application, email

Description automatically generated

# **Updating the Model in Python**

The model is built on approximately 13 months of data. Depending on the macro-economic environment, the length of history used to train the model can be adjusted as needed. Within the model, locate the ‘Adjust time frame of historical data used in the model’ section and update the begin date for the data to be used to train the model.

Graphical user interface, text, application, website

Description automatically generated

Once the has been updated, run the model. This will retrain the model and build the pickle files that will be used within the Streamlit Python pages.

# **Updating the Model in GitHub**

Once the data has been updated and the model has been retrained, the new model and files must be uploaded into GitHub. This is done through GitHub desktop which will determine if there have been any changes to the files in the GitHub cloud repository and if so will push them to the repository once the changes have been committed.

Graphical user interface, text, application

Description automatically generated

Log into the GitHub repository at github.com/dbelbin/Capstone and validate that any file changes have been updated.

A screenshot of a computer

Description automatically generated

# **Updating the Model in Streamlit**

The Streamlit app is connected to GitHub and will automatically update with any changes that are pushed to GitHub. To ensure the model is working as intended, log into Streamlit with the login that is connected to GitHub. If the app has not had activity, it will have an inactive status. To activate the app again, click on Yes, get this app back up!

Graphical user interface, text, application, email

Description automatically generated

This will reactivate the app and update the content with any changes made to the model.

# **References**

Belbin, D. (2023). *GitHub – dbelbin/Capstone.* GitHub. <https://github.com/dbelbin/Capstone>

Belbin, D. (2023). *Capstone.* <https://dbelbin-capstone-app-mp6x0y.streamlit.app/>

FreddieMac, (2023, February 9). *Mortgage Rates.* <https://www.freddiemac.com/pmms>

Redfin. (2023, February 10). *Phoenix Homes for Sales.* <https://www.redfin.com/city/14240/AZ/Phoenix/filter/property-type=house,max-price=500k,include=sold-3mo,pool-type=private>