**Repo: mapdata\_fips\_aggregation**

**Processes location coordinates and FIPS codes for 2021 and 2023 PPP Loan Data.**

**Scripts:**

**census\_geocoder –** each state file is parsed in a separate notebook using this script to obtain Latitude and Longitude coordinates when Google Data Limit is reached as well as FIPS codes from geo.census.gov, parses using one line address form:

<https://geocoding.geo.census.gov/geocoder/geographies/onelineaddress?form>

21

**census\_geocoderST.ipynb** - separate coordinate + FIPS processing for (14) States/Territories using 2021 data.

* + - * Reads in State File
      * Filter for State
      * Parse for Loan Number, full\_add
      * Census GeoCoder Script – Scrape for Latitude, Longitude, FIPS (15) based on coordinates
      * Merge to Main File

**selenium\_fips -** each state file is parsed in a separate notebook using this script to obtain FIPS codes for previously obtained Latitude and Longitude coordinates from geo.census.gov, parses using geography coordinates form:

<https://geocoding.geo.census.gov/geocoder/geographies/coordinates?form>

21

**selenium\_census\_script\_fipscheck\_ST.ipynb** – separate FIPS processing for (56) U.S. States/Territories using 2021 data.

23

**selenium\_census\_script\_fipscheck\_ST23.ipynb** - separate FIPS processing for (52) U.S. States/Territories using 2023 data. FIPS data was obtained from 2021 data for all Loan Numbers matching 2023 data, and 2023 update was not needed for remaining States/Territories (4).

* + - * Read in State File (if no previous Scraped File), else read in State FIPS file
      * Filter for Not Null coordinates
      * Filter for Null FIPS\_z
      * FIPS Script – Uses previously geocoded coordinates to obtain FIPS (15)
      * Merges FIPS\_z column to State FIPS file based on Loan Number

**selenium\_census\_script\_fipscheck\_23.ipynb** – FIPS processing for states Loans that required manual input/update of address and/or latitude, longitude fields in 2023 data.

* + - * Read in Main GEO FIPS File
      * Filter for Not Null coordinates
      * Filter for Null FIPS\_z
      * Manually updated File Read-IN (as available)
      * FIPS Script – Uses previously geocoded coordinates to obtain FIPS (15)
      * Merge FIPS\_z, updated State, Address, Coordinate Fields to Main File
      * Check, Verify, Write

**script\_combine\_fips21.ipynb** – combines all FIPS processed state files for 2021 data.

**script\_combine\_fips23.ipynb** - combines all FIPS processed state files for 2023 data, merges 2021 FIPS processed data file for Loan Numbers included in 2023 data

* + - Combine all separately scraped FIPS State Files to Main File

**script\_fipssplit\_23.ipynb** – splits 2023 data into separate state files after 2021 merges to be processed for FIPS separately and re-combined.

* + - Splits Main File to separate FIPS State Files for processing

google\_geocoder - **states are processed at 20k limit intervals using Google API geocoder to obtain coordinates for each business address.**

**geopipe.ipynb** - processes 2021 data for latitude and longitude. Each state is manually updated in script.

**geopipe23.ipynb** - processes 2023 data for latitude and longitude that was not included in previously processed 2021 data. Each state is manually updated in script.

* + - Read-In Main File
    - Total Null Coordinate Counts by State
    - Filter By State
    - Filter for Null Coordinates
    - Drop Duplicate Addresses (lower request count)
    - Google Geocoding API script (40k limit/month per KEY & associated acct.) - obtains Latitude, Longitude Coordinates based on Full Address
    - Pair Coordinates to Address
    - Merge Match Coordinates to MainFile based on Full Address
    - Manual Update of Address, Coordinate Fields (as available)

**combine\_geostates.ipynb** - combines 2021 Geo processed state files into one main file if state was processed separately.

* + - Read-In of geoprocessed state files, merge to Main File

**geopipe\_FL.ipynb** - separately processed state file for repair/verification of coordinate fields. Re-combined to main in combine\_geostates.