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Date: 03/26/2022

Lab Tutorial

Foreclosure Property Patterns in LA County Using SAC

Objective

- Acquire, transform, and model data for Data Analysis in SAP (SAC)
- Visualization and analysis
- Timeseries analysis
- Regressions to help forecast

Platform Spec

- SAP (SAC)
- SAC Model/Story and scenarios for this tutorial are available at:
<https://higher-education.us10.sapanalytics.cloud/> > Files > My Files > BUS5100Spr2022
> Anasheh > Presentation

Data Required

- Download 2019 and 2020 foreclosure properties file from below website:

<https://data.lacity.org/Housing-and-Real-Estate/2021-Registered-Foreclosure-Properties/spg4-9ux7>

Clean the file per below instructions:

- I. Delete 0 value rows
- II. Delete columns J, K, L, M, N, and O
- III. Save the file and remember the path

Creating the Model

Open a web browser and go to SAP Analytics Cloud (SAC): <https://higher-education.us10.sapanalytics.cloud/>

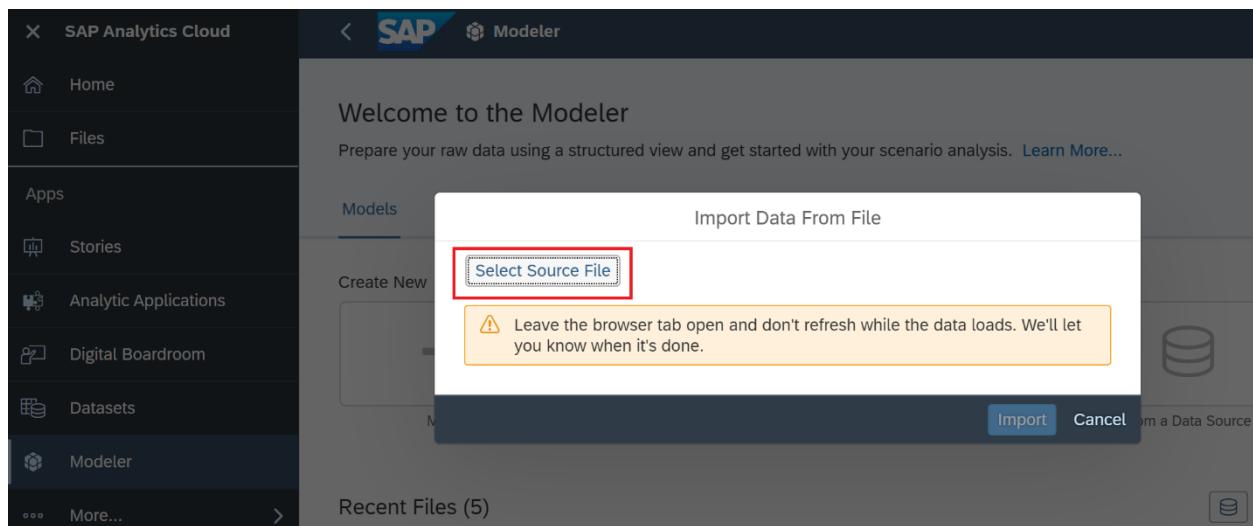
1. Log in SAP Analytics Cloud (SAC)
2. Click on the menu and browse SAC, Modeler

The screenshot shows the SAP Analytics Cloud home interface. On the left, a sidebar menu lists various options: Home, Files, Apps (Stories, Analytic Applications, Digital Boardroom), Datasets, and Modeler. The Modeler option is highlighted with a red box. Below the sidebar, the main content area features a large green button with a white checkmark and the text "Explore a sample story". Underneath, there's a section titled "Recent Stories" with two items: "2019 & 2020 Comparison" and "Story Store Sales".

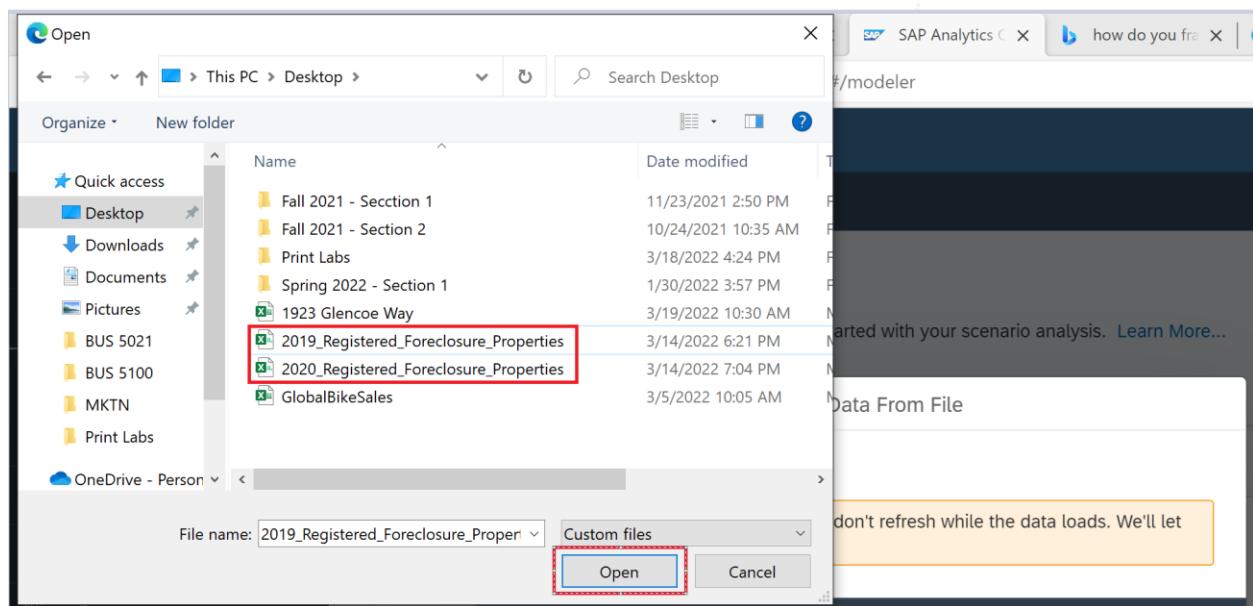
3. Choose Form a CSV or Excel File

The screenshot shows the SAP Modeler interface. The left sidebar includes the Modeler option, which is also highlighted with a red box. The main screen displays a "Welcome to the Modeler" message and a "Create New" section. This section contains four options: "Model" (with a plus sign icon), "From a CSV or Excel File" (with a document icon), "Live Data Model" (with a gear and arrow icon), and "From a Data Source" (with a database icon). The "From a CSV or Excel File" option is also highlighted with a red box.

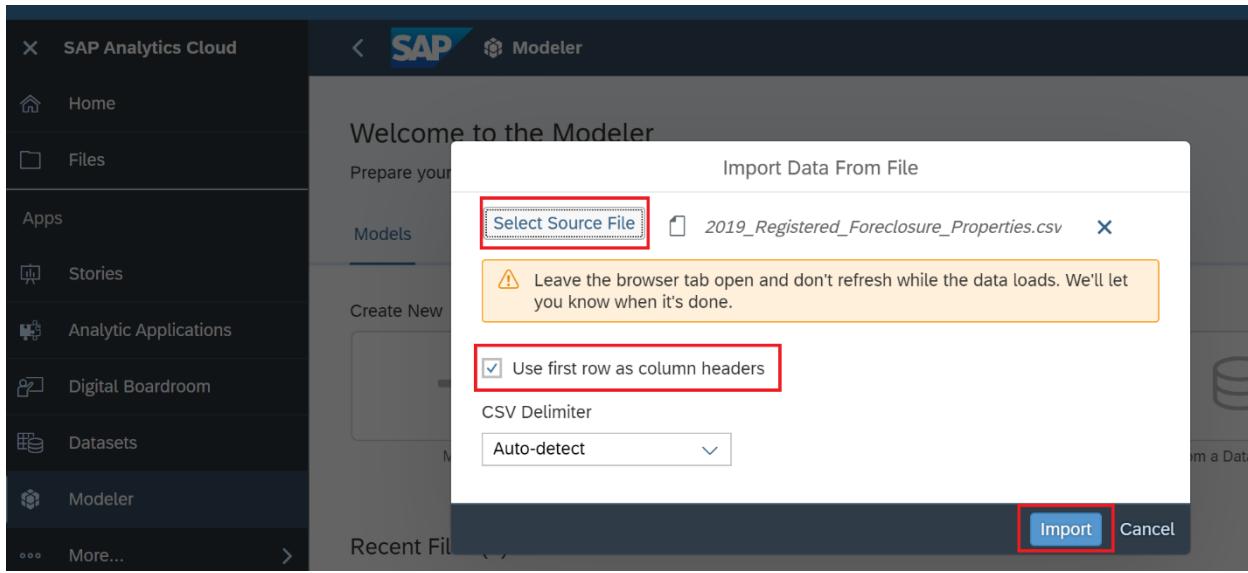
4. Then, click Select Source File.



5. Locate the file you downloaded earlier, select, and open. (Upload one file at the time)



The first worksheet **2019_Registered_Foreclosure_Properties** and **Use first row as column headers** should be selected as default. Click **Import** (refer to below print screen)



You will receive a message that only a sample of the data will be shown. Click OK to acknowledge the message. Then select save icon in the menu top left. Make sure to save every step.

6. Change the Property Zip and Longitude to Dimensions

7. Select Property Address column and click on Hierarchy

The screenshot shows the SAP Analytics Cloud interface with a dataset titled '2019_Registered_Foreclosure...'. In the top navigation bar, there is a red box around the 'Actions' button. Below it, the 'Hierarchy' dialog is open, with a red arrow pointing to the 'Name:' input field where 'Property Location' is typed. The hierarchy levels are listed as 'Property Zip', 'Property City', and 'Property State'.

8. Name it Property Location

9. Add columns to the hierarchy in the following order:

- I. Property Zip
- II. Property city
- III. Property State

10. Select Longitude column and go to Actions > Coordinates

The screenshot shows the SAP Analytics Cloud interface with the same dataset. A red box highlights the 'Coordinates' dimension in the hierarchy. The 'Longitude' column is selected in the main table. On the right, the 'Dataset Overview' panel displays the dataset details, including 2000 rows and 12 columns, along with the 'Output' tab selected and various measures and dimensions listed.

11. Select Longitude > Enrich Dimensions

The screenshot shows the SAP Analytics Cloud interface. On the left, there's a sidebar with 'Stories', 'Analytic Applications', 'Digital Boardroom', 'Datasets', 'Modeler', 'Data Actions', 'Allocations', 'Value Driver Trees', 'Predictive Scenarios', and a 'Calendar'. The main area displays a table of property data with columns: APN, Property Address, Property Type, Property Zip, Council Dist., Lender, Longitude, Latitude, and Property ID. A red box highlights the 'Longitude' column header. To the right, a 'Geo Enrich by Coordinates' window is open, showing a dropdown menu for 'Enrich Dimension' with 'Property on Map' selected. It also has fields for 'Dimension ID' (set to 'Select a column with location identifiers'), 'Latitude', and 'Longitude'.

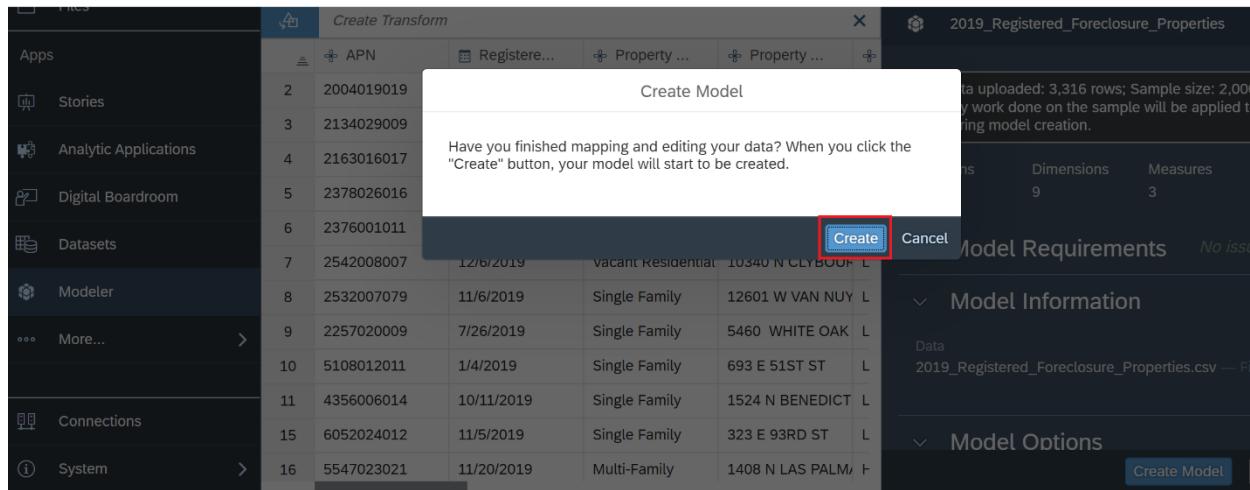
12. Dimension ID > Select Property on Map and OK

This screenshot is similar to the previous one but shows the 'Geo Enrich by Coordinates' window with the 'OK' button highlighted in red. The main table and sidebar are identical to the first screenshot.

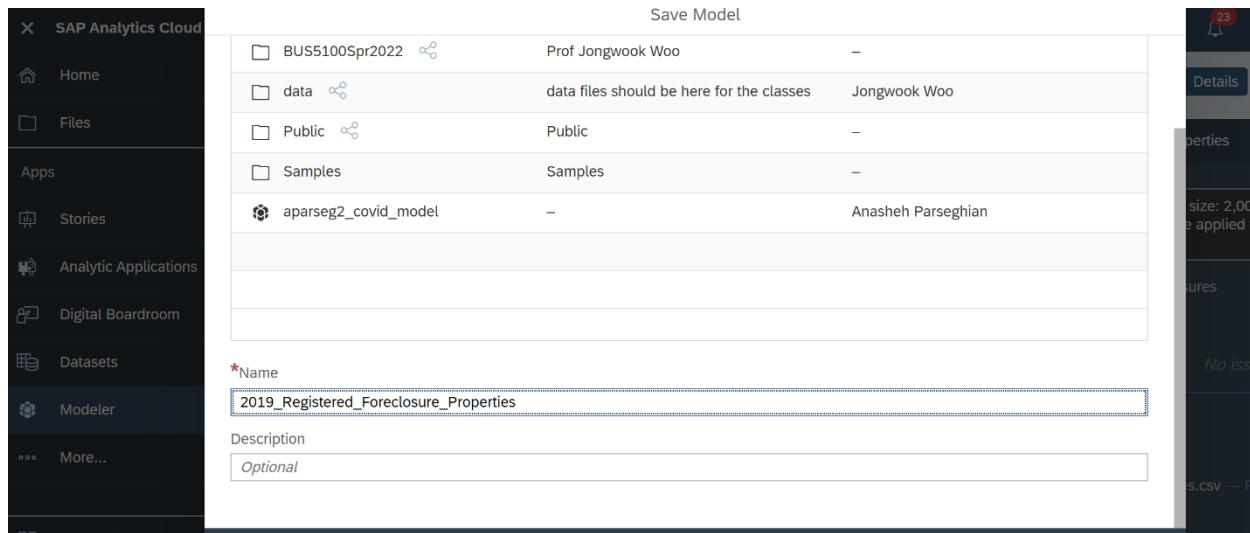
Now you will see the data and a window with “Create Model” and “Validate Data”

The screenshot shows the SAP Analytics Cloud interface with the 'Create Transform' dialog open. The sidebar on the left includes 'Stories', 'Analytic Applications', 'Digital Boardroom', 'Datasets', 'Modeler', 'Data Actions', 'Allocations', 'Value Driver Trees', 'Predictive Scenarios', 'Connections', and 'System'. The main area shows a table of property data. To the right, a '2019_Registered_Foreclosure_Properties' window is open, containing sections for 'Model Requirements' (with a note about data uploaded), 'Model Information' (with a file listed: '2019_Registered_Foreclosure_Properties.csv'), and 'Model Options'. A red box highlights the 'Create Model' button at the bottom right of the 'Model Options' section.

13. Click on Create



14. Name the file Model 2019_Registereed_Foreclosure_Properties and save



Now repeat steps 5-14 to create the Model for 2020

Create Story

15. Click on Story on the left menu, select Responsive

New features are available. Check them out.

Welcome to Stories

Create a story to visualize, summarize, explore, and monitor your data. Add charts, tables, text, and other objects, and share your findings with your team. Learn More...

Create New

- Raporropic
- Canvas
- Grid
- From a Smart Discovery

Recent Files (5)

Name	Description	Created By	Created On	Changed By	Changed On
Story Store Sales	My File / BU551005pr/2022 / blanco	Luis Blanco	Mar 12, 2022 10:26:52	Luis Blanco	Mar 12, 2022 13:05:27
Lab05GeoResponsivo	My File / BU551005pr/2022 / blanco	Luis Blanco	Mar 5, 2022 10:48:07	Luis Blanco	Mar 5, 2022 11:37:56
blanco_covid_Story	My File / BU551005pr/2022 / blanco	Luis Blanco	Feb 26, 2022 14:34:39	Luis Blanco	Feb 26, 2022 15:49:20
LabStory_Blanco	Story	Luis Blanco	Feb 20, 2022 14:33:06	Luis Blanco	Feb 22, 2022 17:57:18
My File / BU551005pr/2022 / blanco	Story	Luis Blanco	Feb 12, 2022 11:51:04	Luis Blanco	Feb 20, 2022 14:31:05

16. Click on Insert and choose “Geo Map”:

New features are available. Check them out.

SAP Analytics Cloud

Home

Files

Stories

Analytic Applications

Digital Boardroom

Datasets

Stories

New Story •

Insert

Geo Map

Section

Image

Shape

Text

Header

Clock

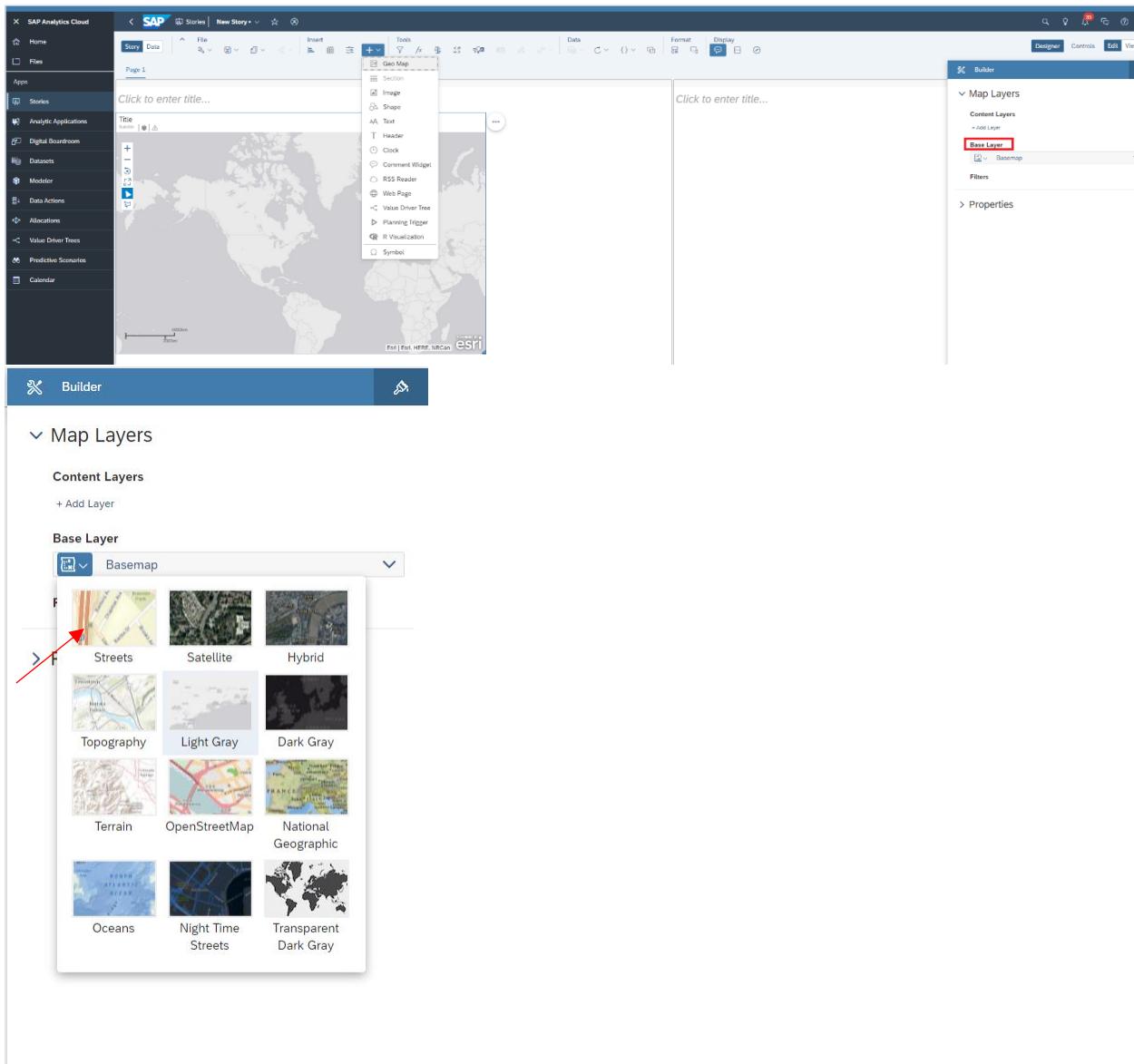
Comment Widget

Page 1

Click to enter title...

Click to enter title...

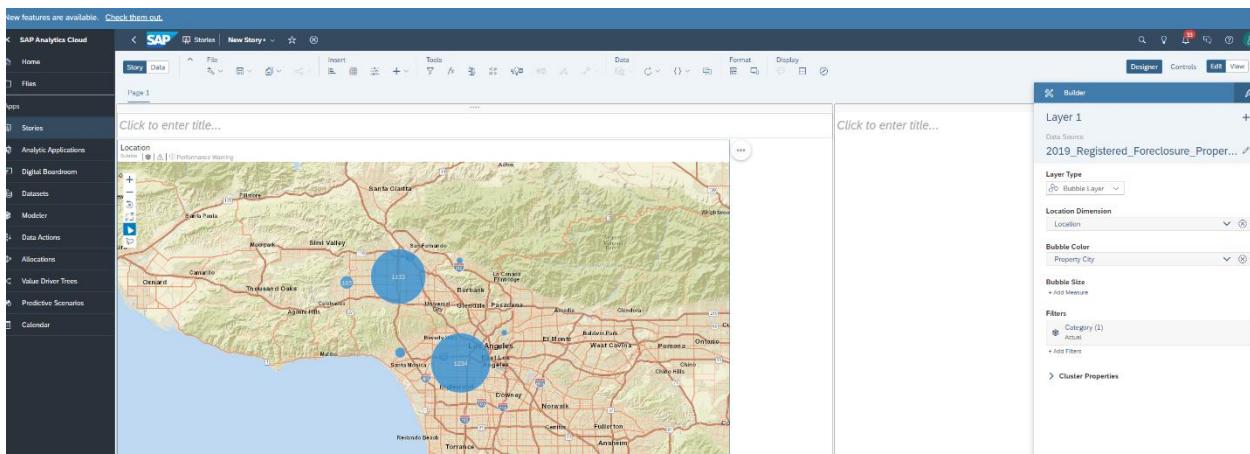
17. Change the base layer to “Street”



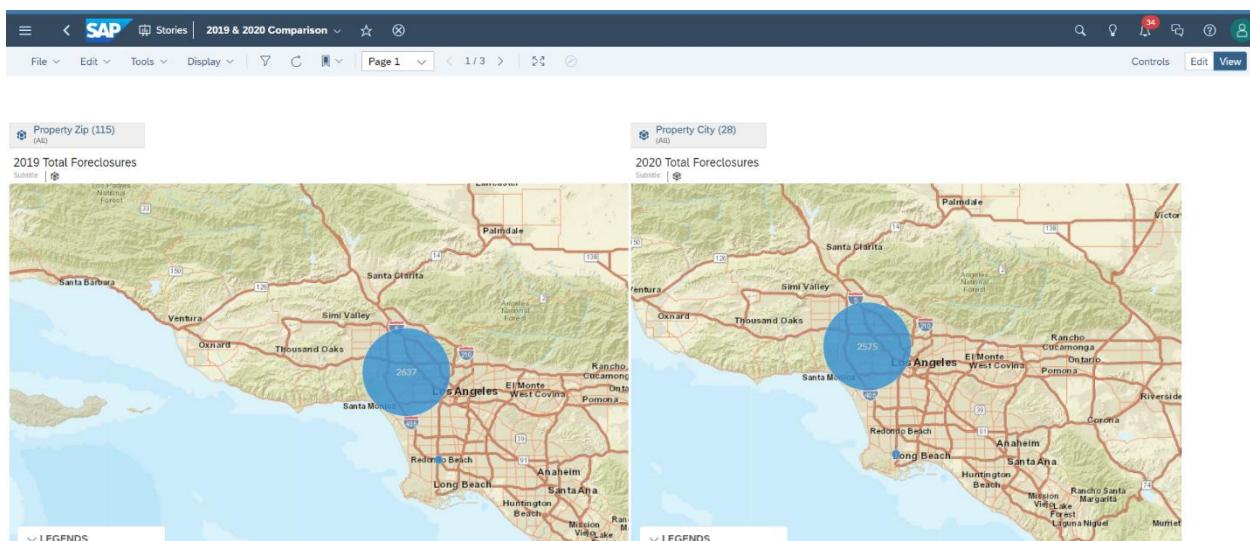
18. On the Builder menu on the right side “Add Layer”

Apply below changes to the layer 1:

- I. Add the data source “2019_Registered_Foreclosure_Properties”
- II. Location Dimension > Location
- III. Bubble Color > Property City
- IV. Ok
- V. Click on insert, input control, select the data source, select dimensions > property zip > Ok

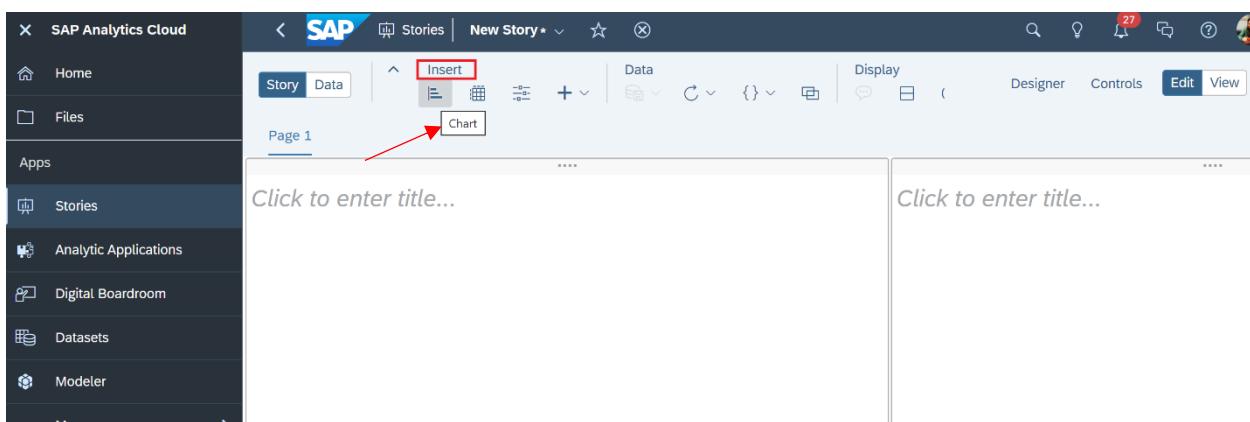


Repeat steps 15-18 to create story for 2020 Model



Create Charts

19. Click on Story on the left menu, select Responsive
20. Insert a chart

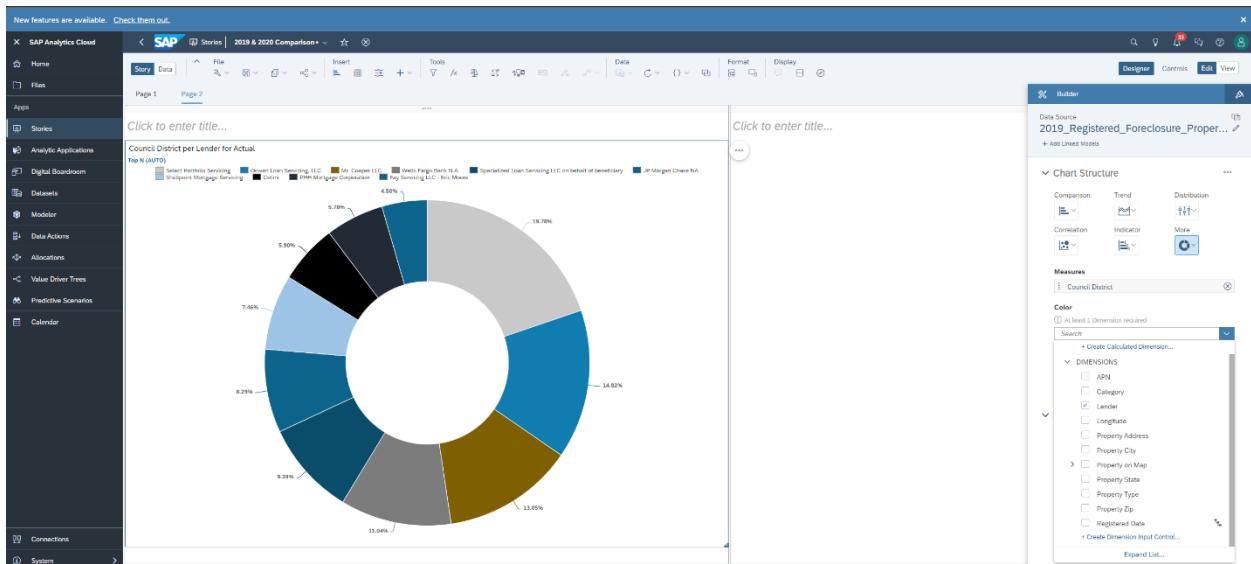


21. Select the model “2019 _ Registered _ Foreclosure _ Properties”
22. On the Builder menu >More>Donut

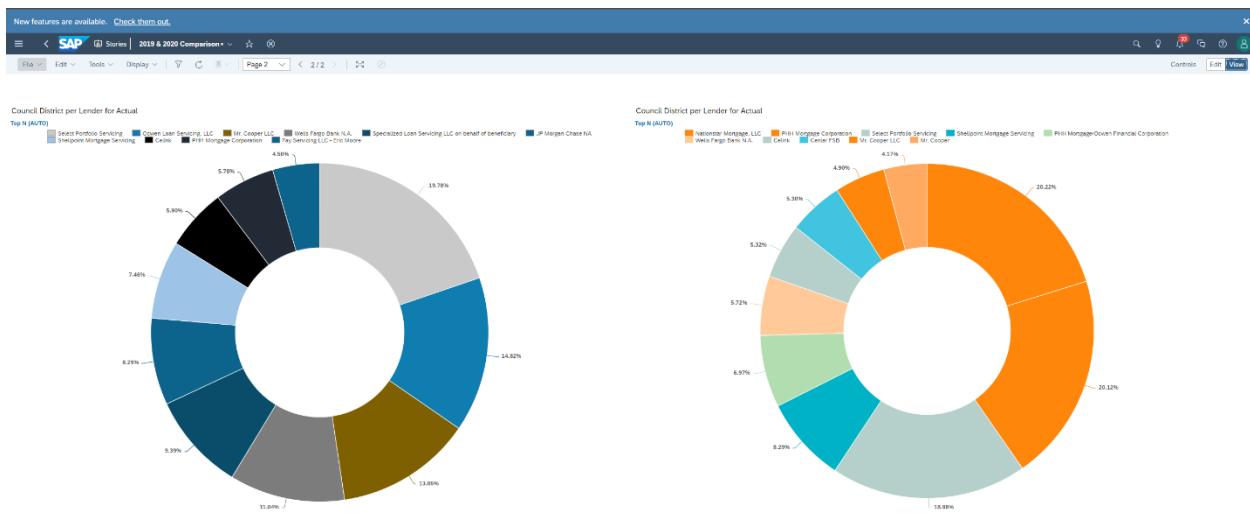
The screenshot shows the SAP Analytics Cloud interface for creating a story. The left sidebar has 'Stories' selected. The main area is titled 'Page 1' with a placeholder 'Click to enter title...'. The right sidebar is titled 'Builder' and shows the 'Data Source' as '2019_Registered_Foreclosure_Prop...'. In the 'Chart Structure' section, the 'Donut' chart type is highlighted with a red border.

Apply below changes:

- I. Measure > Council District
- II. Add Filter > Lender
- III. Color > change as you desire



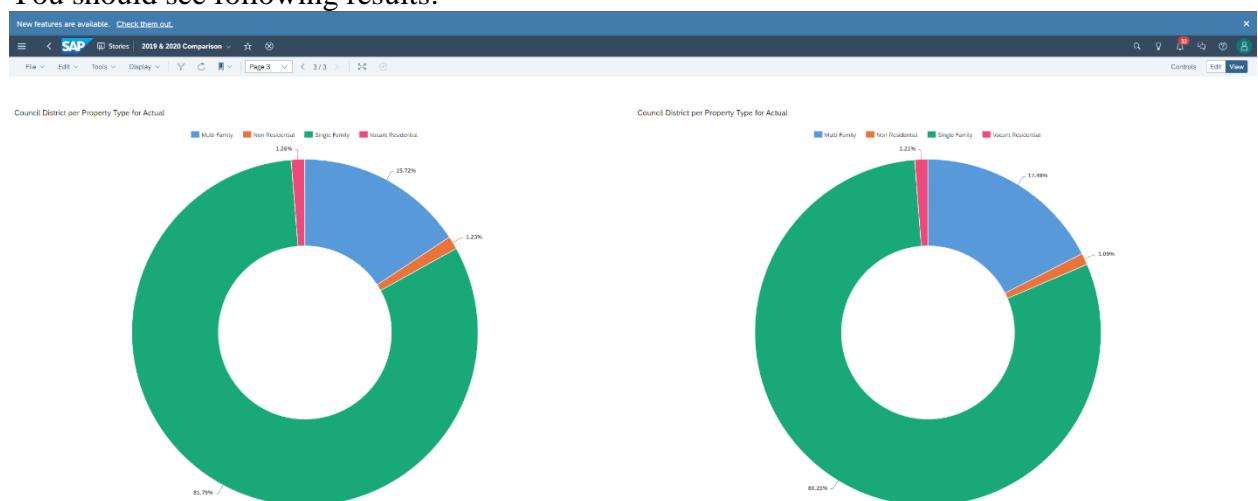
Repeat steps 19-22 for 2020. You should see below results



23. Repeat steps 19-21 (for both 2019 and 2020 files) and apply below changes:

- I. Measure > Council District
- II. Add Filter > Property Type
- III. Color > change as you desire

You should see following results:



24. Select Predictive Scenarios from the menu on the left

25. Select Regression

26. Name the file “2020 Foreclosure Regression Analysis” and save

27. Add following to the settings window on the right side:

- I. Description > regression analysis for foreclosure properties with selected influencers
- II. Training Source Data > 2020_Registered_Foreclosure_Properties Data Set
- III. Target > Council District
- IV. Influencers > Only select APN, Longitude, and Latitude

28. Select Ok and Train

The screenshot shows the SAP Analytics Cloud interface with the following details:

- Header:** SAP Analytics Cloud, higher-education.us10.sapanalytics.cloud/sap/fpa/ui/app.html#/smartpredict&/ps/9648
- Left Sidebar:** Home, Files, Apps (Stories, Analytic Applications, Digital Boardroom), Datasets, Modeler, Data Actions, Allocations, Value Driver Trees, Predictive Scenarios (selected), Calendar.
- Central Content:**
 - Overview:** Influencer Contributions
 - Global Performance Indicators:** Root Mean Square Error (RMSE) 2.28, Prediction Confidence 91.10%
 - Target Statistics:**

Data Partition	Minimum	Maximum	Mean	Standard Deviation
Training	1	15	7.87	4.02
Validation	1	15	7.78	3.93
 - Influencer Contributions:**

Influencer	Contribution
Property Zip	84.37%
Property City	3.34%
Property Management Contact	2.66%
Property Management Address	2.15%
Registered Date_DoM	2.12%
- Right Panel (Settings):**
 - General:** Name: Model 1, Type: Regression, Description: regression analysis for foreclosure properties with selected influencers.
 - Predictive Goal:** Target: Council District.
 - Influencers:** Exclude As Influencer: APN, Ion, Lar.
 - Train:** A red arrow points to this button.

29. Click on Predictive Model

The screenshot shows the SAP Analytics Cloud interface with the following details:

- Header:** SAP Analytics Cloud, higher-education.us10.sapanalytics.cloud/sap/fpa/ui/app.html#/smartpredict&/ps/9648
- Left Sidebar:** Home, Files, Apps (Stories, Analytic Applications, Digital Boardroom), Datasets, Modeler, Data Actions, Allocations, Value Driver Trees, Predictive Scenarios (selected), Calendar.
- Central Content:**
 - Overview:** Influencer Contributions
 - Global Performance Indicators:** Root Mean Square Error (RMSE) 2.28, Prediction Confidence 91.10%
 - Target Statistics:**

Data Partition	Minimum	Maximum	Mean	Standard Deviation
Training	1	15	7.87	4.02
Validation	1	15	7.78	3.93
 - Influencer Contributions:**

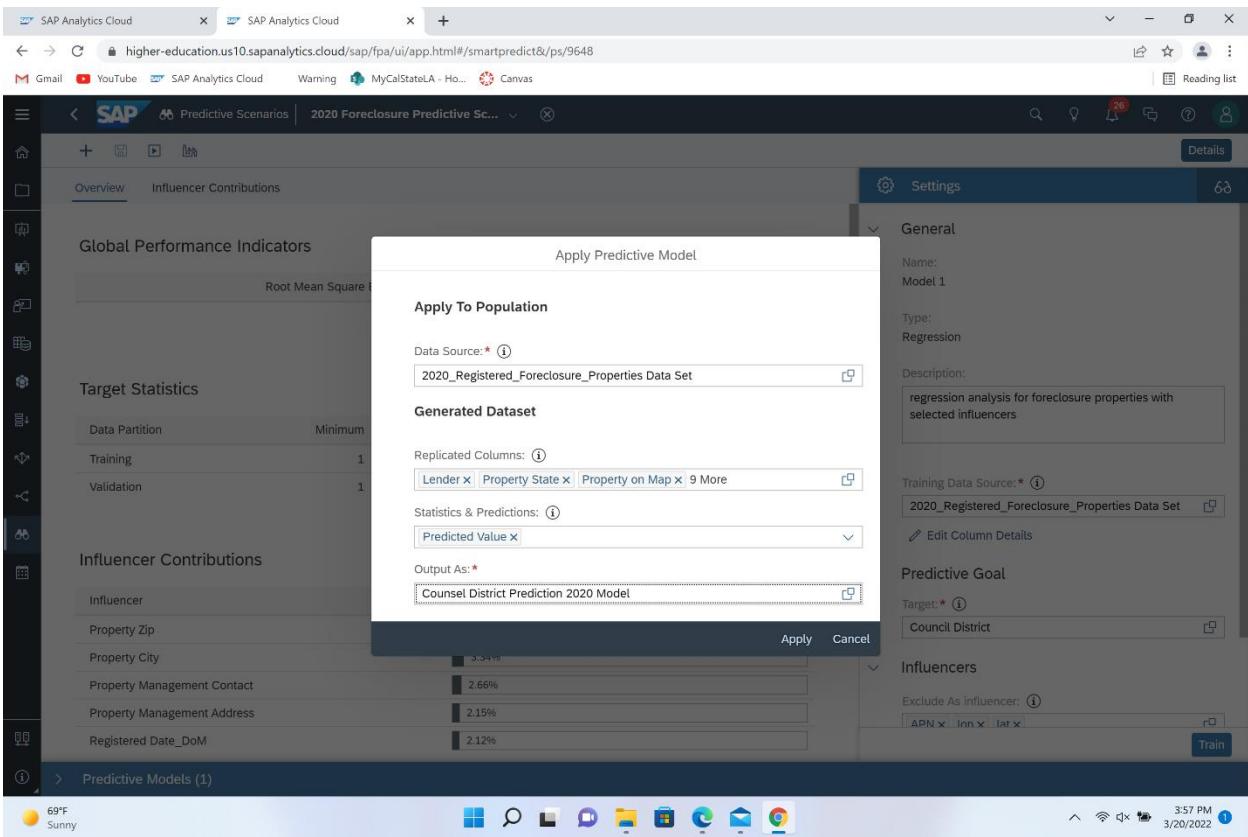
Influencer	Contribution
Property Zip	84.37%
Property City	3.34%
Property Management Contact	2.66%
Property Management Address	2.15%
Registered Date_DoM	2.12%

Select the “2020_Registered_Foreclosure_Properties Data Set” for Data Source

- Replicated Columns: Select APN, Registered date, Property Zip, Council District, Property Type, Property address, Property City, Property State, Lender, Property on the Map and Predicted Value
- Statistics and Prediction select Predicted Value

III. Output As: Counsel District Prediction 2020 Model

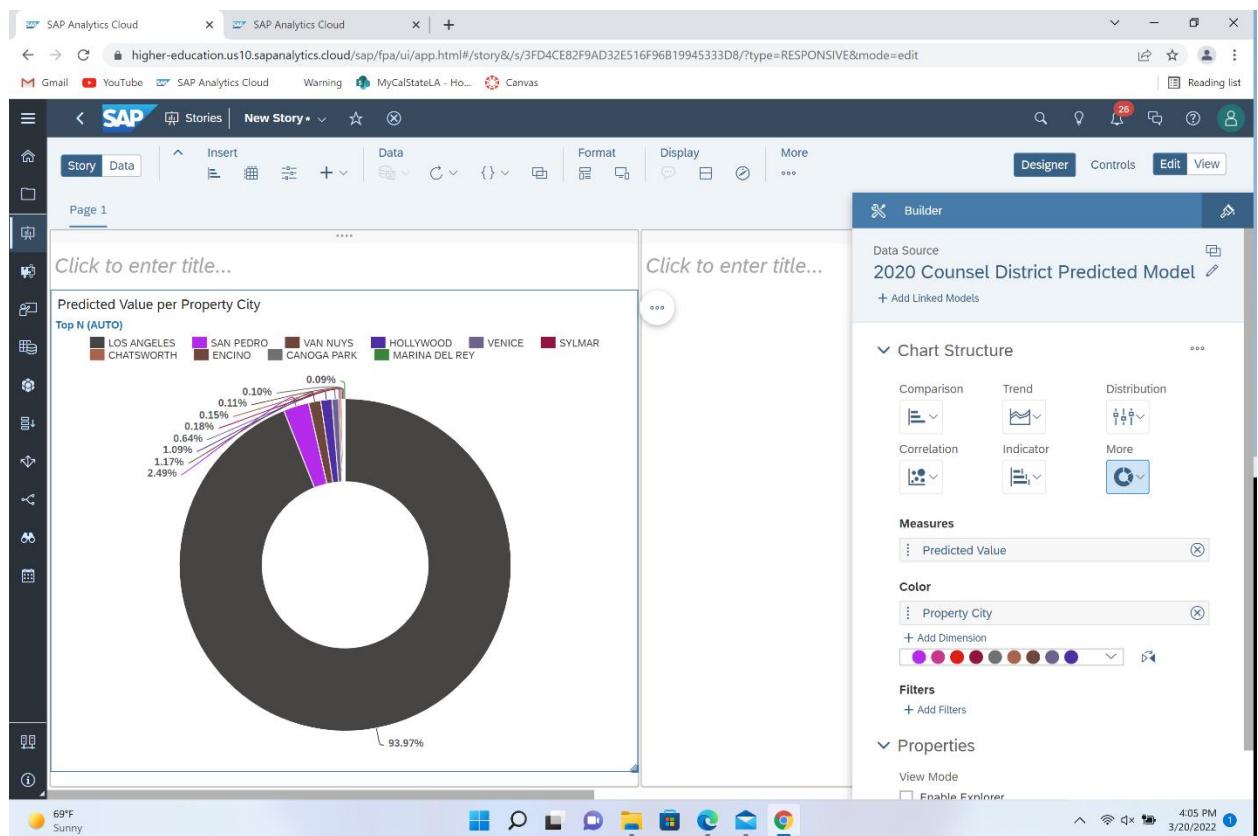
IV. Select Apply



30. To see the results, open a new tab with SAC url. Then, go to Browse > Files and go to your folder. Your results should be in your list of files.

The screenshot shows the SAP Data Studio interface. On the left, a 'Create Transform' dialog is open over a table of data. The table has columns: Property Type, Property Address, Property City, Property State, Lender, and Predicted Value. A red box highlights the last column, 'Predicted ...'. On the right, the 'Dataset Overview' panel is displayed for the '2020 Counsel District Predict...' dataset, which contains 2000 rows and 11 columns. The overview includes sections for Output, Measures (with APN, Property Zip, Council District, and Predicted Value), and Dimensions (with Registered Date, Property Type, Property Address, Property City, Property State, Lender, and Property on Map). A 'Validate Full Dataset' button is at the bottom right.

31. To visualize the results, now we will create a Story > Responsive > Insert Char > Select 2020 Counsel District Prediction Data >
32. Go to Builder Menu on the right side and apply following
Select Pie chart
Measures > Predicted Value
Add Dimension > Property City



33. To do a Bar Graph, do the following steps

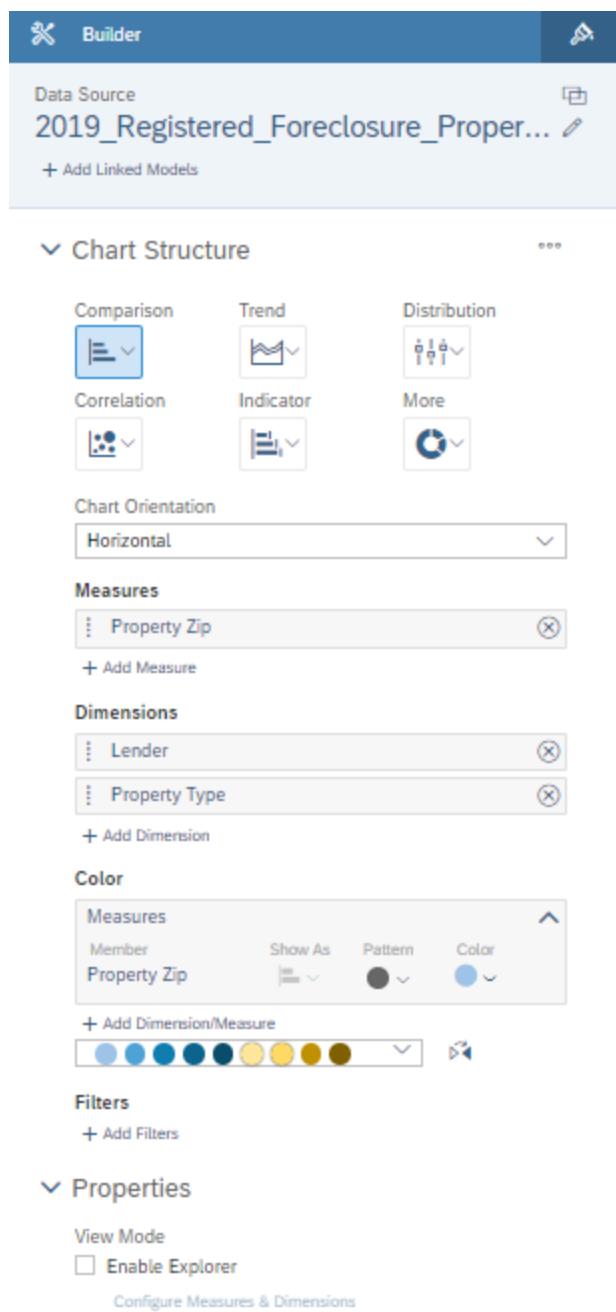
Story > Responsive> 2019_Registered_Foreclosure_Properties” data > Insert Chart

Go to Builder Menu on the right side:

Measure > Property Zip

Add Dimensions > Lender and Property Type

Edit the color as you desire

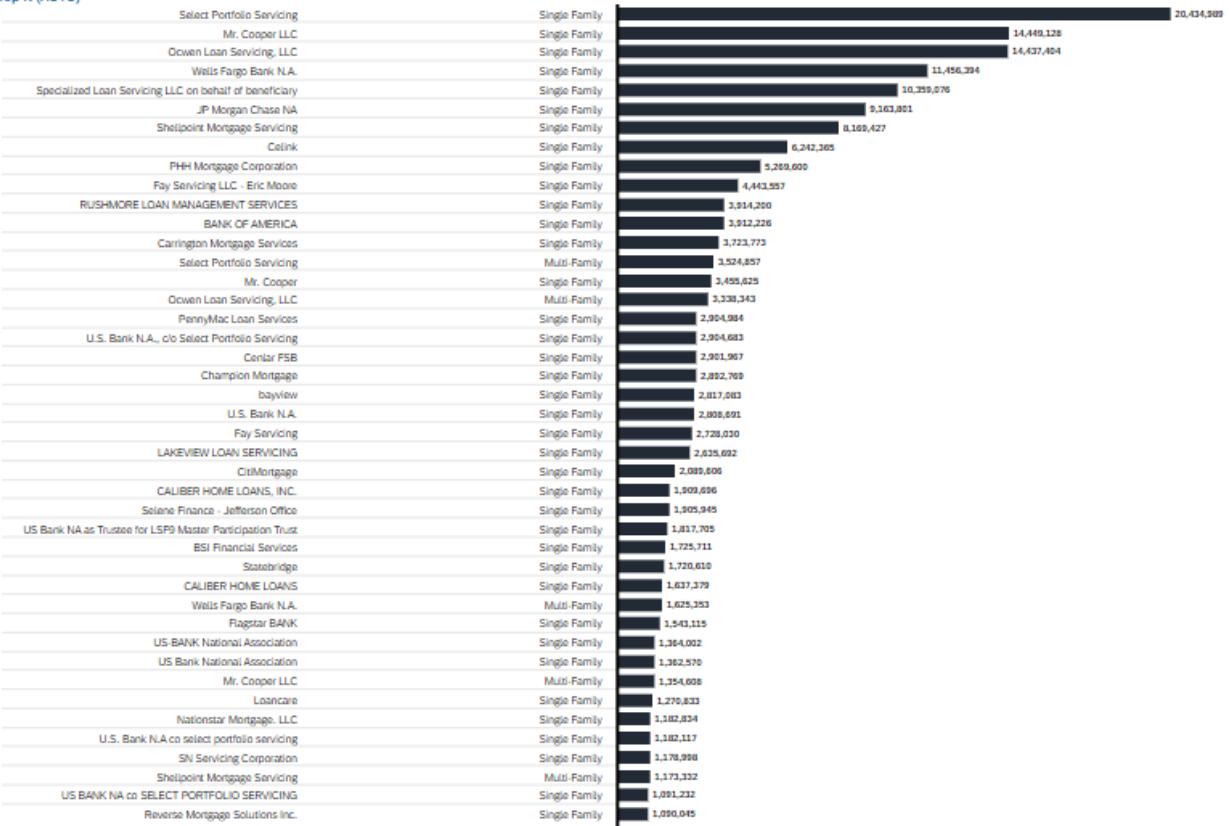
The screenshot shows the Microsoft Power BI Builder interface. At the top, it displays a Data Source named "2019_Registered_Foreclosure_Proper...". Below the header, there's a section titled "Chart Structure" with icons for Comparison, Trend, Distribution, Correlation, Indicator, and More. Under "Chart Orientation", the dropdown is set to "Horizontal". The "Measures" section contains "Property Zip". The "Dimensions" section contains "Lender" and "Property Type". In the "Color" section, "Property Zip" is selected with a blue color. The "Filters" section has a "+ Add Filters" button. The "Properties" section includes "View Mode" with an "Enable Explorer" checkbox and a "Configure Measures & Dimensions" link.

34. Select Ok

2019

Property Zip per Lender, Property Type

Top N (AUTO)

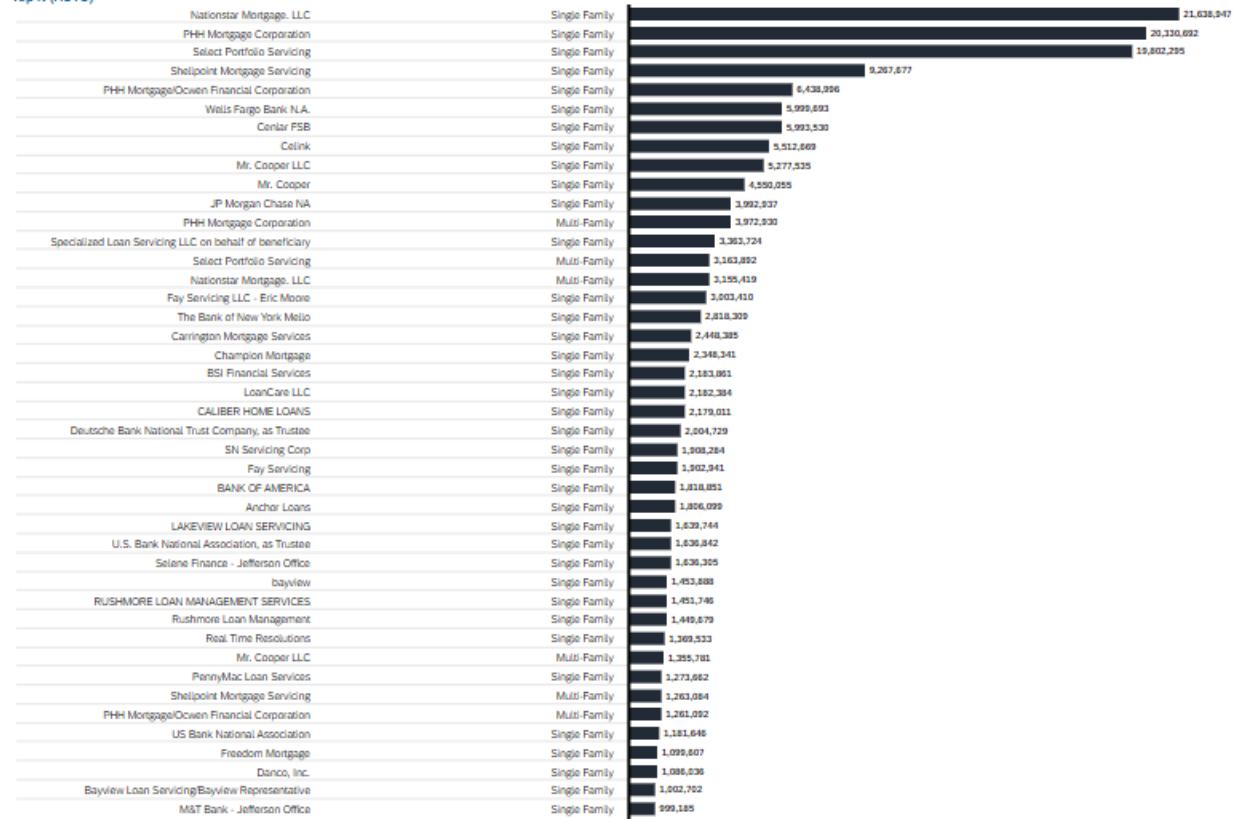


Repeat steps 33 and 34 for 2020 data, you will see below

2020

Property Zip per Lender, Property Type

Top N (AUTO)



35. To do a Forecast, do the following steps

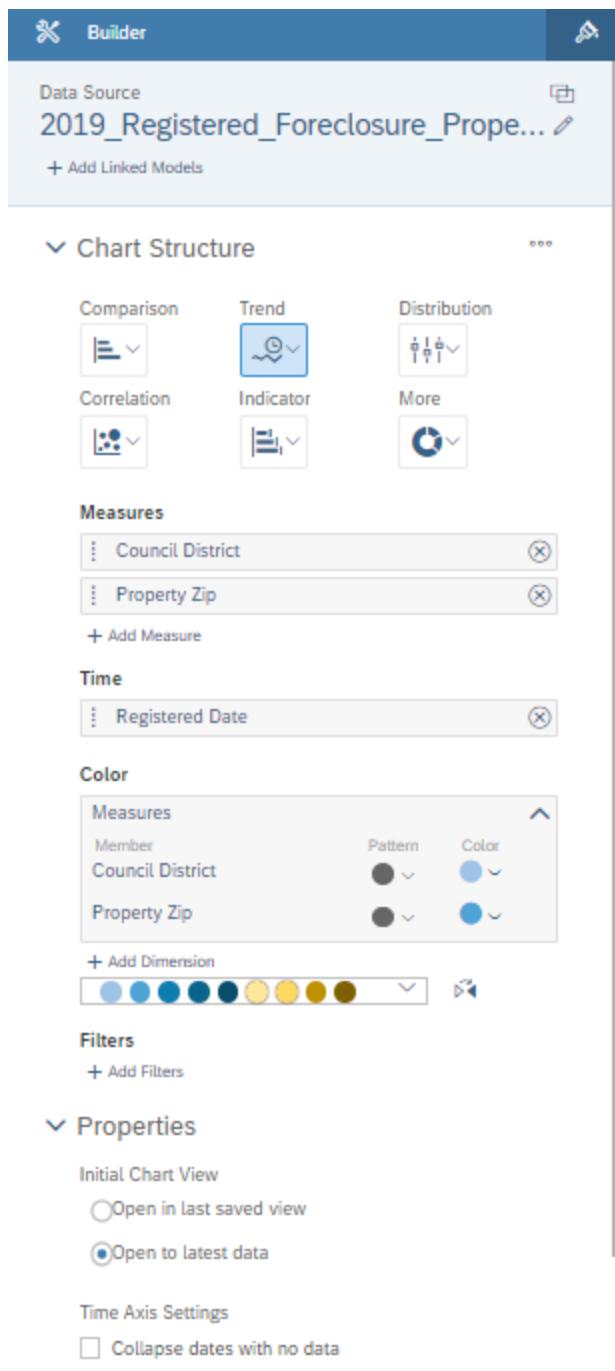
Story > Responsive> 2019_Registered_Foreclosure_Properties” data > Trend >Time Series

Go to Builder Menu on the right side:

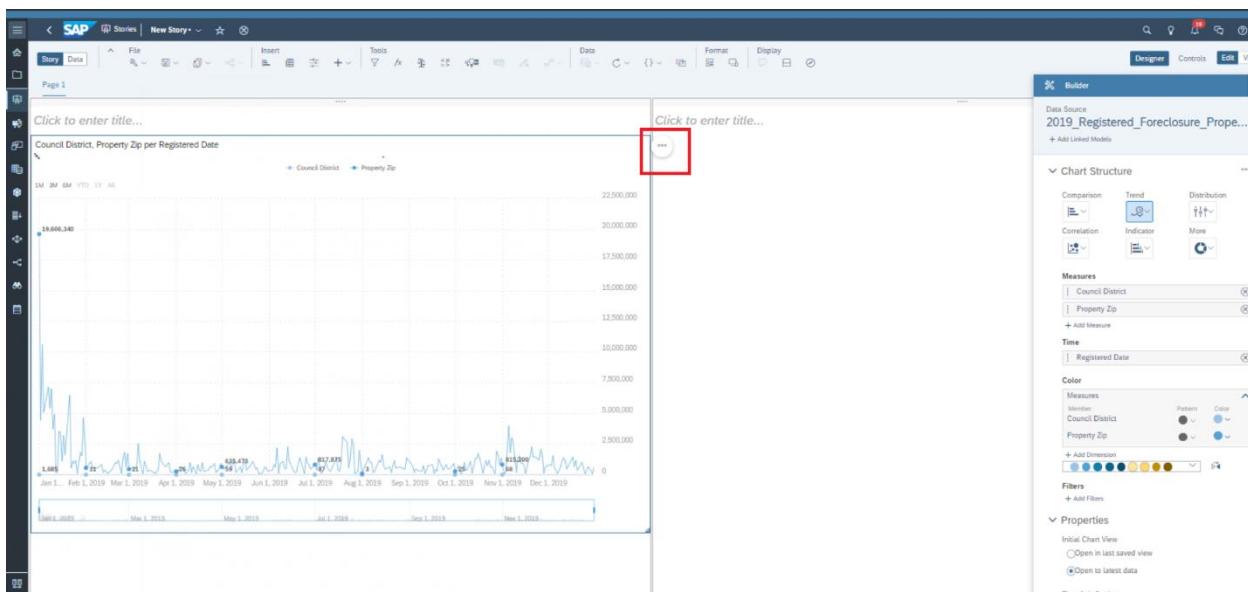
Measure > Property Zip and Council District

Add Dimensions > Registered Date

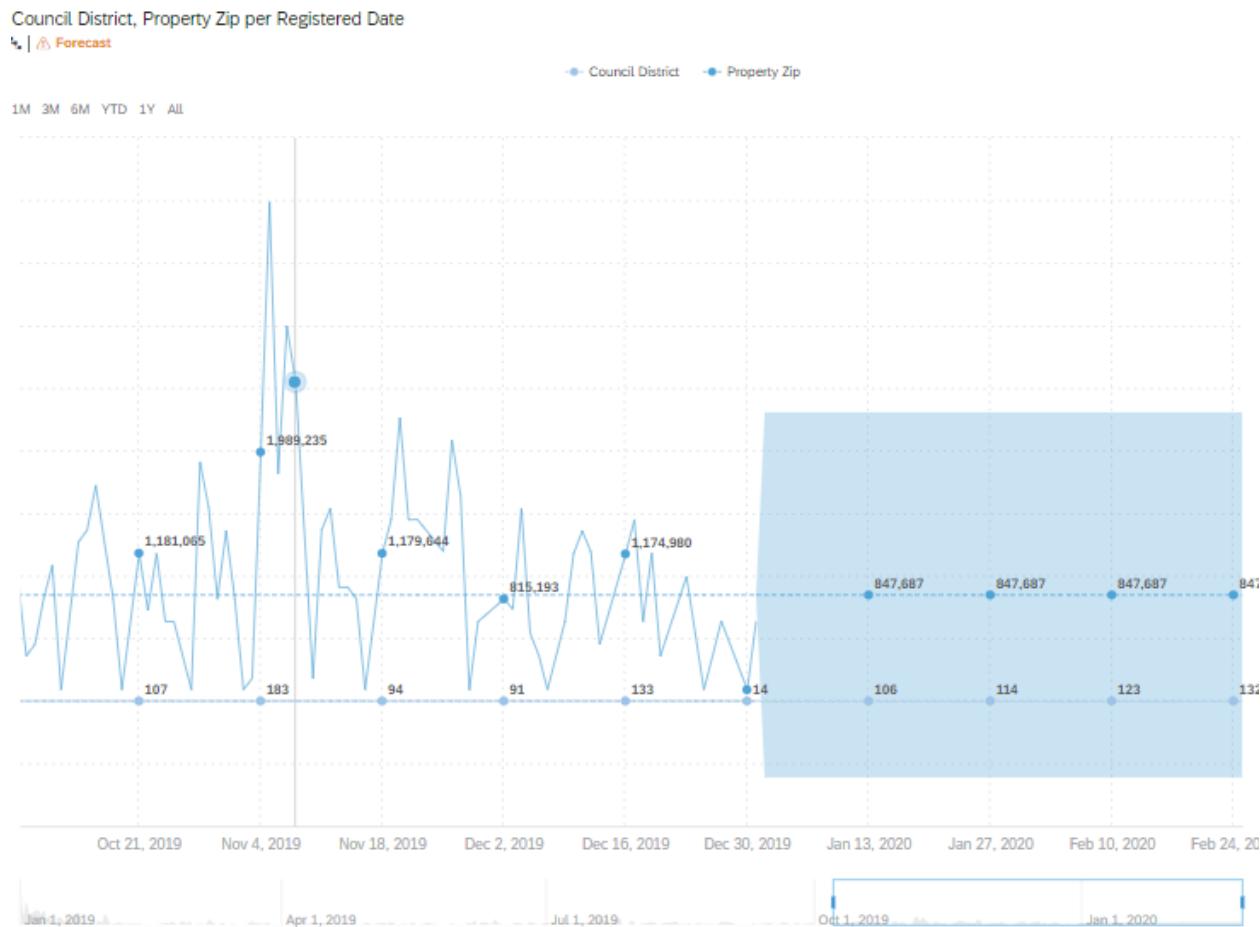
Edit the color as you desire

The screenshot shows the Microsoft Power BI Builder interface. At the top, it displays a Data Source named "2019_Registered_Foreclosure_Prope...". Below the header, there's a section titled "Chart Structure" with various chart types: Comparison, Trend, Distribution, Correlation, Indicator, and More. Under "Measures", "Council District" and "Property Zip" are selected. The "Time" section shows "Registered Date". The "Color" section allows for mapping dimensions to patterns and colors, with "Council District" and "Property Zip" assigned dark blue patterns and light blue colors. The "Filters" section has an option to add filters. The bottom section, "Properties", includes settings for "Initial Chart View" (with "Open to latest data" selected), "Time Axis Settings" (with "Collapse dates with no data" unchecked), and a three-dot ellipsis menu.

36. Click on the three dots shows as below



37. Click Add > Forecast > Automatic Forecast



Repeat steps 35-37 for 2020, you will see below

2020

Council District, Property Zip per Registered Date

Actual | Forecast

-●- Council District -●- Property Zip

1M 3M 6M YTD 1Y All

