More Analysis, Less Coding with SAS® Viya® for Learners

More Analysis, Less Coding with SAS Viya for Learners 3

Demonstration: Demonstration 4

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More Analysis, Less Coding with SAS Viya for Learners

This document provides the demo steps for the “Maximize Classroom Time with More Analysis, Less Coding: Visual Statistics with SAS® Viya® for Learners” presentation.

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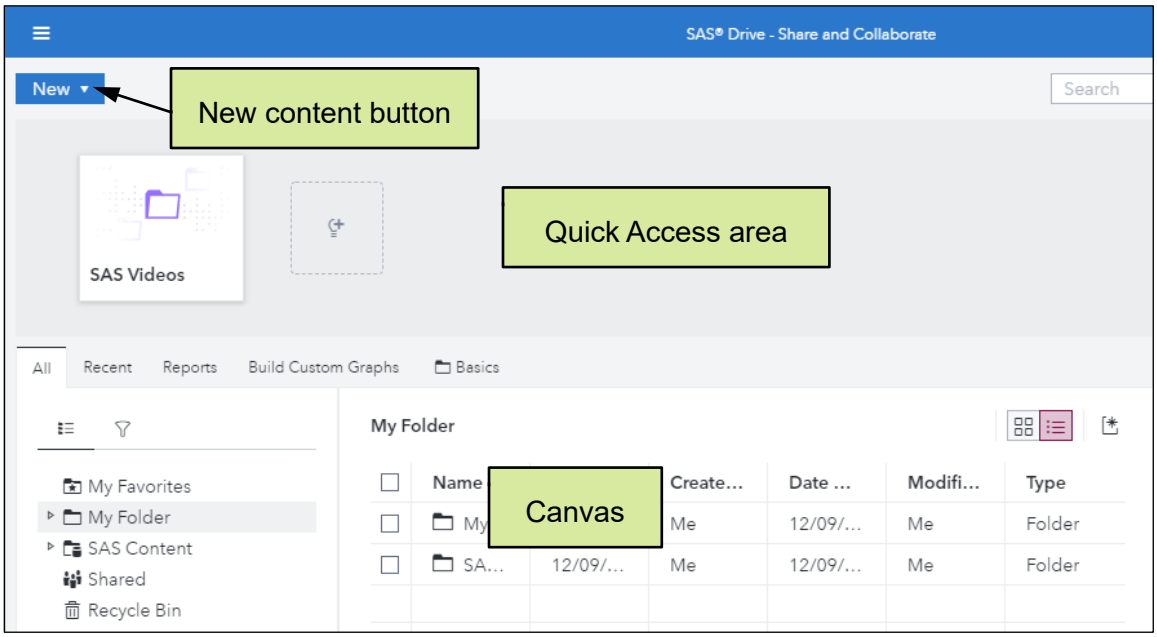
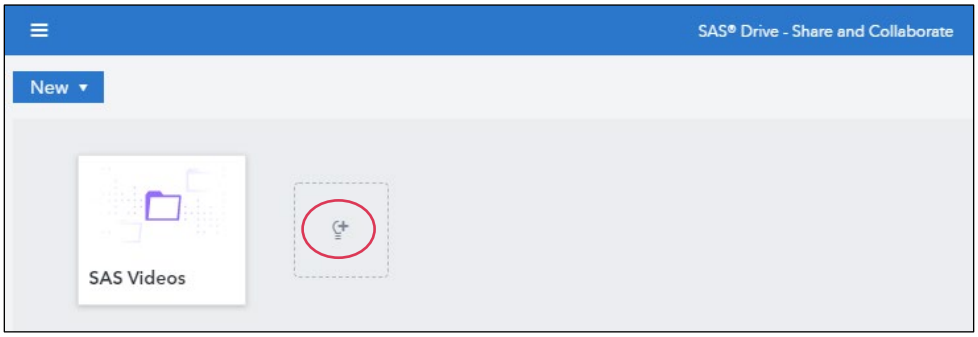
Demonstration

1. Sign in to SAS Viya for Learners.

   SAS Drive is displayed by default.



2. View the Quick Access area.



   The Quick Access area is a location in SAS Drive where you can add content that you frequently access.

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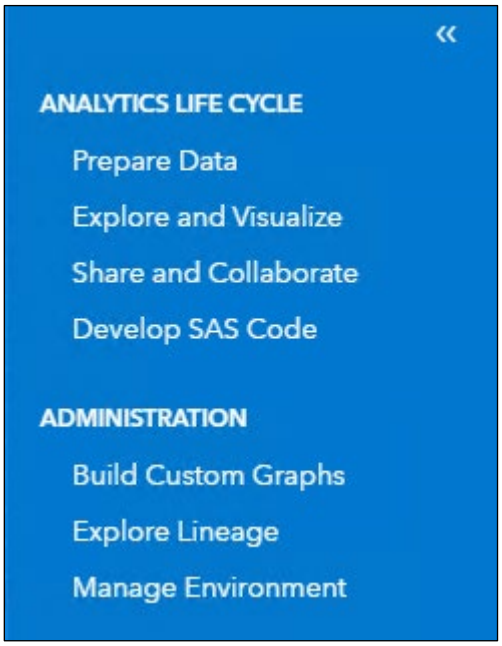
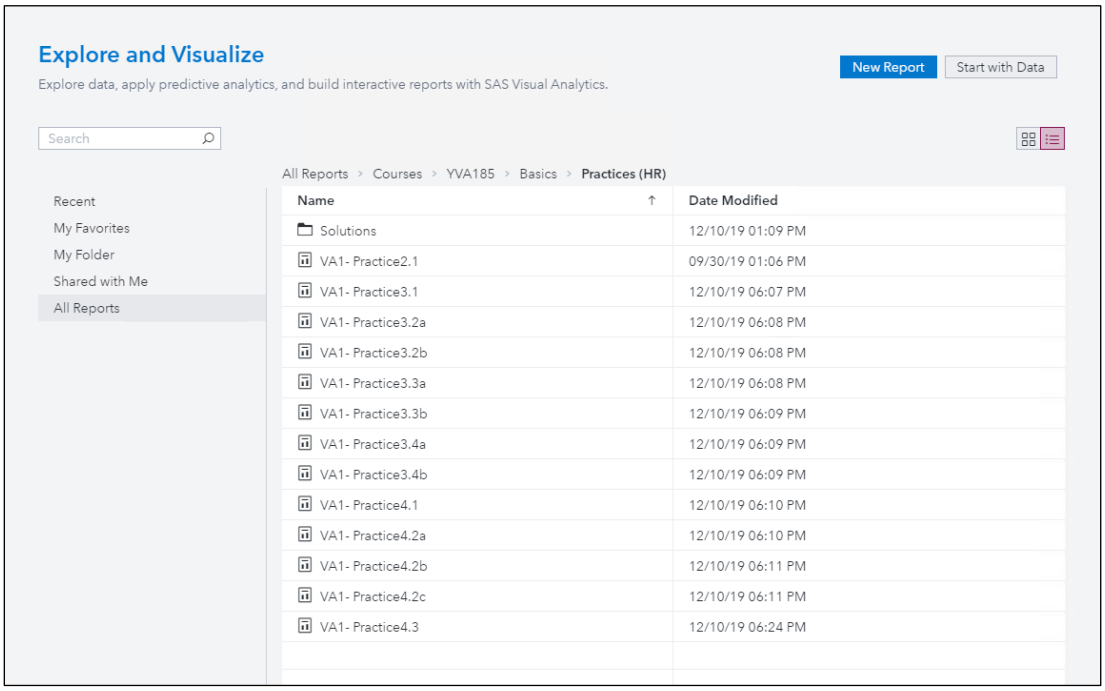
3. In the upper left corner, click ≡ (**Show list of applications**) and select **Explore and Visualize**.



4. In the upper right corner, select **Start with Data**.



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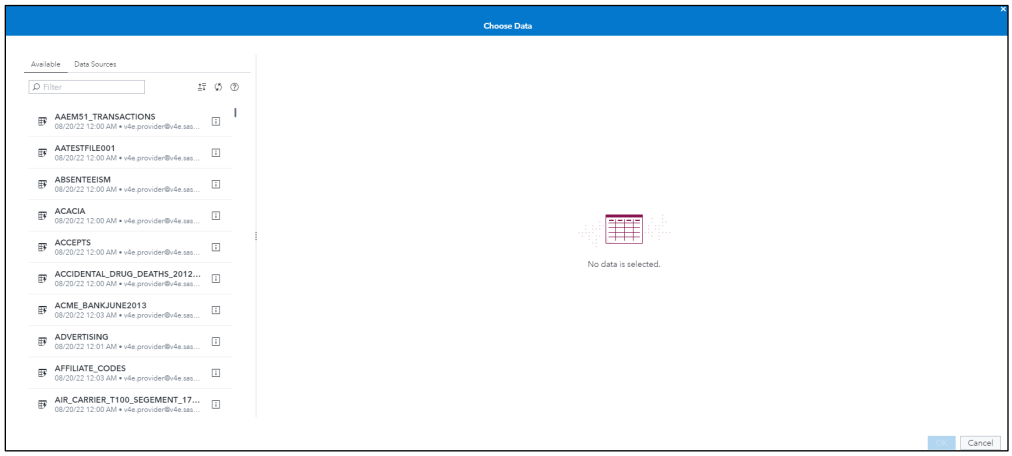
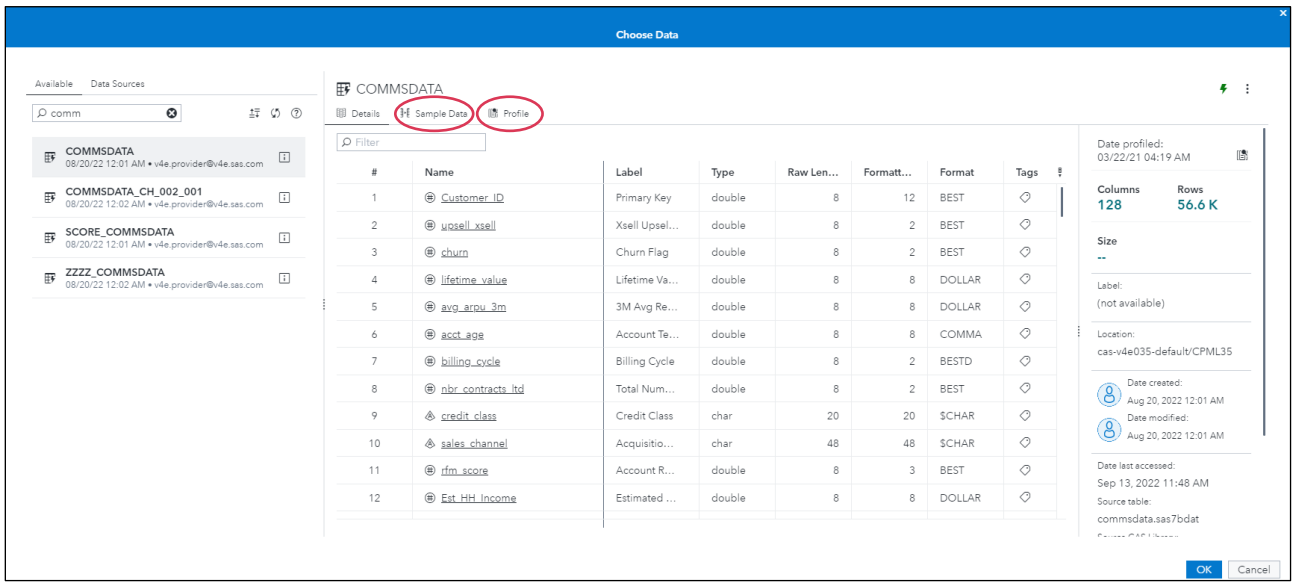
5. Enter **COMMS** on the search bar on the Available tab.



6. Select **COMMSDATA** on the Available tab.



7. Click the **Sample Data** tab to display the first 100 rows of data.
8. Click the **Profile** tab to display the metrics.
9. Select **OK**.

   The data is loaded into SAS Visual Analytics.

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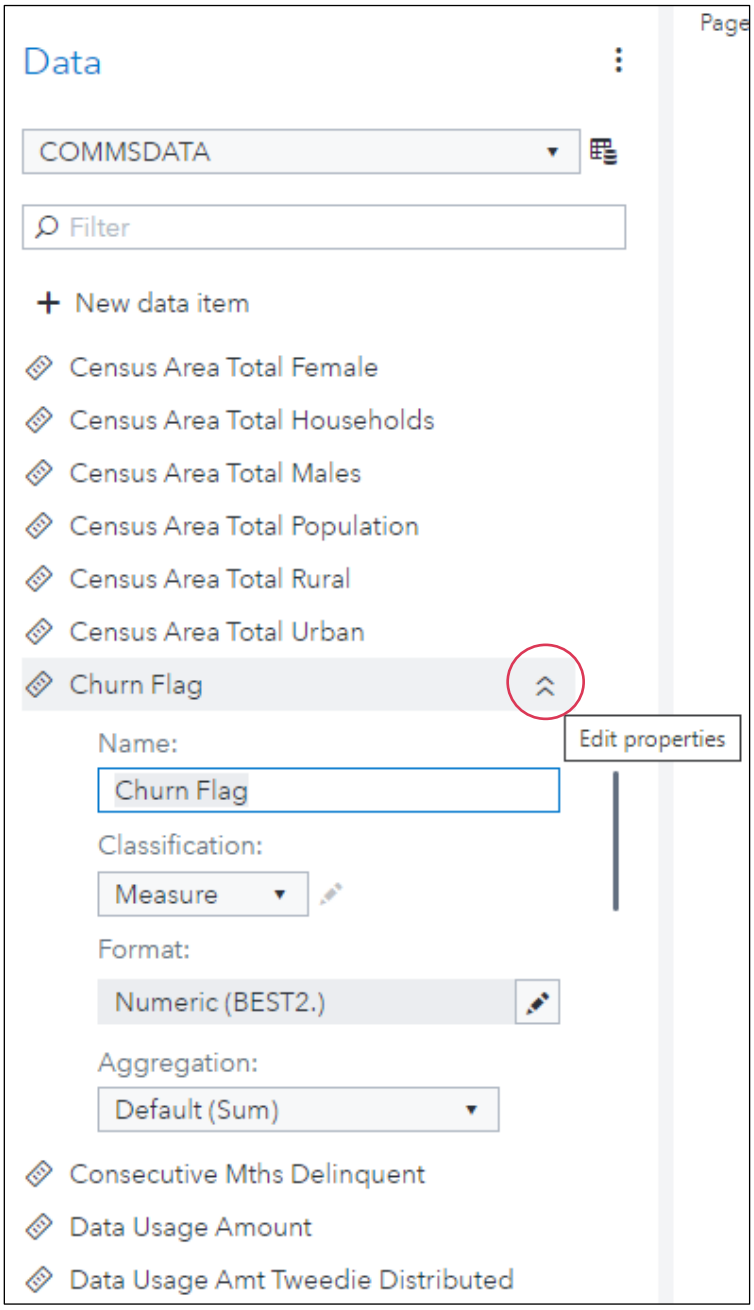
10. Select **Churn Flag** in the Data pane.



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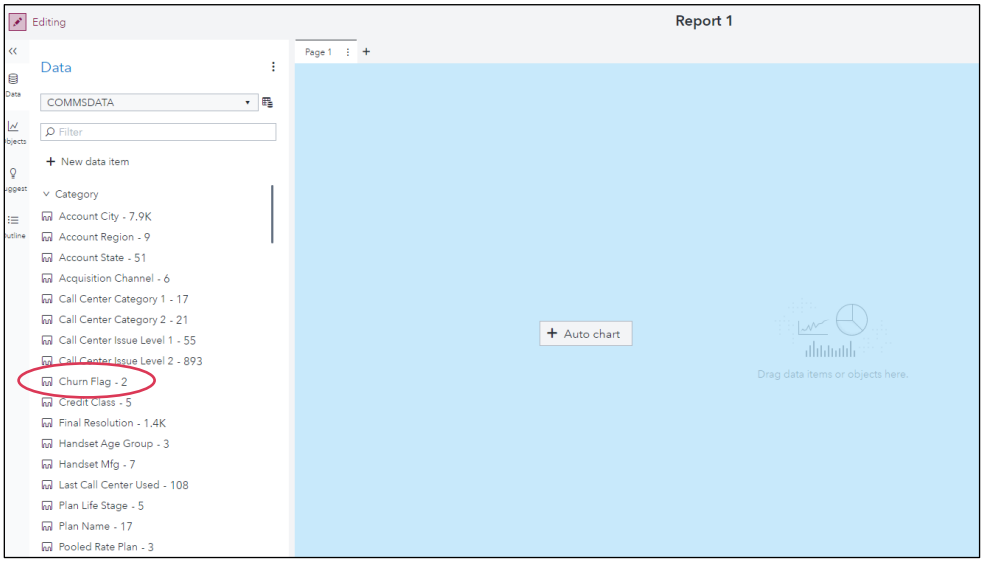
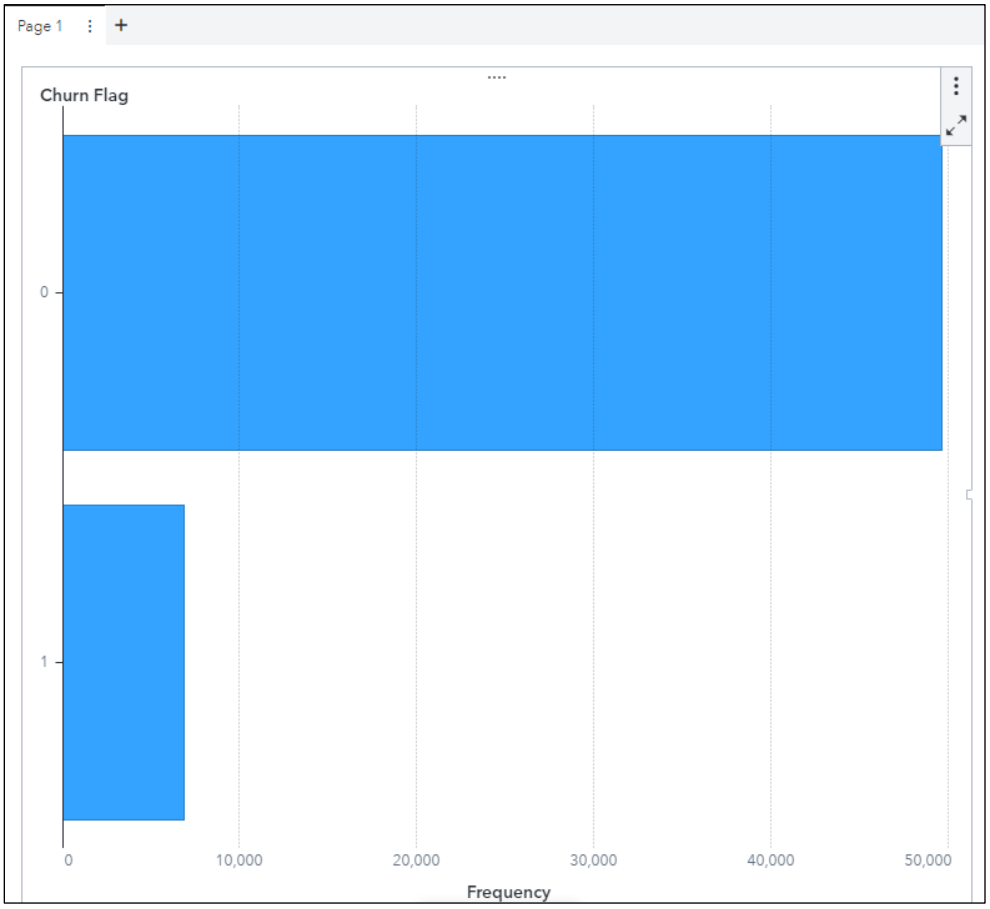
11. Select **Edit properties** on **Churn Flag** and change its classification to **Category**.
12. Select **Churn Flag** from the Category section and drag it onto the canvas.





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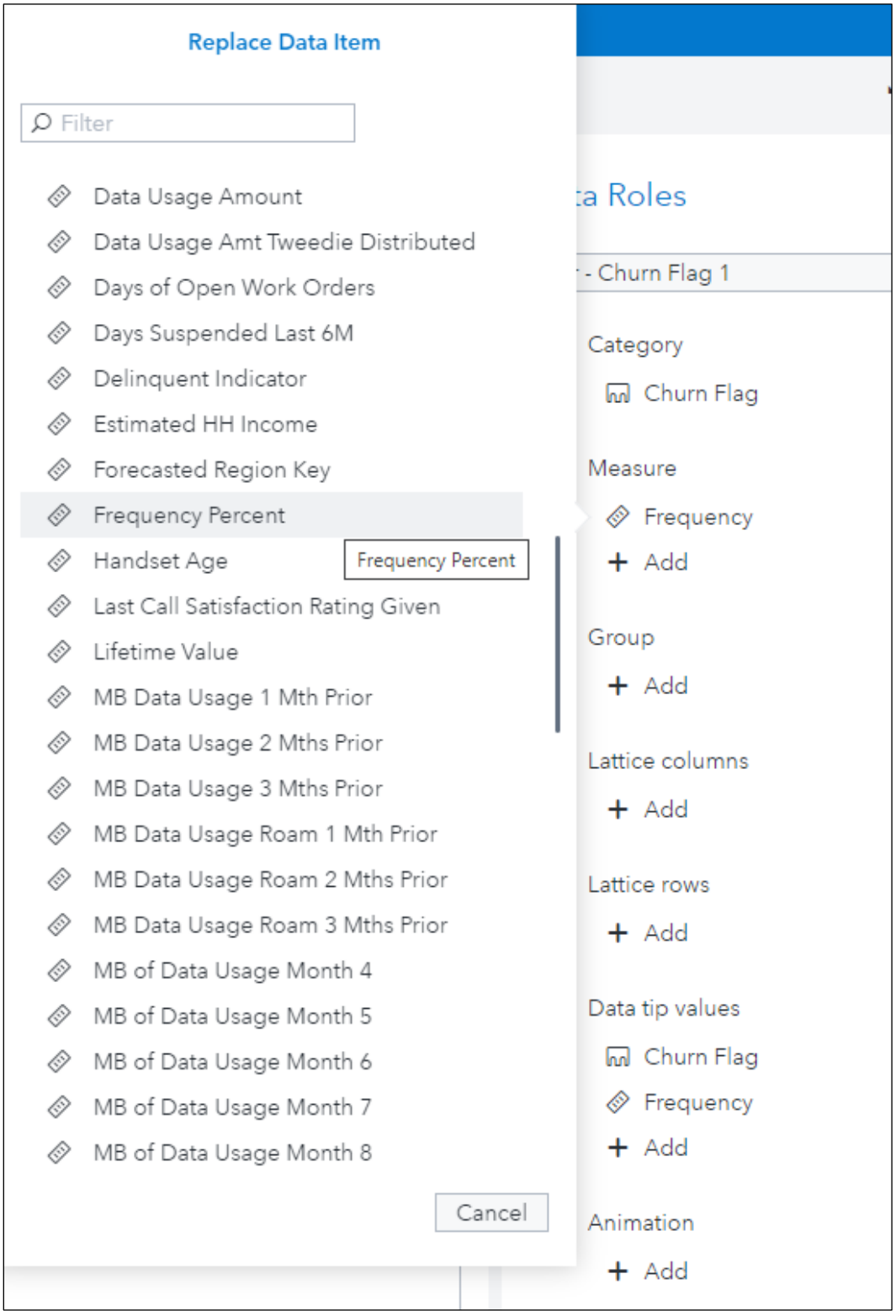
13. Click the **Roles** icon in the right pane.
14. Select **Frequency** in the measure.
15. Select **Frequency Percent** in the Replace Data Item window.



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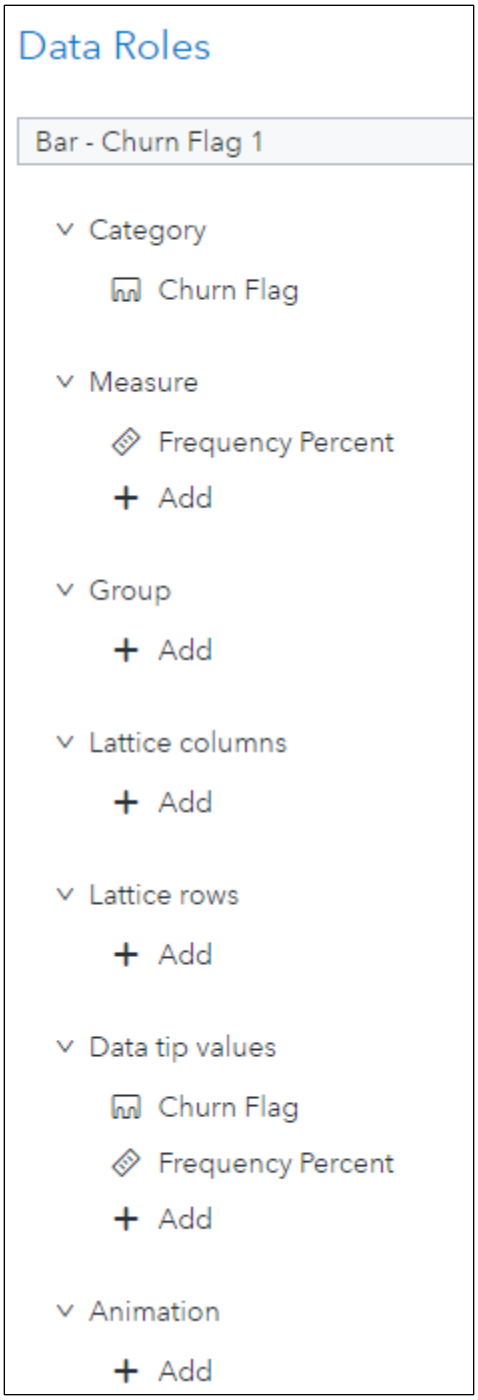

16. Click ✚ next to Page 1 to add a new page.
17. Add a correlation matrix to the page.
    a. In the left pane, click **Objects**.
    b. Drag the **Correlation matrix** object, from the Graphs group, to the canvas.
    c. In the right pane, click **Roles**.
    d. For the **Measures** role, click **Add**.

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e. In the Add Data Items window, select the following measures:

Total MB of Roam Data Usage

Total MB of Data Usage

Calls Incoming Off-Peak

Calls Incoming Peak

Calls Outgoing Off-Peak

Calls Outgoing Peak

Total Calls Curr

Total Billed Data Usage

3M Avg Billed Data Usage

6M Avg Billed Data Usage

MB of Data Usage Month 4

MB of Data Usage Month 5

MB of Data Usage Month 6

MB of Data Usage Month 7

MB of Data Usage Month 8

MB of Data Usage Month 9

Data Usage Amount

f. Click **OK**.

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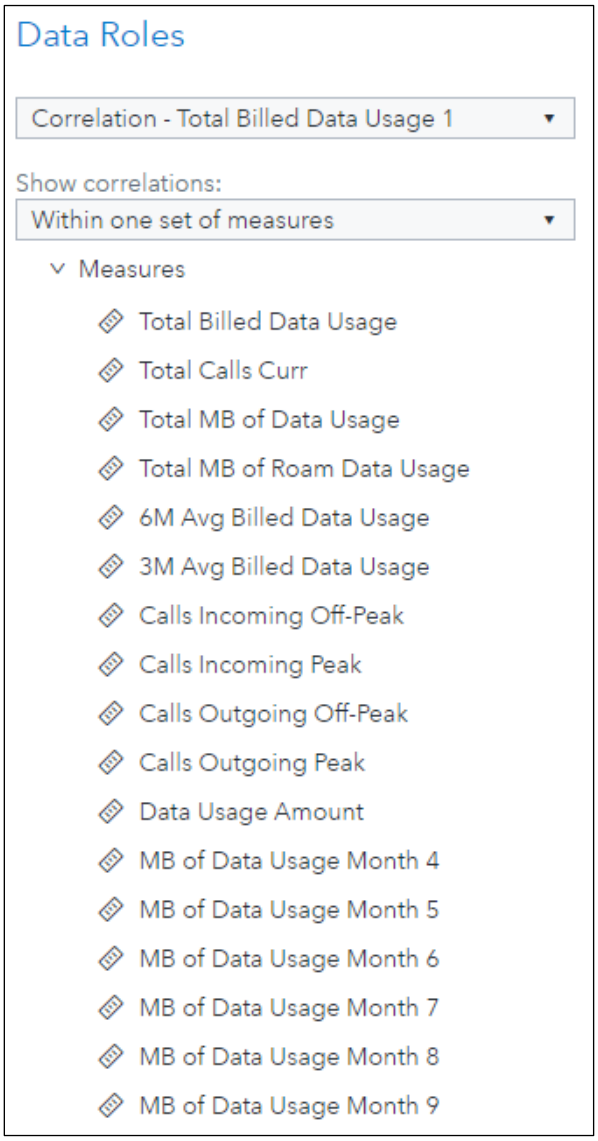
The Data Roles pane should resemble the following:



Only measure data items can be used for the correlation matrix.

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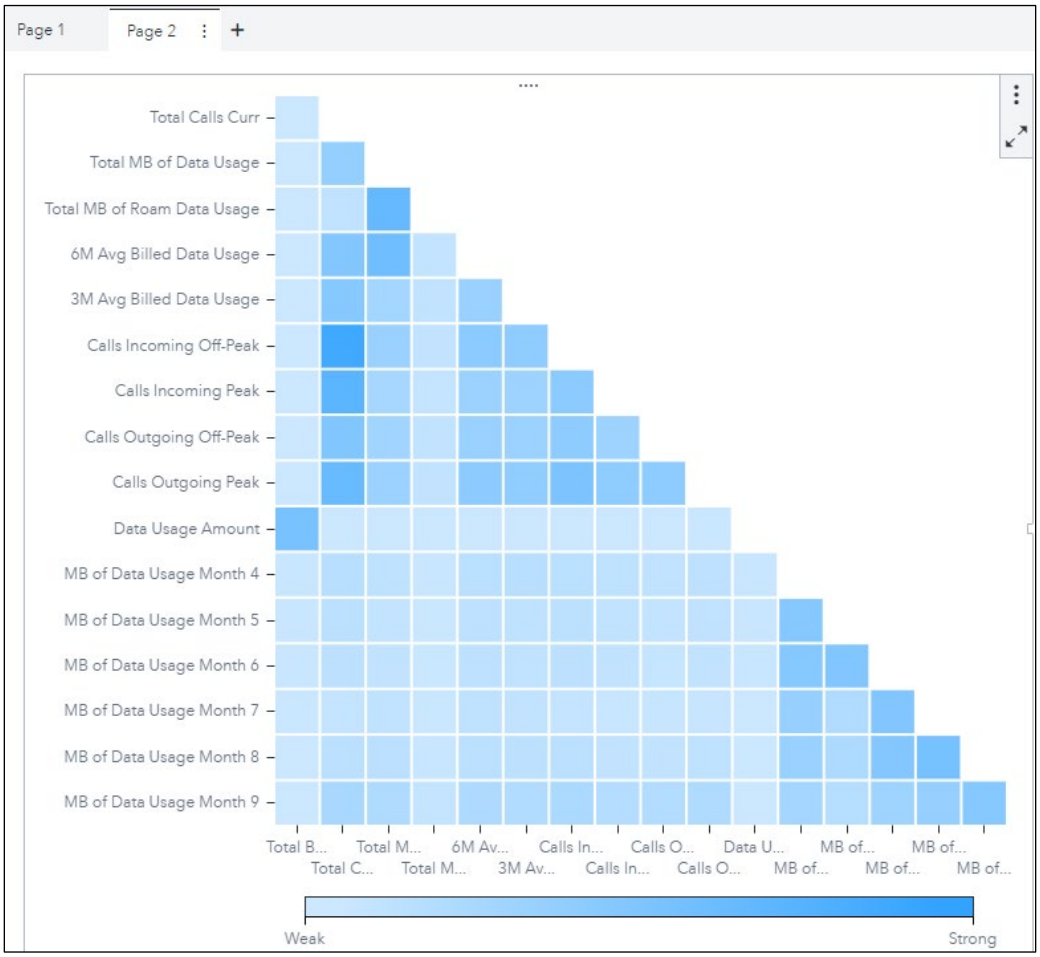
The correlation matrix should resemble the following:



18. Remove data items from the correlation matrix.
    a. Right-click **Total Calls Curr** in the Roles pane.
    b. Select **Remove Total Calls Curr**.
19. Build a cluster analysis.
    a. Click ✚ next to Page 2 to add a new page.
    b. Under SAS Visual Statistics, either double-click or drag and drop **Cluster** onto the canvas.
    c. Add the following data items: **Account Region**, **3M Avg Overage Charges**, **9M Avg Billed Data Usage**, **Account Tenure**, **Data Usage Amount**, **Estimated HH Income**, **Total Overage Charges**, **Total Times Over Plan**.
    d. Drag the selected variables into the cluster example.

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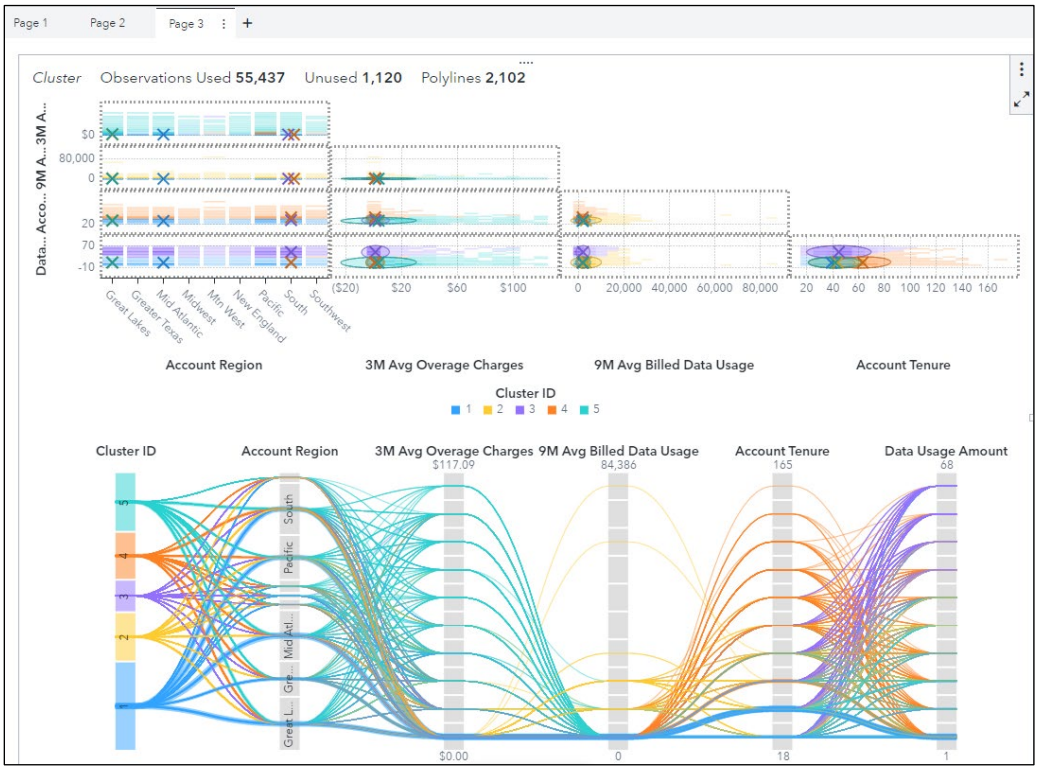
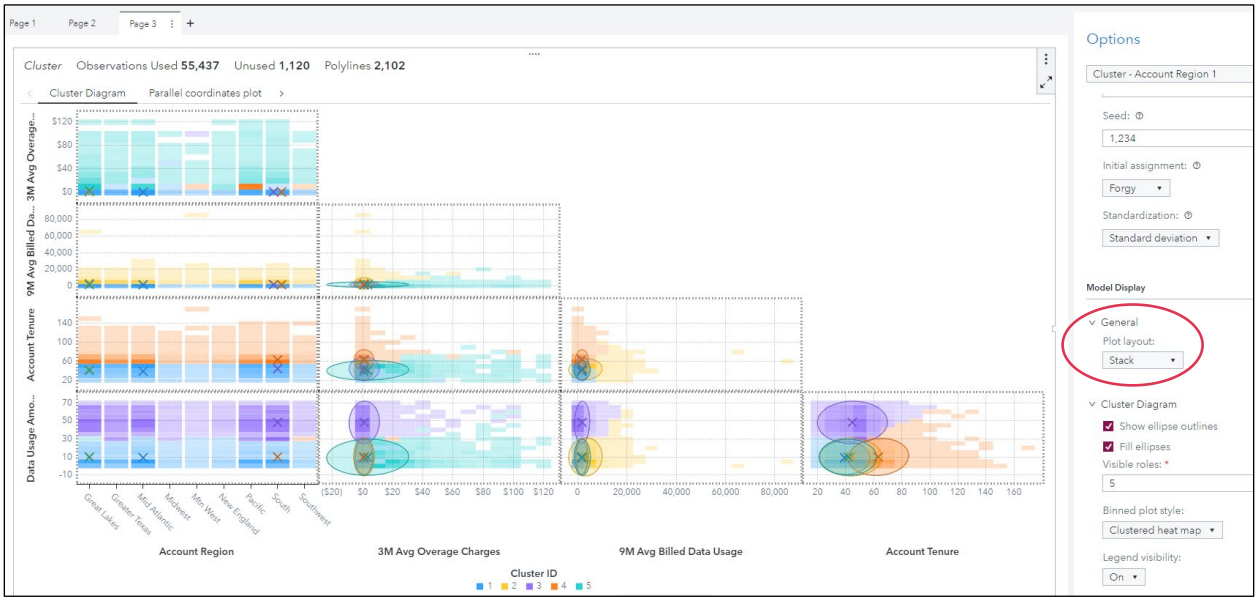
The output should resemble the following:



20. Access the Options pane and investigate the settings.
21. Under Model Display, select **General** and change the plot layout to **Stack**.



22. Right-click **Account Region** in the Data Roles and select **Remove Account Region**.

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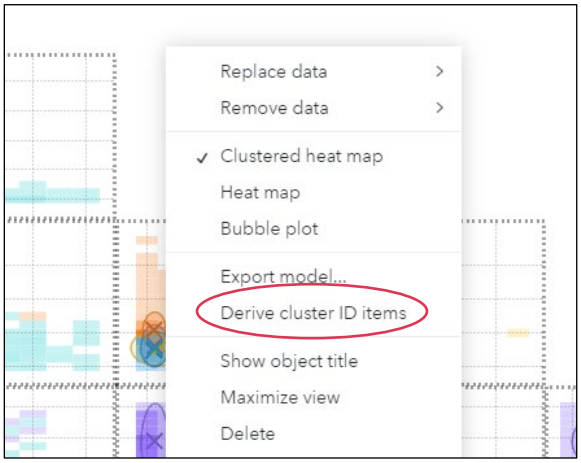
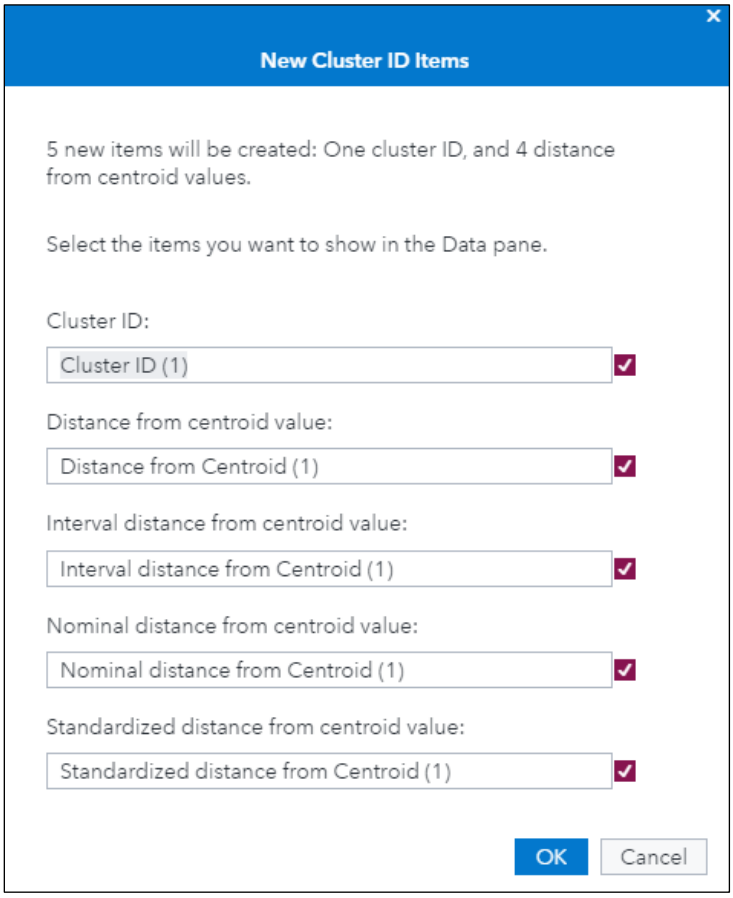
23. Create cluster IDs for future use.
    a. Right-click in the object and select **Derive cluster ID items**.



    b. Remove the (1) at the end of the name.



    c. Click **OK**.

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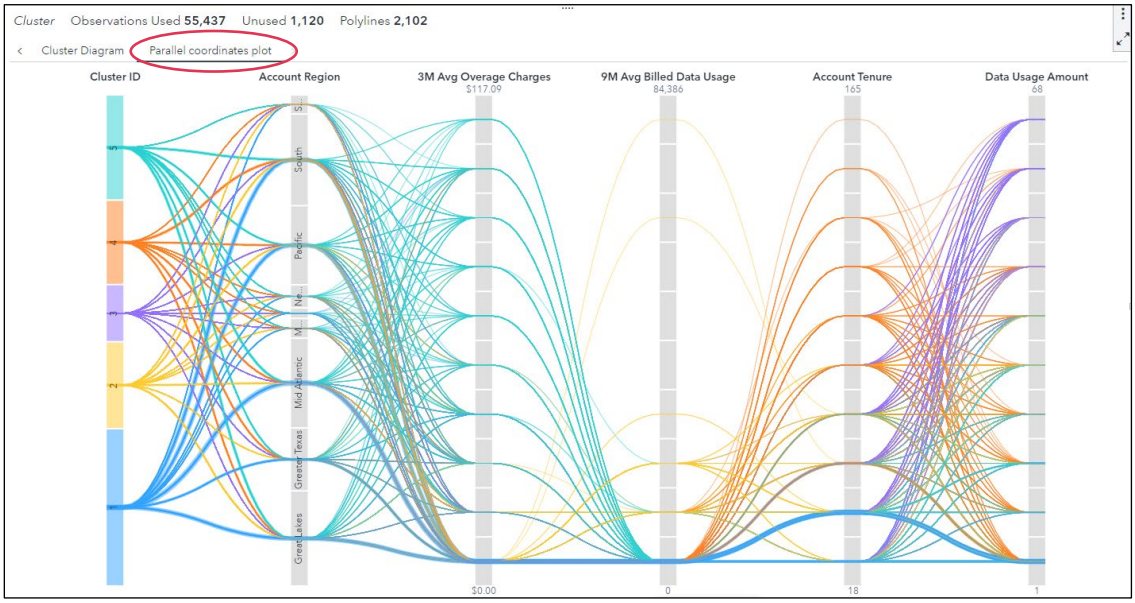
24. View the Parallel coordinates plot.

    Click the **Parallel coordinates plot** tab.



25. Start a new page to begin modeling a logistic regression. Click ✚ (**New page**).

26. Add the logistic regression object to the new page.

    a. Access the Objects pane.

    b. Under SAS Visual Statistics, either double-click or drag and drop **Logistic Regression** onto the canvas.

    c. If you did not do so already, in the Data pane in the Measure column, select **Edit properties** on **Churn Flag**. Change the classification to **Category**.

    d. Click **Assign Data** in the canvas.

    e. Add **Churn Flag** as the response variable.

    f. Add the following data items to **Continuous Effects**:

    MB of Data Usage Month 4
    MB of Data Usage Month 5
    MB of Data Usage Month 6
    MB of Data Usage Month 7
    MB of Data Usage Month 8
    MB of Data Usage Month 9
    Data Usage Amount
    Days Suspended Last 6 M
    6M Avg Billed Data Usage Normally Distributed
    Account Ranking (RFM Score)
    Account Tenure
    Avg Age of Devices on Plan
    Calls Incoming Off-Peak
    Calls Incoming Peak
    Calls Outgoing Peak
    Calls Outgoing Off-Peak
    Consecutive Mths Delinquent

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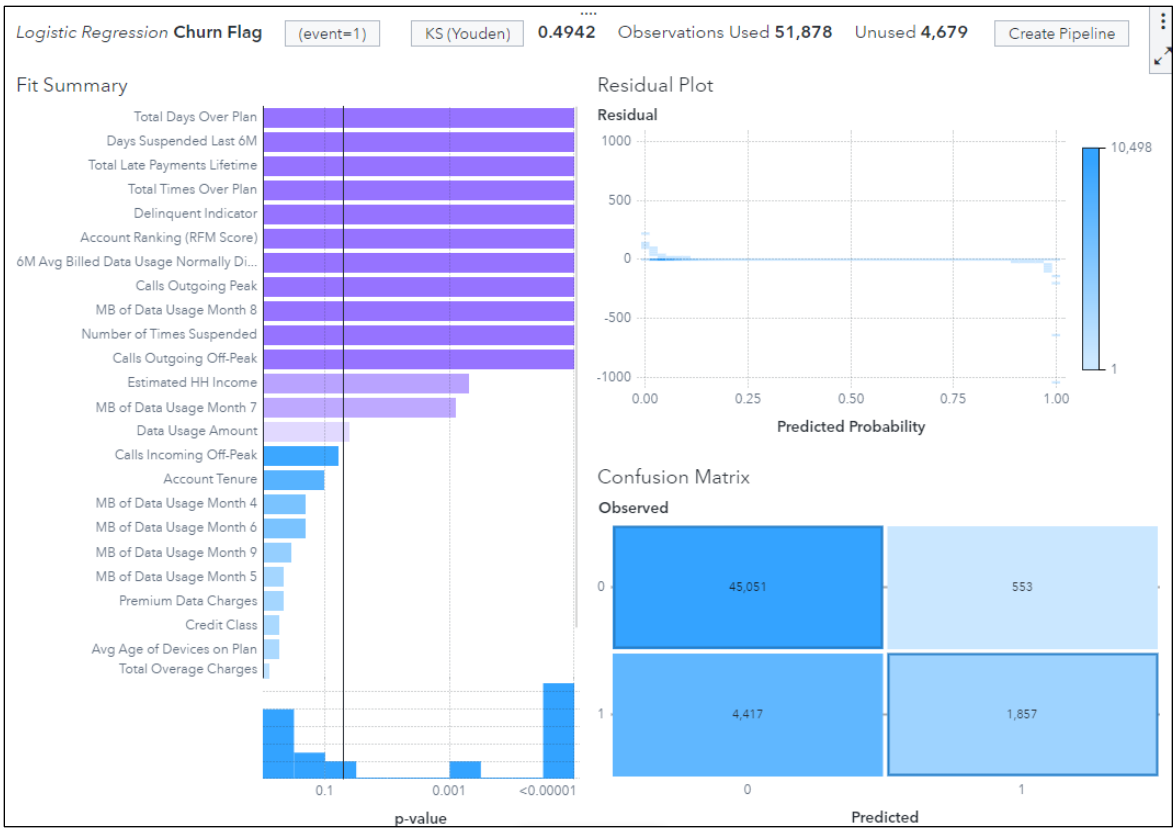
Estimate HH Income
Delinquent Indicator
Number of Times Suspended
Premium Data Charges
Total Days Over Plan
Total Late Payments Lifetime
Total Overage Charges
Total Times Over Plan

27. Add **Credit Class** to **Classification Effects**.

The logistic regression should resemble the following:



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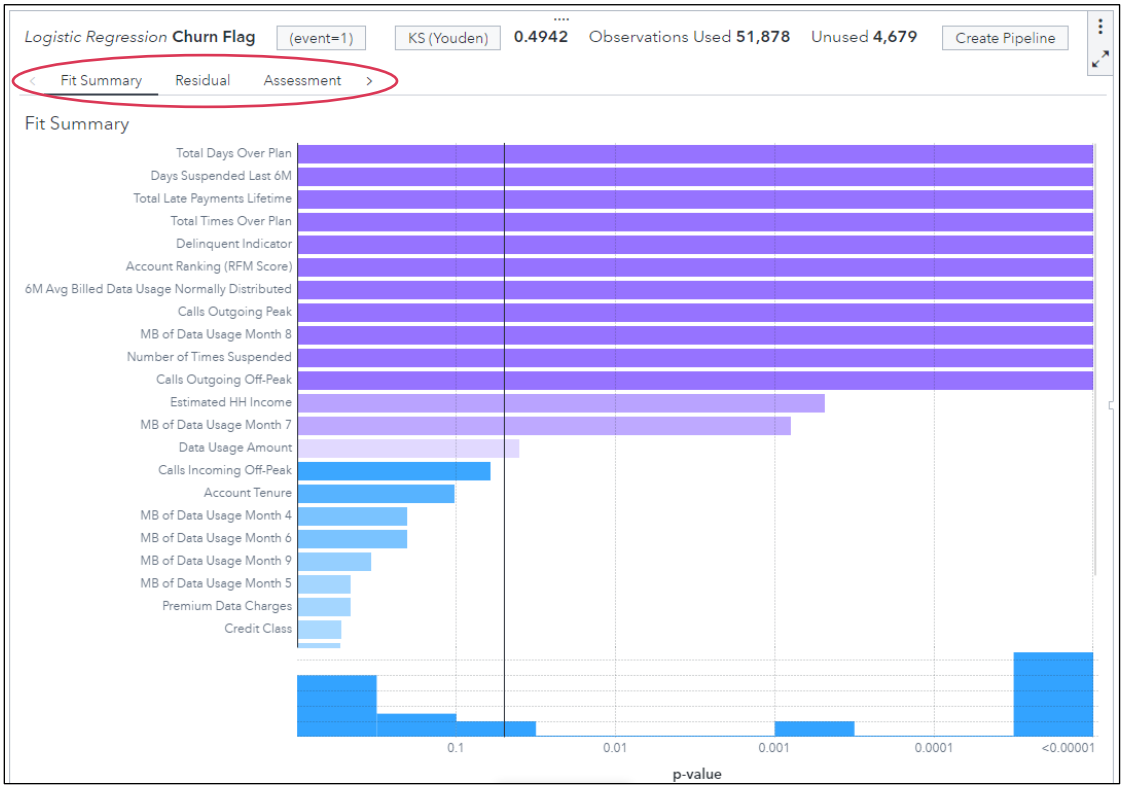
28. In the Options pane, under Model Display, select **General**.

    Change the plot layout to **Stack**.



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29. Examine the residuals.

    Click the **Residual** tab.

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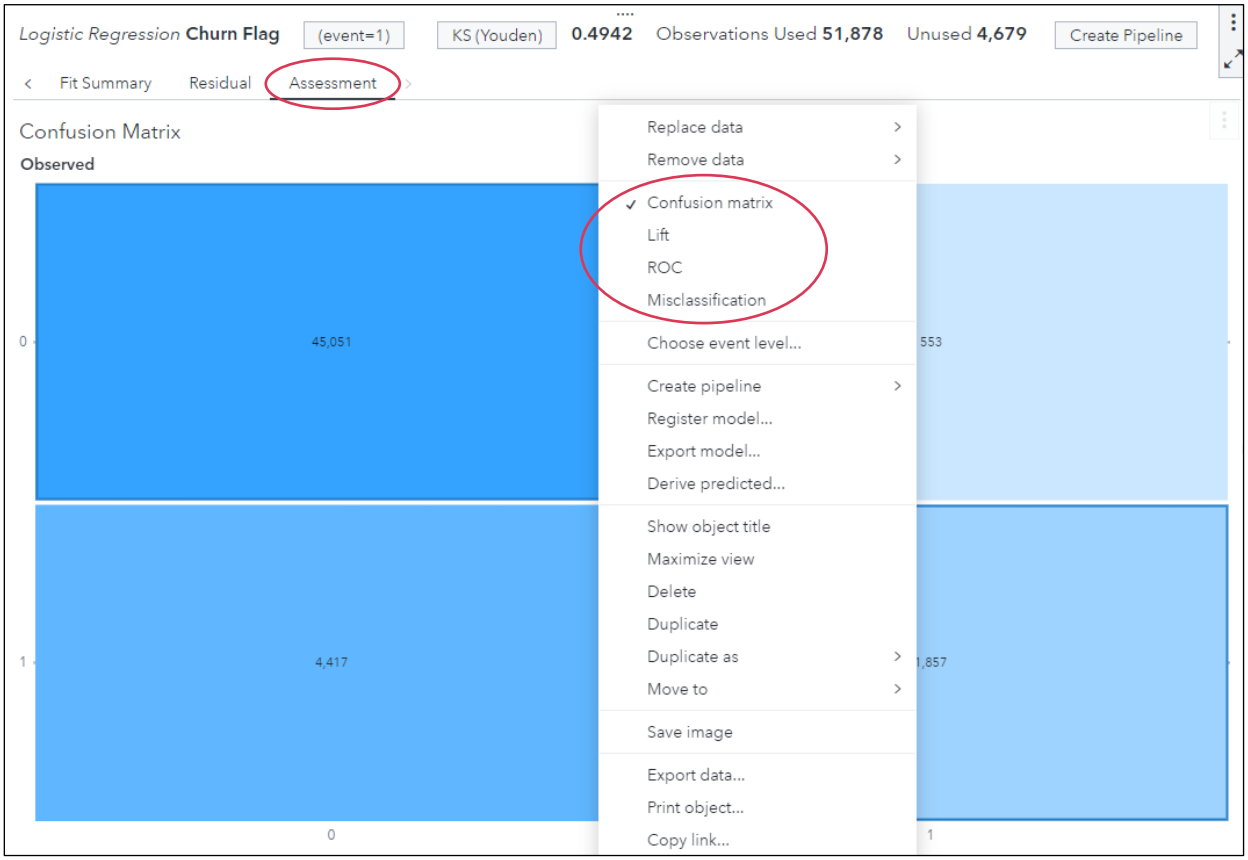
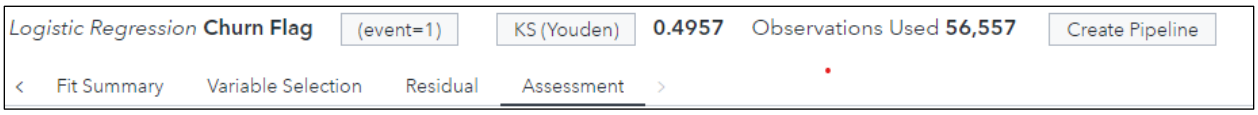
30. Examine the Assessment plots.

    Click the **Assessment** tab.



31. Explore options available for logistic regression.
    a. Select **Informative missingness**.
    b. Select **Fast Backward** in the **Variable selection method** field.
    c. Select **Variable selection plot** in the **Influence/Variable Selection Plot** field.
32. Explore the additional output available.
    a. Click the **Variable Selection** tab.
    b. Click the **Residual** tab.
    c. Click the **Assessment** tab.



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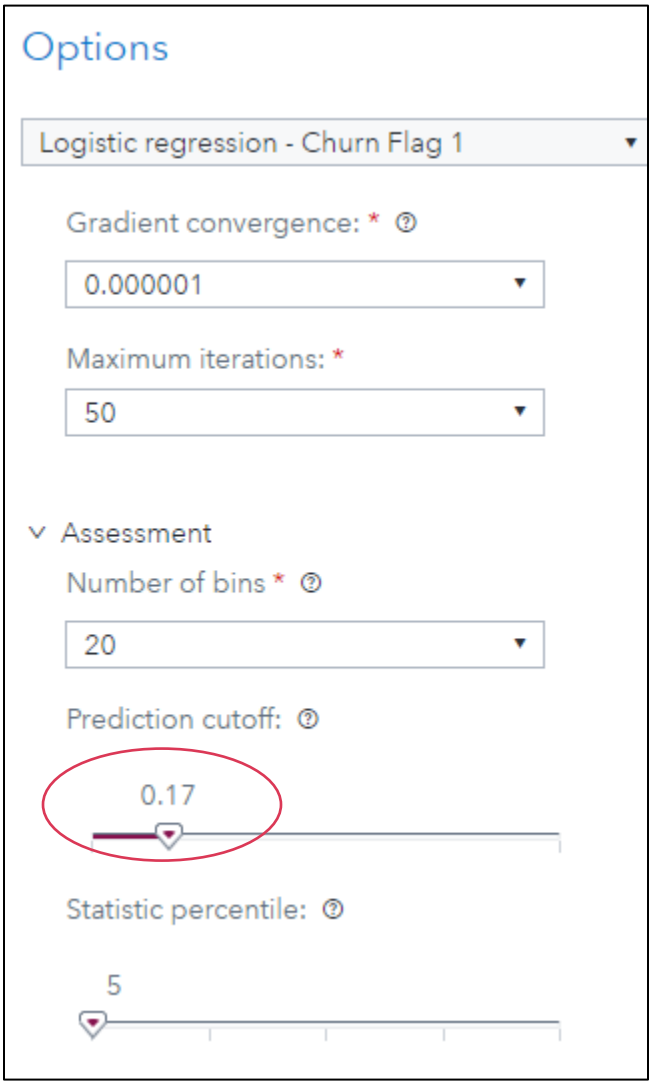
33. Modify the cutoff value to better explain the data.
    a. In the Options pane, under Assessment, change the Prediction cutoff slider to **.17** and press Enter.



    b. Go back to the misclassifications plot to see that the true positives increased.
    Both the misclassification and confusion matrix are highly sensitive to changes in the prediction cutoff.

34. Add a group by variable to a logistic regression.
    a. Access the Roles pane.
    b. Add the **Cluster ID** variable to the **Group by** role.
    c. Click **OK**.
    d. If necessary, access the Options pane to change the plot layout to **Stack**.
35. Add a filter.
    a. Access the Filters pane.
    b. Clear the check box for **-1**.

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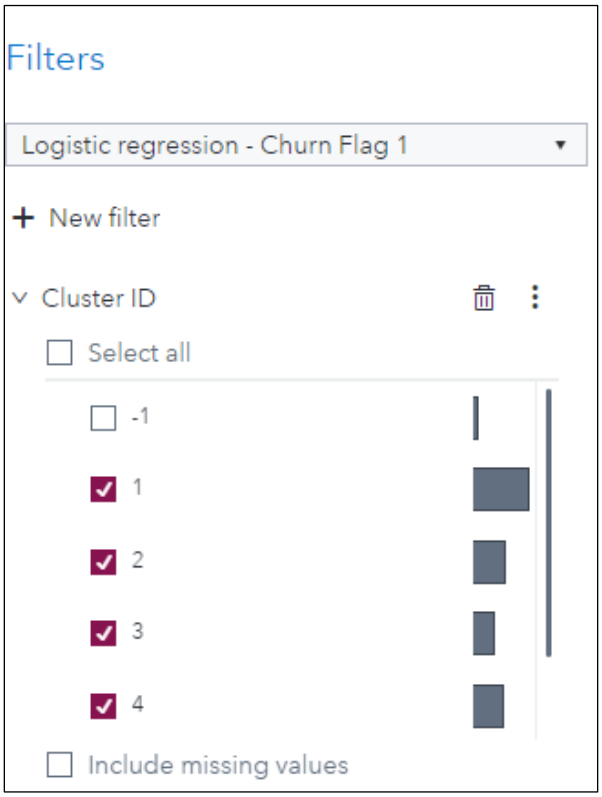
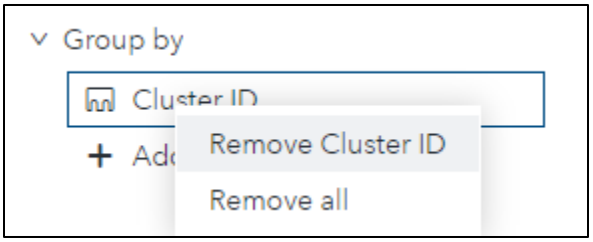
c. Clear the **Include missing values** check box.



36. Remove **Cluster ID** from the **Group By** role.
    a. Access the Roles pane.
    b. Right-click **Cluster ID**.
    c. Select **Remove Cluster ID**.



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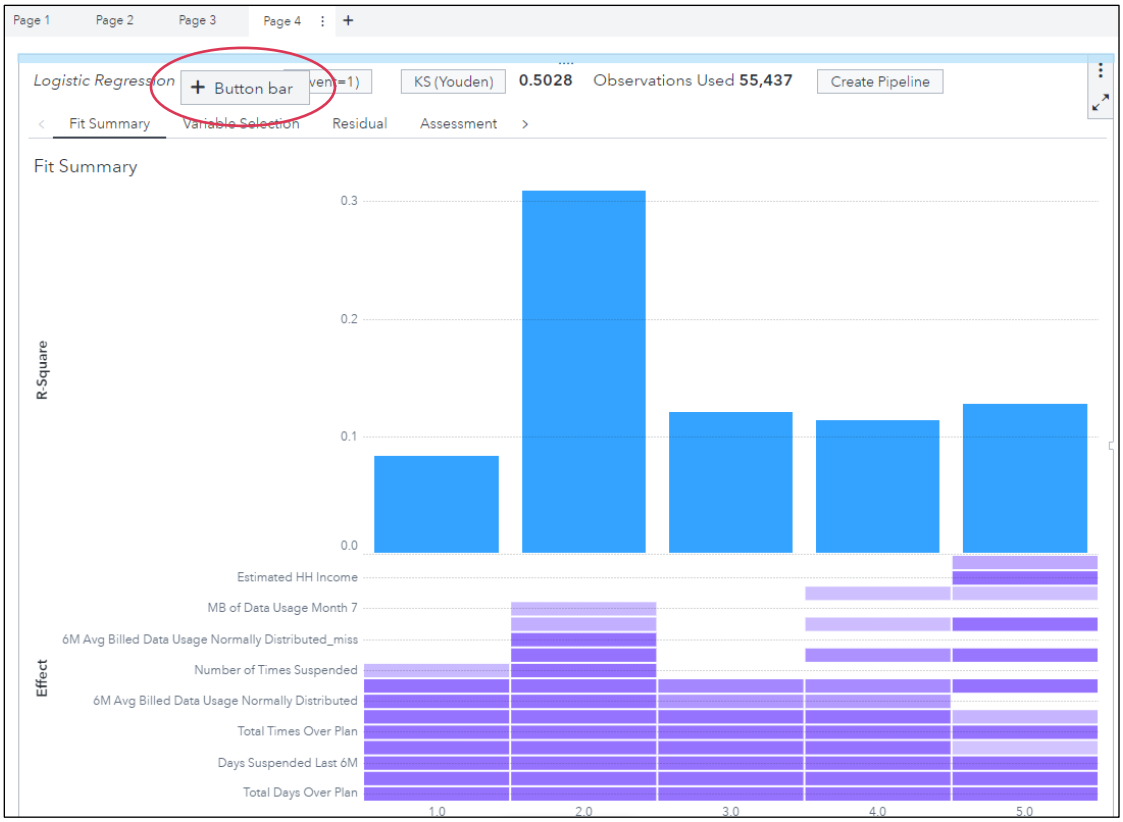
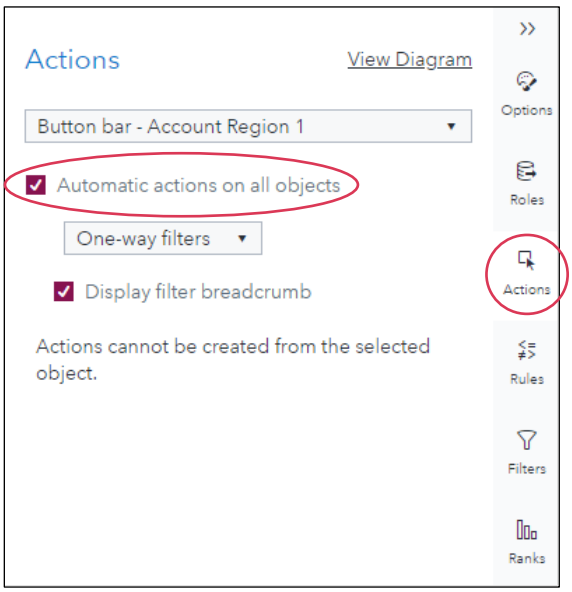
37. Add a control object to display the logistic regression by **Account Region**.
    a. Access the Objects pane (left side), drag **Button bar** from the Controls group, and drop it at the top of the page.



    b. Assign **Account Region** to the **Category** role for the button bar.
    c. Access the Actions pane.
    d. Select **Automatic actions on all objects**.



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38. Test the button bar.
    a. Select the **Mid-Atlantic** region.
    b. Select **Mid-Atlantic** again to clear the button bar.

End of Demonstration

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