

SAS Intermediate Training

The SAS Intermediate Training course is intended for experienced users of SAS Web Report Studio and those who would like to create new or customize existing reports. We will cover how to create a new section report to add to the Table of Contents, and will cover adding Titles, Headers, Footers, Totals, Formatting, and Group Breaks.

Refresher

The screenshot shows the SAS Web Report Studio interface. At the top, there is a navigation bar with 'Portal' (A), 'Log Off Cindy Schmeizer', 'Preferences', and 'Help'. Below this is the report title 'SAS Web Report Studio - Financial - Comprehensive Financial Reports Summary' and the Kennesaw State University logo (H). A menu bar (B) contains 'File', 'Edit', 'View', and 'Data'. On the left, there is a 'Table of Contents' window (C) and a 'Section Data' window (D). The main content area (G) displays the report title 'Glossary of Terms' and a link to a PDF. Below the link is the Kennesaw State University logo and the text 'Enterprise Information Management and Institutional Research'. At the bottom, there is a table titled 'Glossary of Terms' with the subtitle 'CFR Summary Consolidated Cube Information Map Secure'.

Glossary of Terms		
CFR Summary Consolidated Cube Information Map Secure		
Account	Dimension	Value to identify the account as part of the chart of accounts where budget is assigned or expense is charged.
Account Name	Dimension	The description associated with a unique account number.
		The description associated with a group of accounts in the same budget expenditure

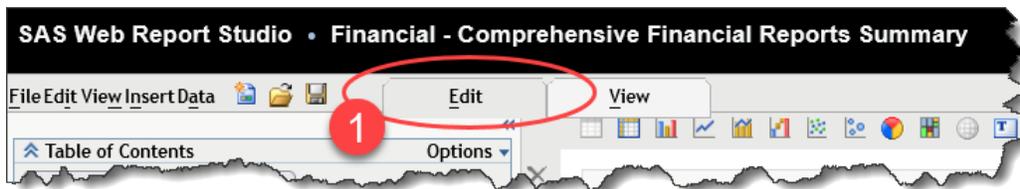
- Quick link back to the Portal allows you to easily open a new report or reopen the current report when needed.
- The File/Edit/View/Data menu and the icons that follow contain various commands and SAS settings.
- The Table of Contents window in the left-hand panel contains the list of sub-reports (called “sections”) that are contained in the overall report (i.e., the CFR). The Options drop down menu offers tools to manage your sections. When using Group Breaks, this window will expand to allow selection of those defined break columns.
- The Section Data window in the left-hand panel shows the Information Map that is selected and will list the fields that have been identified as available for use in the current report. SAS Data is refreshed each night and combines data from several systems including PeopleSoft (financial data and ePro), OwlPay, Concur (Travel) and PCard.
- The Edit Tab is the report design workspace for creating or modifying a report.

- F. The View Tab shows the report populated with the data from the Information map.
- G. The Glossary of Terms describes the columns in the reports.
- H. Log Off to close SAS and exit properly.

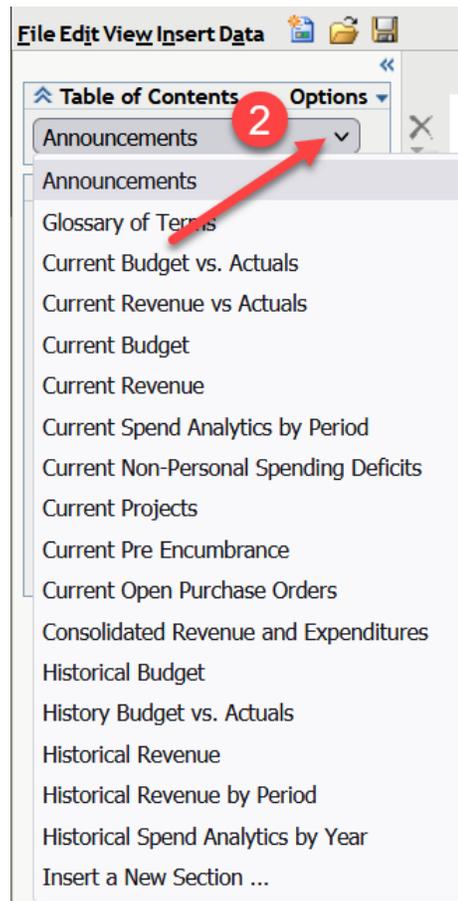
Open the CFR

Add a New Section Report in the Table of Contents

1. **Click:** The Edit Tab



2. **Click:** The drop down under the Table of Contents and choose "Insert a New Section..."



New section name: **3**

Data

Get new data

4 Copy data from:

Header

Blank

Copy header from:

Footer

Blank

Copy footer from:

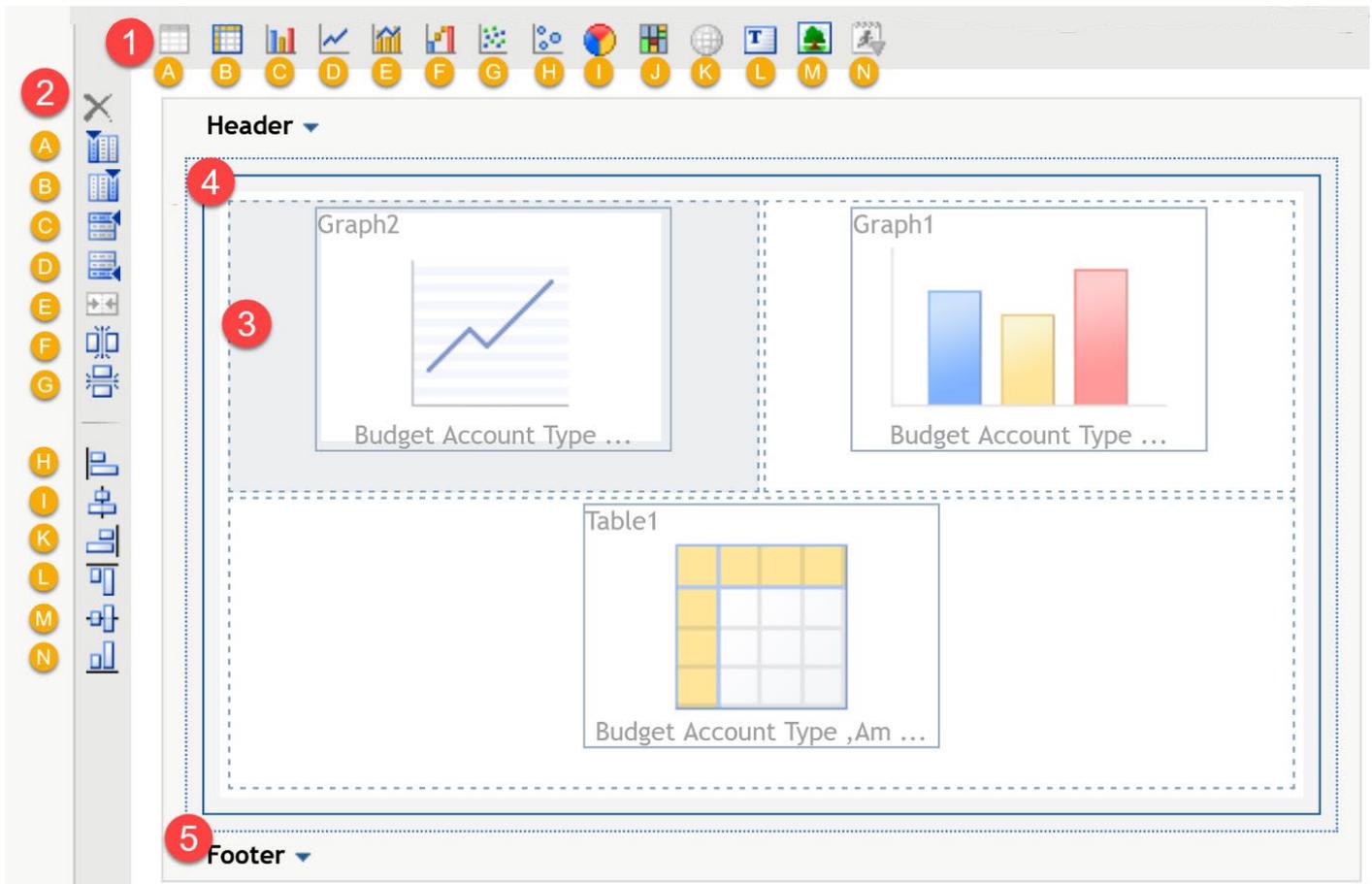
5

3. **Enter a New Section Name:** Class Report
4. **Choose:** “Copy data from” and select the report which contains the data you would like to use in your new report.
5. Leave the Header and Footer blank, we will add those later.
6. **Click:** OK

★ **Information Maps** - notice that the Section Data panel on the left side of the screen has been prepopulated with the dataset that you chose by copying the information map from the selected report, in the above step “4.”. The information map holds the data that populates the report and comes in two styles. One is based on a “cube” which is similar in concept to an Excel pivot table where the data is “aggregated” or summarized. For example, individual transactions are not included in a cube, but a total of expenses for a particular account would be included. The other style is a detail map which does include all transactions. Working with a detail map can be challenging and may cause performance issues, due to holding in some cases, millions of rows of data.

Edit Tab Workspace

The Edit Tab is the SAS workspace that allows you to add, modify and delete report types, such as crosstabs, pie, or line charts. SAS offers 14 different report types that can be included in your report. Each report type is dragged into a cell in the grid. In this design space, all of the formatting, assigning data items, filtering, sorting etc. can be configured.



1. Report Types
2. Report Editing Tools
3. Reporting Header
4. Reporting Grid
5. Reporting Footer

1. Report Types

Report Type Icons



- | | | | |
|----|--------------------|----|------------------|
| A. | List Report | H. | Bubble Chart |
| B. | Crosstab | I. | Pie Chart |
| C. | Bar Chart | J. | Tile Chart |
| D. | Line Chart | K. | Geographical Map |
| E. | Bar and Line Chart | L. | Text Box |
| F. | Progressive Bar | M. | Image |
| G. | Scatter Plot | N. | Stored Process |

★ **Insert Report Type** - To insert a report style into the grid, click and drag the icon into desired quadrant. The reporting grid allows you to put several reports and/or charts on one page. In addition, list reports are not available when using a cube style map, as they require a detail map.

Report Editing Icons

2. Editing Icons

- A. Delete a report object
- B. Insert column before
- C. Insert column after
- D. Insert row above
- E. Insert row below
- F. Merge cells
- G. Split cells vertically
- H. Split cells horizontally
- I. Align left
- J. Align center
- K. Align right
- L. Alight top
- M. Align middle
- N. Align bottom
- O.

★ **Editing Icons** - Highlight the cell, row, column, or report object to activate the icons and click the desired action.

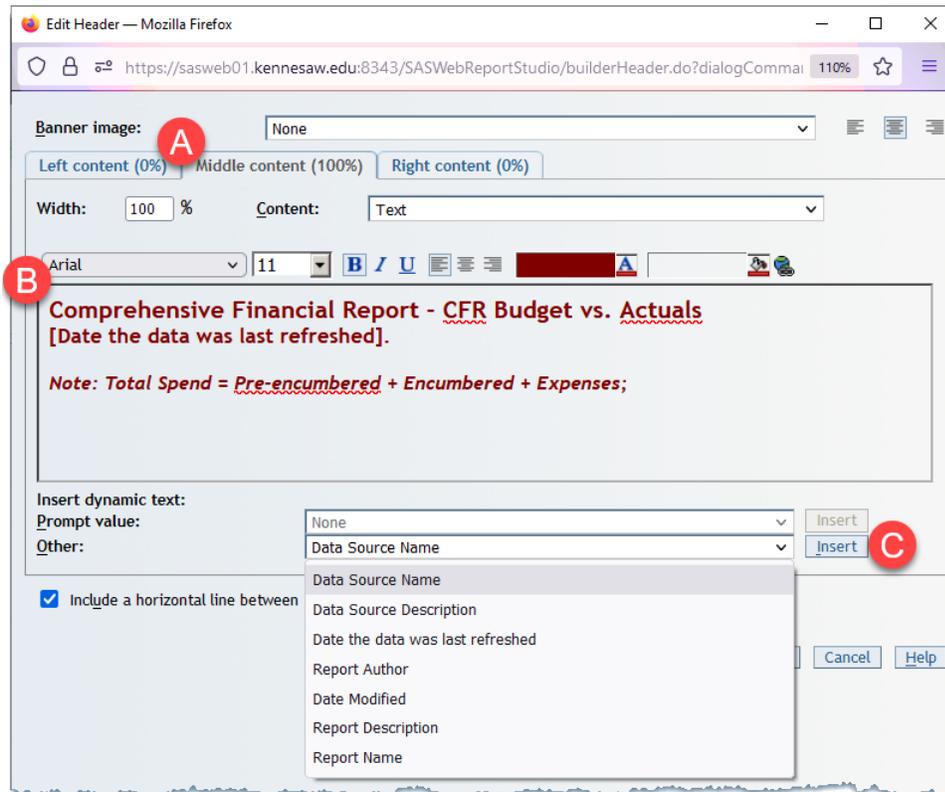


3. Report Design Grid

The reporting grid allows you to drag and drop report types into the grid, add, remove, merge and split columns and rows. This is your working design space.

4. & 5. Headers and Footers

Click the drop down to enter Headers and Footers. Select images, text, fonts, colors, alignments, and insert dynamic text such as data source and description or modified date.



Header and Footer Dialogue Window

- A. The header can be set up in three sections indicated by the Tabs. The **Middle content** tab displays initially with a width of 100%, and the **Left content** and **Right content** tabs have no content and a width of 0%. Use the **Width** field to specify the percentage of space to use for each content area.
 - B. Enter Header and set font styles here.
 - C. Dynamic text acts a placeholder for text that will be generated from data when the report is viewed. You can include dynamic text in a header or a footer and mix it with static text. Dynamic text options include Data Source, Data Source Description, Refresh Data, Report Author, Date Modified, Report Description and Report Name.
- ★ Note that the Date of Last Refresh indicates when you opened the report or selected “Data” and “Refresh” from the menu, so in effect, this is the current date and time stamp. As a reminder, the majority of the data in SAS is refreshed the night before.

Exercise 1

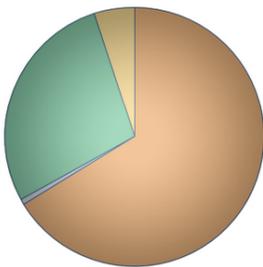
In this exercise, we will drag three chart types into the design grid, align them as instructed, and enter a header and a footer using static text and dynamic data fields.

1. Insert a new section and name it "SAS Intermediate Class Exercise". Remember to "Copy data from" and select the report which contains the data you would like to use in your new report.
2. Add a Pie Chart in the upper left quadrant of the grid.
3. Center Align horizontally and Middle Align vertically the Pie Chart
4. Add a Line Chart in the upper right quadrant of the grid
5. Left Align horizontally and Middle Align Vertically the Line Chart
6. Add a Crosstab in the lower left
7. Merge the lower left and lower right cells together to allow the crosstab to use the entire width of the page
8. Center Align and Middle Align the Crosstab
9. Type a middle Header of your choice on the first line, insert the dynamic field – Date Modified on the second.
10. Change the first line of the Header to 14 pt.
11. Check the box to add a line between the Header and the body of the report
12. Type a middle Footer of your choice on the first line, insert the dynamic fields Data Source Name and Report Author on the second line.
13. Change the first line of the Footer to 14 pt.
14. Check the box to add a line between the Footer and the body of the report
15. View the Report

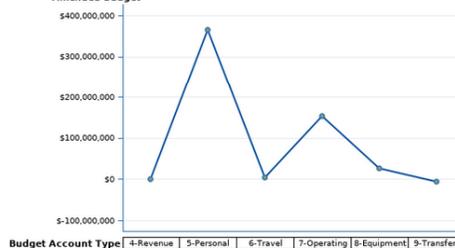
Your report should look similar to this:

Header for Exercise 1
Modified Date: Friday, September 17, 2021 3:24:44 PM EDT

Amended Budget



Amended Budget



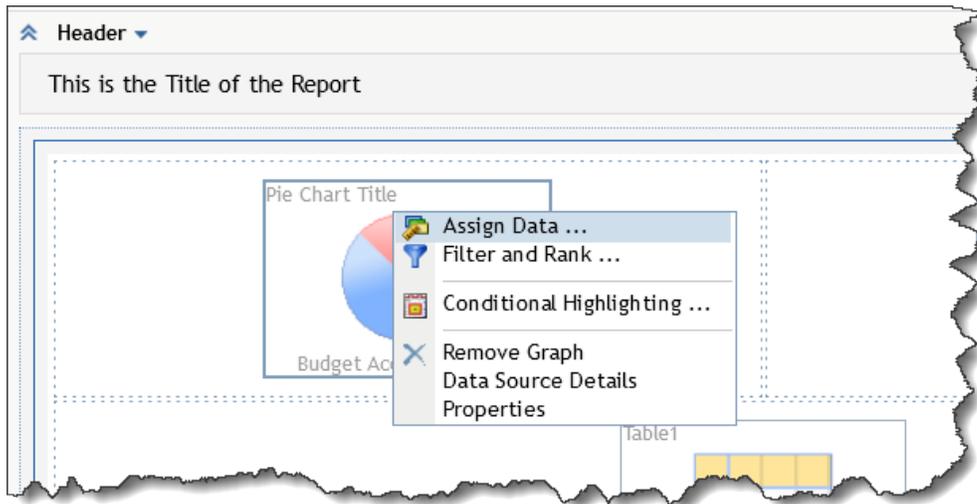
Budget Account Type

										4-Revenue				5-Personal								
										Amended Budget	Next Year Base Budget	Pre-encumbered	Encumbered	Expended	Free Balance	Total Spend	% Budget Spent	Amended Budget	Next Year Base Budget	Pre-encumbered	Encumbered	
Fund	Department	Division	Project Name	Account Rollup Name	Budget Account Group	Account Name	Fiscal Year	NetID														
0000000 - ALL DEPARTMENTS	ALL			480000 - STATE APPROPRIATIONS	1-REV	480000 - STATE APPROPRIATIONS	2022	CSCHMELZ	\$0	\$0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0.00						
				480100 - STATE APPROPRIATIONS		480100 - STATE APPROPRIATIONS	2022	CSCHMELZ	\$0	\$0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0.00						
				511000 - SALARIES-REGULAR		511000 - SALARIES-REGULAR	2022	CSCHMELZ										2,642,928	\$2	92%	\$0.00	\$0.00
				MEMBERSHIP'S		MEMBERSHIP'S																
				742100 - PUBLICATIONS AND PRINTING		742100 - PUBLICATIONS AND PRINTING	2022	CSCHMELZ														

Footer for Exercise 1
Data Source Name: CFR Summary Consolidated Cube Information Map Secure
Report Author: cschmelz

The Right Click Menu on Report Types

As in other areas of SAS, the menu that displays when SAS is “right clicked” changes, depending upon what and where you click. For example, Pie and Line charts do not offer a “Totals” option like the Cross Tab style report does, because it isn’t an option for those charts. SAS menu’s offers options that are available in the current workspace.



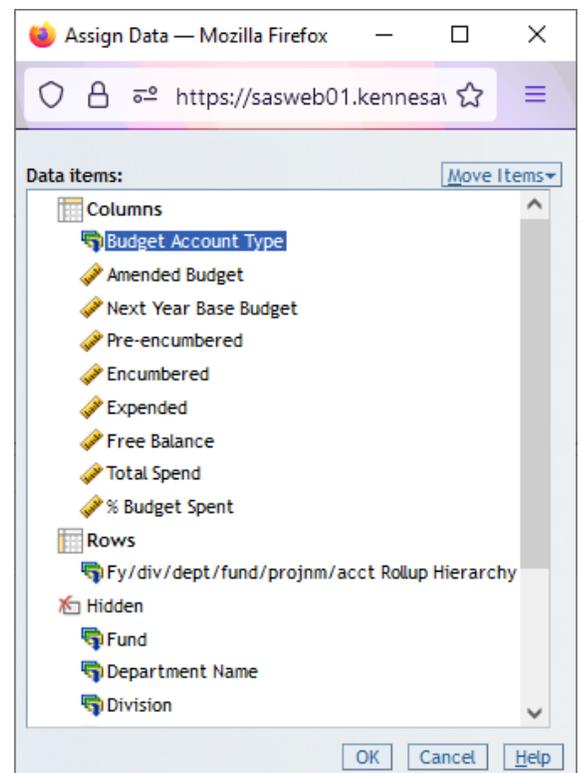
Commonly Used “Right-Click” Menu Options

Assign Data

The Assign Data window is accessible through the Right-Click menu on a report object. It can be used from either the Edit tab or the View tab.

The Assign Data window is where the data fields are assigned to the table or chart as columns, rows, pie slices, x-y axes, etc., depending upon the chart type.

Click and drag to move fields to assign them, in and out of the various sections. Highlighting multiple rows by holding down the control key allows moving multiple fields at one time.



Filter and Rank – Setting criteria restricts the number of rows displayed in a table or chart. Ranking allows the ordering of the rows according to the value of a selected measure item.

Example of a Filter and Rank Window

Filter and Rank — Mozilla Firefox

https://sasweb01.kennesaw.edu:8343/SASWebReportStudio/applyFilterRank.do

130%

Category Filters Measure Filter or Rank

Categories:

- Account Name Hierarchy
- Division Hierarchy
- Department ID Hierarchy
- Project Name Hierarchy
- Budget Account Type Hierarchy

Type:

No filter (show all values)

Filter

Available values:

Browse Search

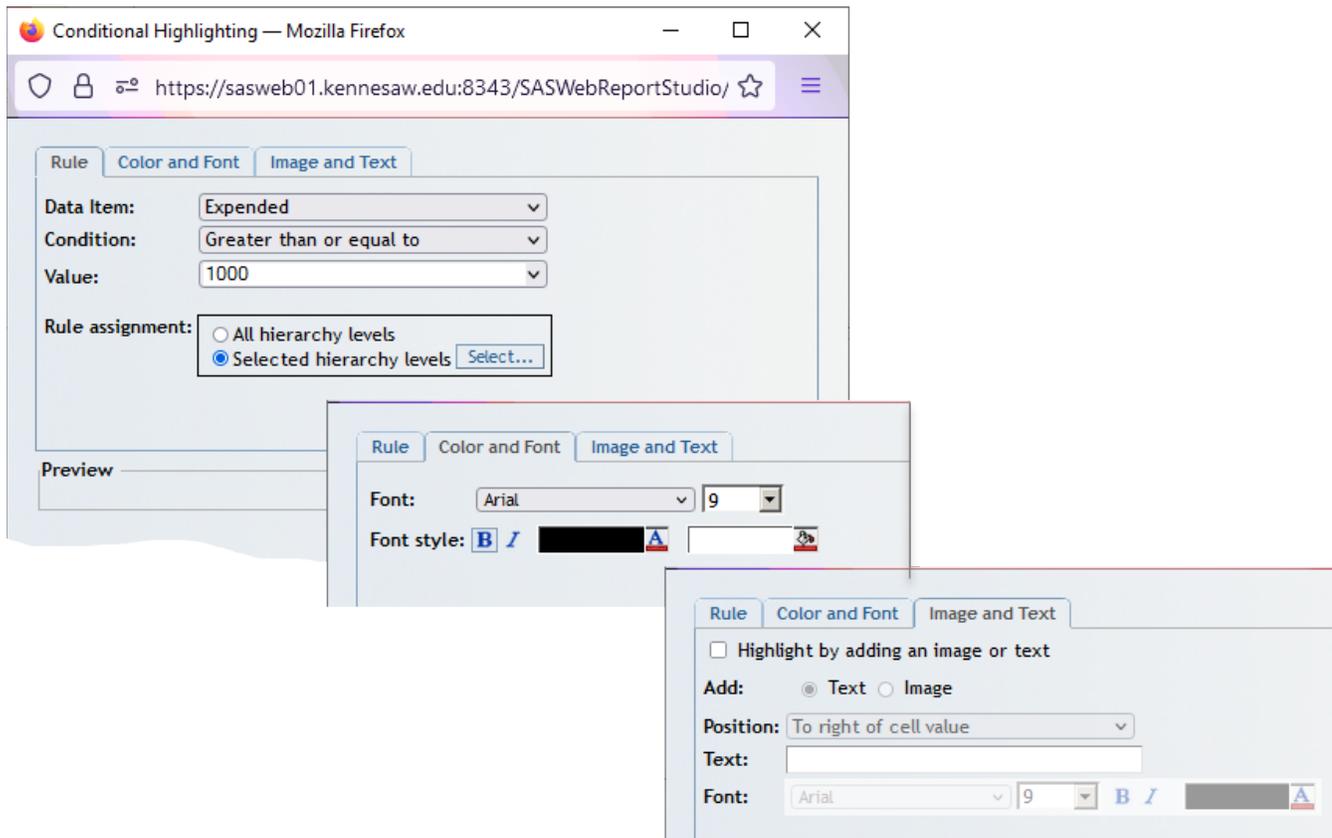
- 781000 - SCHOLARSHIPS
- 781100 - SCHOLARSHIPS
- 783000 - STIPENDS
- 783100 - STIPENDS
- 783102 - #PARTICIPANT TRAVEL
- 783105 - #PARTICIPANT OTHER
- 783200 - STIPENDS - GRANT PART SUPP
- 784000 - TUITION
- 784100 - TUITION
- 792000 - OTHER MISC EXP - NON-OPERATING
- 792100 - OTHER MISC EXP - NON-OPERATING
- 796300 - OTHER SCHOLARSHIPS & OTH SS
- 833100 - SOFTWARE
- 841100 - MOTOR VEHICLE EQUIP PURCHASE
- 842000 - OTHER CAPITAL PURCHASES

Selected values:

OK Cancel Help

Conditional Highlighting – Conditional highlighting allows different formatting based upon a measure value. After selecting “New” to define a new rule, be sure to set the Rule, the Color and Font and/or the Image and Text settings as they all work together. On the Image and Text tab, note that the checkbox to “Highlight by adding an image or text” must be checked in order to select settings on that window.

Conditional Highlighting Tabs



Remove [Report Type] – Delete the selected report.

Data Source Details – Describes the data source selected for the current report.

Properties – Set General defaults which vary based on chart type, as well as default fonts for Text and Totals throughout the report.

★ An interesting Property default to note is when looking at a crosstab or list report, SAS limits the number of columns or rows to display at one time by default. Choose Properties and select “Show all columns (up to system limit)” option to show more than 12 or “Show all rows (up to system limit)” to show more than 40 rows. SAS will prompt with a “Next Page” option at the bottom of the screen to scroll through additional pages.

Total – Select to set types of totals to display on the report.

% Of Total – For unsynchronized tables, this option allows creation of an extra column which calculates the percent of total for a selected measure.

Custom Calculated Fields

Section Data – We’ve seen how the information map has many fields available to use for the current report. The Custom tab in the Section Data/Select Data menu allows creation of custom calculations.

The screenshot shows the 'Custom Calculations Window' in a web browser. The window has a 'Standard' and 'Custom' tab, with 'Custom' selected. The 'Name' field is set to 'OwlPay+PCard'. The 'Available measures' list includes 'Pcard Amount', which is highlighted. The 'Expression' field contains the formula '[Owlpay Amount] + [Pcard Amount]'. Below the expression field are mathematical operators (+, -, *, /, parentheses) and a 'Clear' button. At the bottom, there are 'Add', 'Change', and 'Remove' buttons, and 'OK', 'Cancel', and 'Help' buttons. Red circles with numbers 1 through 7 are overlaid on the interface to indicate the steps for creating a custom calculation.

1. Navigate to the Custom Tab window
 - a. Click the drop down in the Select Data panel
 - b. Click Select Data
 - c. Click the Custom tab
2. Enter the name "OwlPay+PCard"
3. Highlight the field you want in your equation

4. Use the Right Arrow icon to move the field into the Expression box. You also may choose to type the field name within square brackets. Your calculation will be built in the Expression box.

★ Items that may be used in expressions are:

- a. Measure names enclosed in square brackets, from the selected information map
- b. Parenthesis to perform calculations outside of the normal order of operations
- c. Addition (+), subtraction (-), multiplication (*) and division (/) signs
- d. Numeric Constants

5. Click or type the required operator

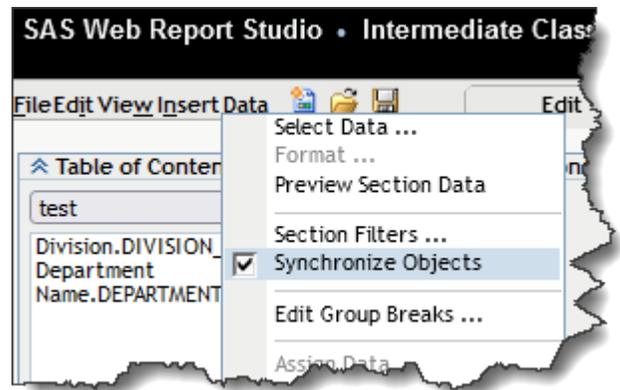
★ Repeat steps 4 - 6 as needed to build your equation.

6. Click Add

7. Click OK

Synchronize all Tables and Charts

To have all tables and charts change and filter together as you drill through the hierarchy, from the Edit tab, select “Synchronize Objects” from the Data menu.



Exercise 2

In Exercise 2 we will explore some of the “right-click” menu options to fine-tune the report. You will primarily be working in the Edit Tab unless otherwise indicated.

1. Pie Chart

- a. Select the Edit Tab and work in the design space unless otherwise indicated
- b. Right click on the chart and select Assign Data. Remove the default values and replace with the instructions below
 - i. Assign the Segment Size to the measure Total Spend
 - ii. Assign the Segments to Budget Account Type (it may default to this)
 - iii. View the Pie Chart
- c. Properties
 - i. From the General tab, Add a Title and change the font to be 14 pt.
 - ii. From the General tab, Change the Chart Size to Fixed (this makes it manually adjustable)
 - iii. Click the box to add a border and choose a color of your choice.
 - iv. From the Pie tab, Make the Pie Three-dimensional
 - v. From the Pie tab, Change the Labels text to Blue
 - vi. From the Pie tab, click show data values
 - vii. View the Pie Chart
 - viii. Click on the edge of the border to drag and change the size

2. Line Chart

- a. Select the Edit tab to navigate back to the Design Space
- b. From the Section Data panel on the left side, choose Select Data from the drop-down menu and add Accounting Month to the selected data items
- c. Right click on the line chart and select Assign Data. Remove the default values and replace with the instructions below
 - i. Assign the Total Spend to the Line Height (Axis 1)
 - ii. Add the Accounting Month to Line (Limit 1) and remove any other data items
 - iii. View the Chart
- d. From the Edit Tab, right click and select Properties
 - i. General Tab
 1. Add a Title and change the font to be 14 pt.
 2. Change the Chart Size to Fixed
 3. Add a border
 - ii. Line Tab
 1. Change the line thickness to 4 pt.
 2. Change the Marker size to Medium
 3. Check “Show data values”
 - iii. Axis Tab - Change the color of the labels
 - iv. View the Chart
 - v. Click on the edge of the border to drag and change the size

3. Cross Tab

- a. Assign data (remove the default values and replace with the instructions below)
 - i. Assign the following Columns: Amended Budget, Total Spend, % Budget Spent
 - ii. Assign the hierarchy for the Rows
 - iii. Hide all other fields
 - b. Totals – select to show Column totals
 - c. Filter and Rank
 - i. Set a filter to show one department of your choice.
 - d. Properties
 - i. Enter a title for the Cross Tab and change the font to be 14 pt.
 - ii. General Tab – select Show all columns and rows
 - iii. Text Tab
 1. Change headings to be 10 pt., bold, and Green
 2. Change subheadings to be 9 pt., bold and Blue
 3. Change cells to be 8 pt., and Purple
 - iv. Totals Tab - Change the Totals to display in Blue and a 10 pt. font
 - v. View the Cross Tab
 - vi. Drill through the hierarchy to the bottom level (or to a level that has multiple rows to work with)
 - vii. Identify a middle value in your % Budget Spent Column for Conditional Highlighting
 - e. Conditional Highlighting
 - i. This can be done from either the Edit or View Tab
 - ii. Right click in the body of the report in the View tab, or on the report object in the Edit tab, and select Conditional Highlighting
 - iii. Create a new rule by clicking on “New”
 1. Rule Tab
 - a. Set the % Budget Spent to be Greater Than your selected value above.
Note decimal values should be entered as .50 for 50%, for example.
 - b. Ensure “All hierarchy levels” is selected
 2. Color and Font Tab - Change the Color and Font tab to a dark red background with a yellow font.
 3. Image and Text Tab –
 - a. Check the “Highlight by add an image or text” box
 - b. Select the Image radio button
 - c. Select the position “To left of cell value”
 - d. Select the yellow caution triangle as the image
 - iv. View Report
4. **BONUS QUESTION** – Create a calculated field of your choice. What happened to your cross tab?

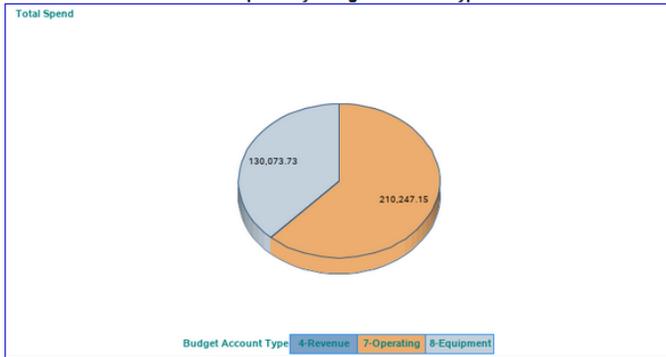
★ **Notice in the Table of Contents drop down menu that your new report shows at the bottom.**

Your report should look similar to this:

Header for Exercise 1
 Modified Date: Monday, September 20, 2021 4:25:44 PM EDT

FY/Div/Dept/Fund/ProjNm/Acct Rollup Hierarchy > CSCHMELZ > 2022 > CAP > 1001200 - CAP - GSFIC PROJECTS > 50000

Total Spend by Budget Account Type



Total Spend by Month



Budget vs. Total Spend

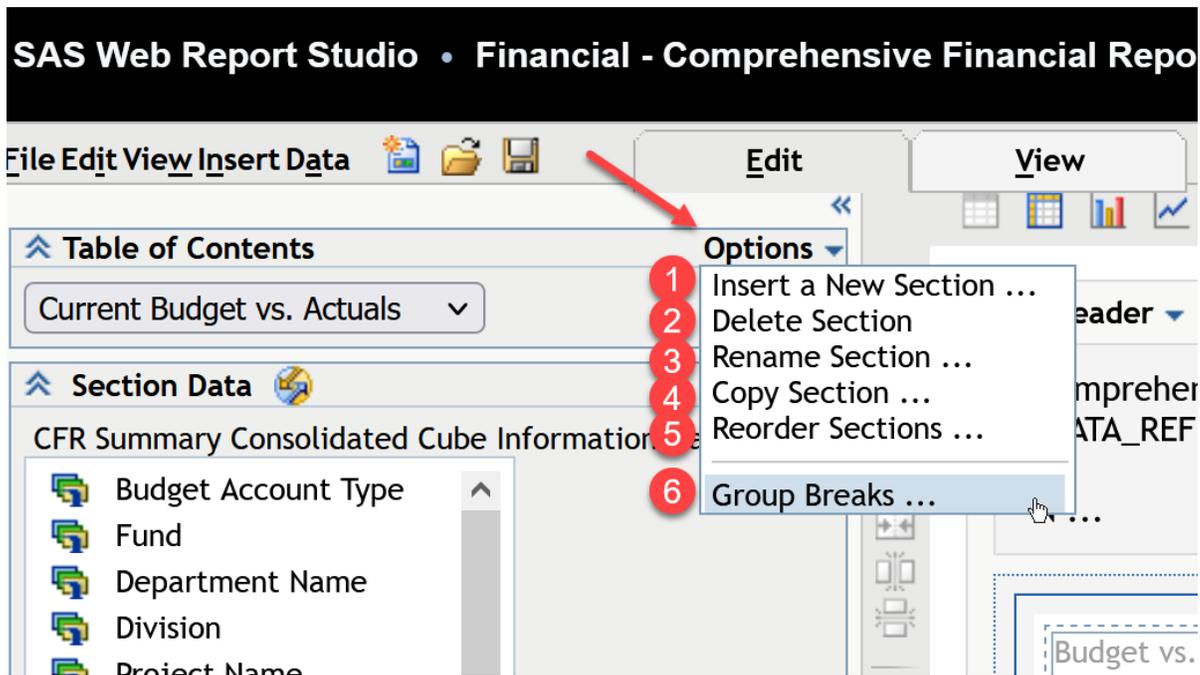
Project Name	Amended Budget	Total Spend	% Budget Spent	Amended - Spend
⊗ C.J296ALC-CAP-J296 ACADEMIC LEARNING CTR	\$1,979,414	254,719.10	12.87%	1,724,694.90
⊗ C.J321 SCLAB-CAP-J321 SCIENCE LAB ADDITION	\$455,184	0.00	0.00%	455,184.00
⊗ C.J337ELABG-CAP-J337 ENG LAB BUILDING G	\$153,788	85,601.78	55.66%	68,186.22
⊗ C.J372CHEMLAB-CAP-J372 CHEMLABRENOVATION	\$1,881,216	0.00	0.00%	1,881,216.00
⊗ C.J384LABE-CAP-J384 CRAWFORD LAB BLDG E	\$2,500,000	0.00	0.00%	2,500,000.00
Total	\$6,949,600	340,320.88	4.90%	6,609,279.12

Footer for Exercise 1
 Data Source Name: CFR Summary Consolidated Cube Information Map Secure
 Report Author: cschmelz

★ Just for fun, from either Edit or View Tabs, choose View from the Menu, Report Style, and pick one to change the color theme of the reports!

Managing The Table of Contents

The options menu for the Table of Contents panel allows you to manage your reports.



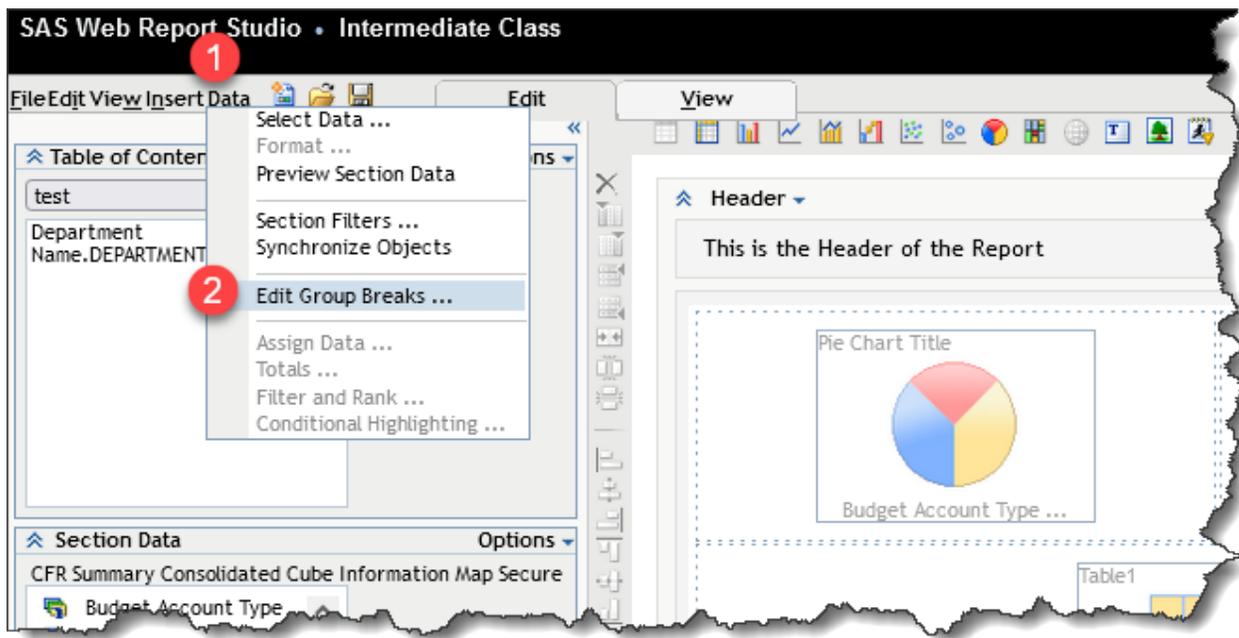
1. Insert a New Section – this opens up the reporting design workspace
2. Delete Section (**Caution!** There is no “undo” to get it back – unless you have saved a copy)
3. Rename Section – Change the name of the report
4. Copy Section – Makes a copy of a report
5. Reorder Sections – Reorder the report list
6. Group Breaks – Breaks a report into sections like years or Divisions.

Group Breaks

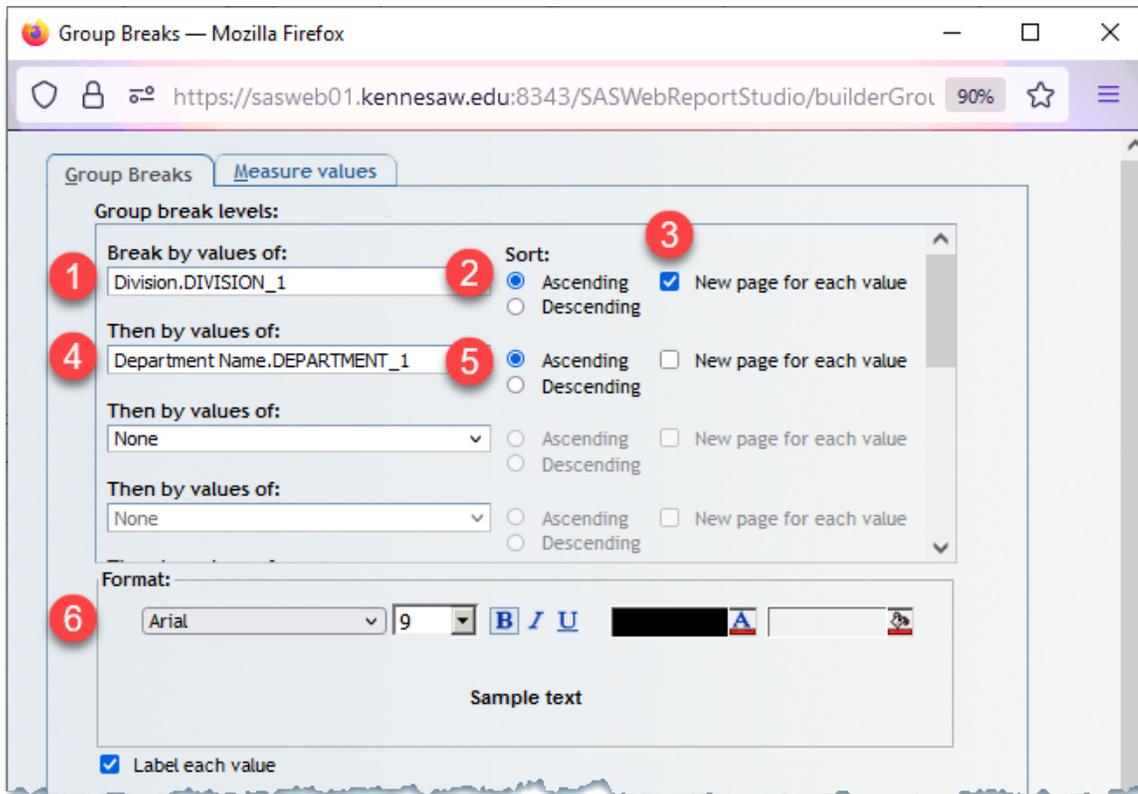
Group Breaks are a way to break up the view into manageable portions of data. When you insert a Group Break, it lists the contents of the field in the Table of Contents window (upper left panel) so that you can easily click to change your view. For example, a Group Break set to the Department field would display a list of departments in the Table of Contents window. Other fields that are useful to use as a Group Break would be Projects or historical Fiscal Years.

★ Sometimes it is helpful to remove Group Breaks from existing reports. However, use caution because removing the Group Break could cause large numbers of rows to be returned with the potential to decrease system performance.

Add a Group Break

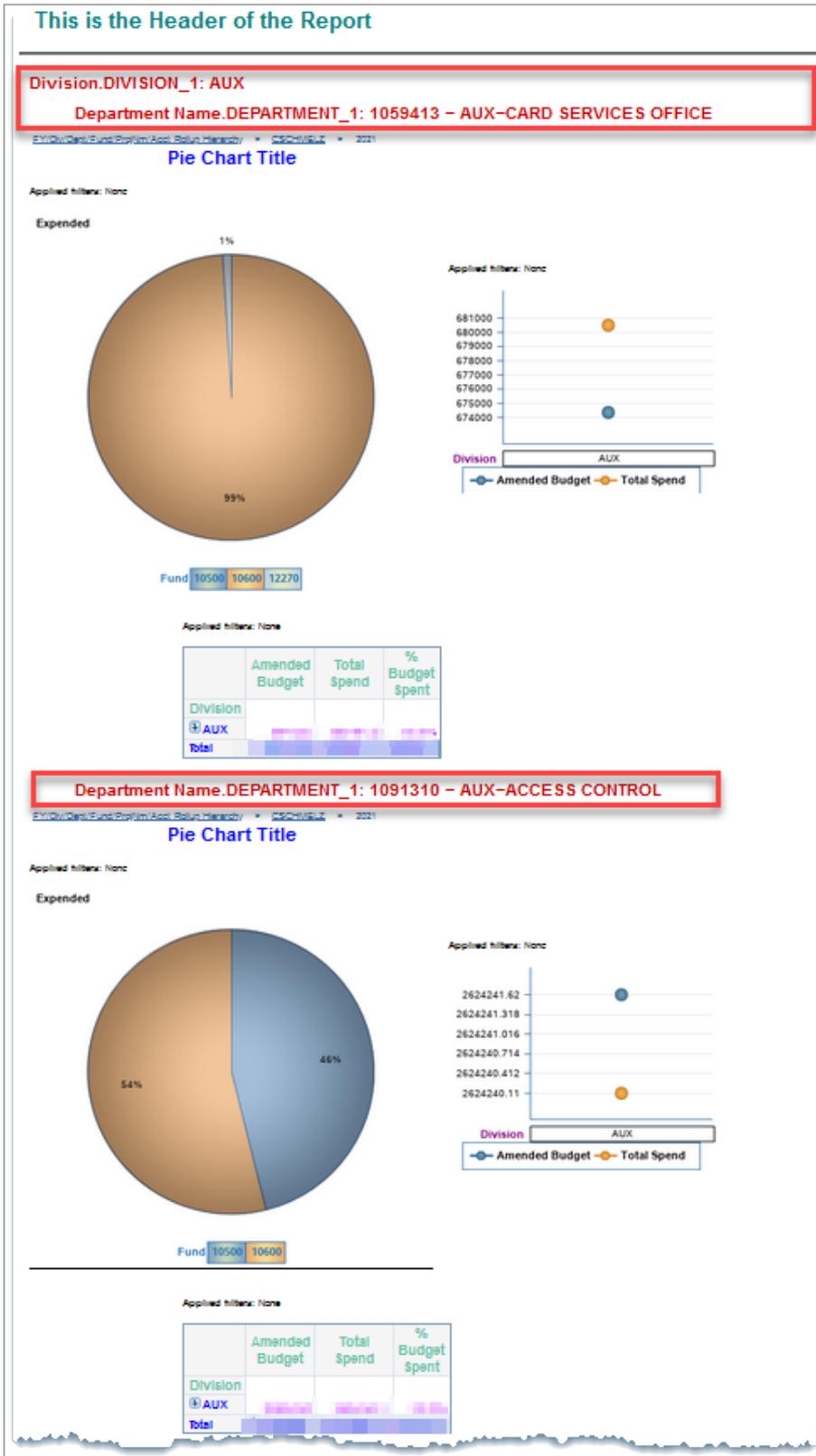


- D. Select Data from the menu in the Edit tab
- E. Select Edit Group Breaks ...



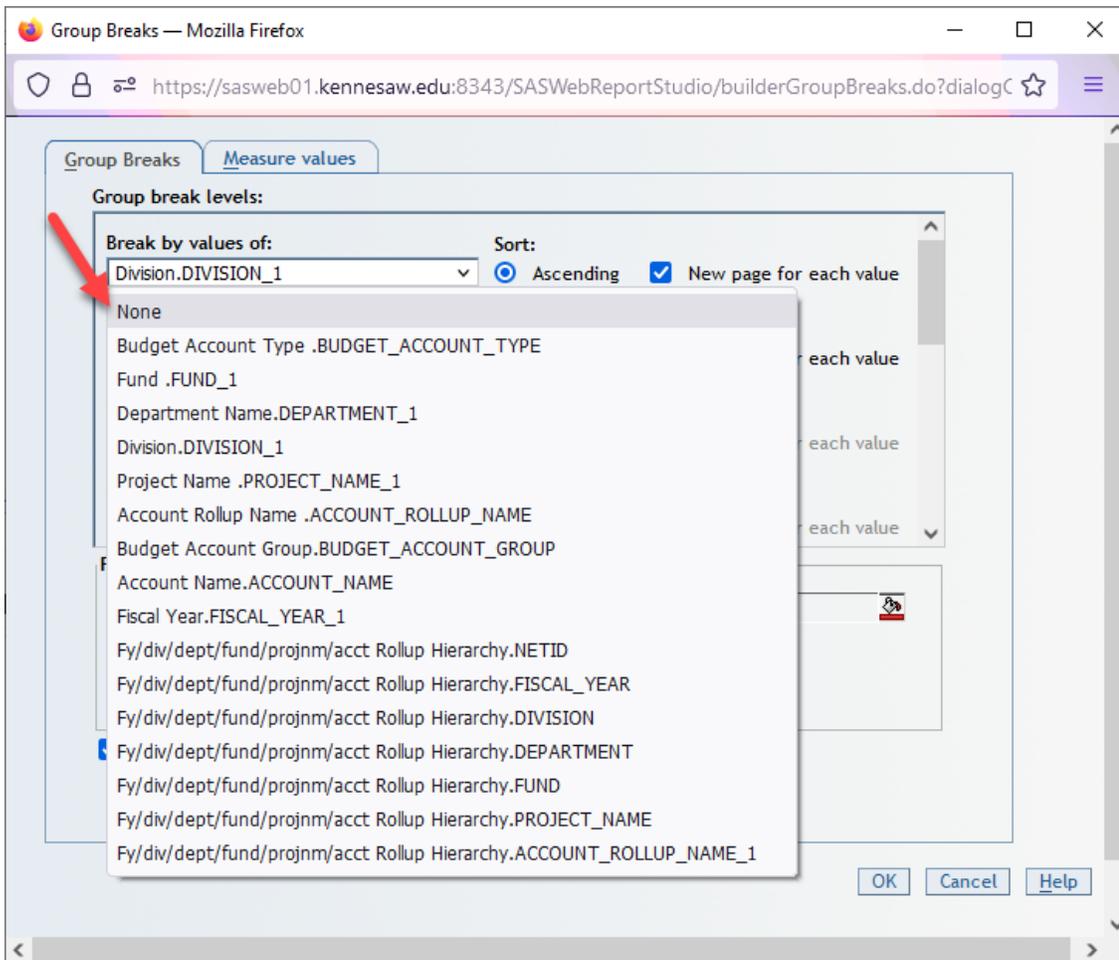
1. Select a data item to break by
2. Choose to display the data item in ascending or descending order
3. Check New page for each value to split the report into pages
4. Optional: Select a subgrouping to further split the data
5. Choose to display the data item in ascending or descending order
6. Choose the formats to show the Group Break Values which appear at the top of each page

★ Notice that setting a group break adds additional information under the Header of the report. The red boxes are outlining the Division and Department above the charts, indicating they are breaking on those items.



Remove a Group Break

Select: "None" in the Group Break Window



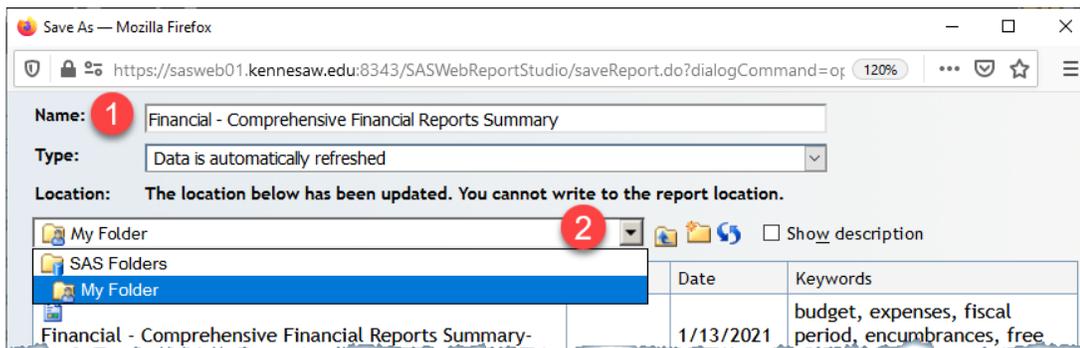
Saving a Report

You may customize reports with your preferred selections and can save it in your personal folder named “My Folder” or save it into your shared Department Folder to share with others. These reports will also be refreshed nightly.

- a. **Select File** from the menu in the upper left corner of the screen
- b. **Select Save or Save As** to open the dialogue window

Save to your “My Folder” (your personal folder)

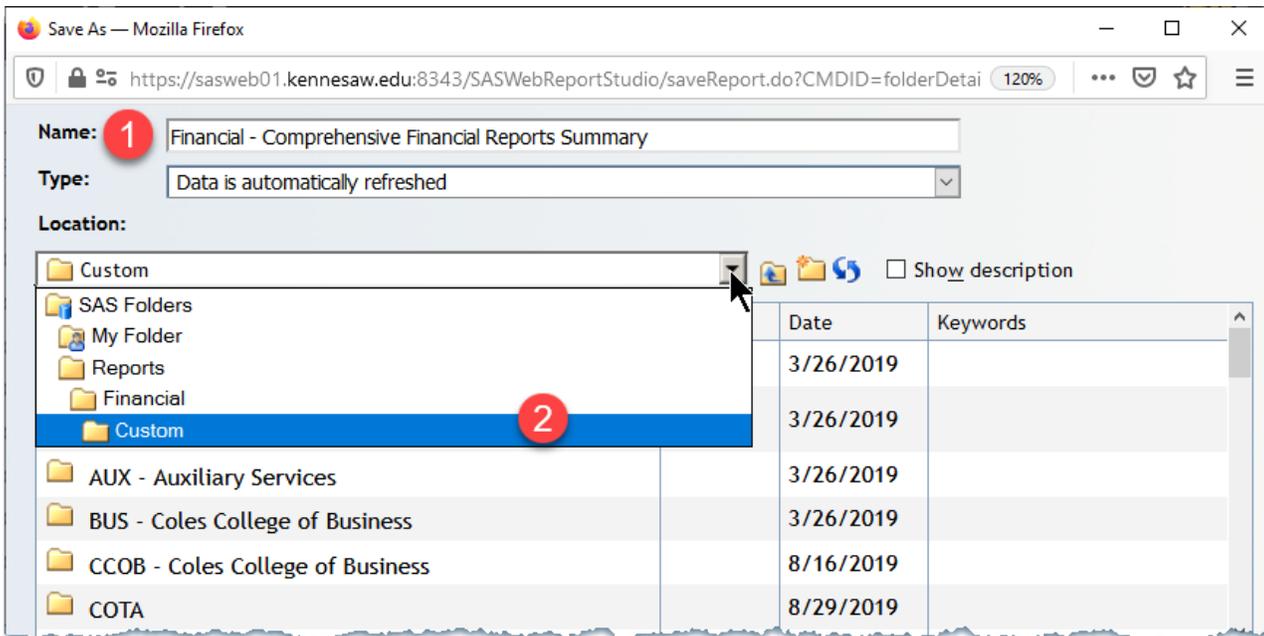
- a. **Enter** a new file name.
- b. **Click** the drop-down arrow to see folders and choose “My Folder” to save the report in your personal folder if it is not already selected.



Save to a Division or Department Folder

If you have permission, you may save to a shared folder so that more than one person can use the report. Note that this also means that others will be able to open, use, edit and save over this report! You may want to keep a copy in your personal folder as a backup.

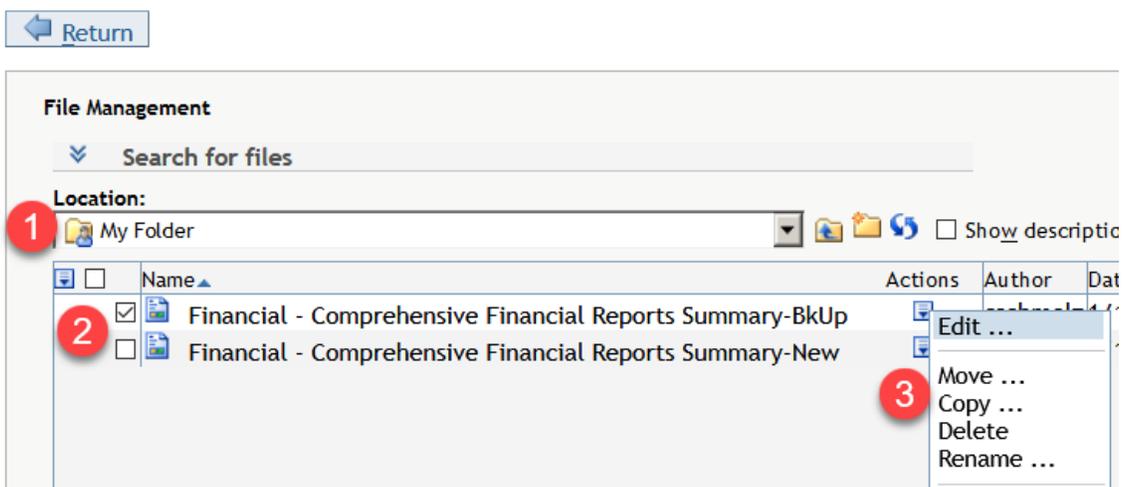
- c. **Enter** a new file name.
- d. **Click** the drop-down arrow and choose SAS Folders to go up one level from “My Folder” in the folder tree.
- e. **Navigate** to this path: SAS Folders/Reports/Financial/Custom/ [Your Division or Department]
- f. **Click** OK.



Manage Files

To Manage your files and perform actions such as Move, Copy, Delete or Rename

1. **Select** File from the menu in the upper left corner.
2. **Select** Manage Files.
3. **Click** the report that you want to Move, Copy, Delete or Rename.
4. **Choose** the Action from the Action Menu.



Two Methods to Open an Existing Report

1. From the SAS Portal - Financial

- a. Select Financial in the left menu panel.
- b. Choose an existing Financial Report from the Financial Portlet.

2. From SAS Portal - Getting Started

- a. Choose "Getting Started" from left menu panel in the Portal
- b. Select SAS Web Report Studio from the top right corner in the Portal
- c. This first dialog box provides a short cut to your recently accessed reports.
- d. Or select "More Reports" to navigate through the SAS Folders to locate your desired report.

