Microsoft Power BI: Financial Data Warehouse 101

Carnegie Mellon University
Finance Division

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Creation Date: 4/3/2023

Last Updated: 6/15/2023

Version: 1.0

Contents

Overview

What is a data warehouse?

A data warehouse is a comprehensive data management system designed to enable you to quickly review information and to effectively use it to support sound business decisions. It is a vast storage and information-processing site that gathers, sorts, and stores existing data.

A data warehouse copies data extracted from existing production systems and cannot be updated by users running reports. Authorized users can access this data without worrying about slowing down the day-to-day operations of the production database.
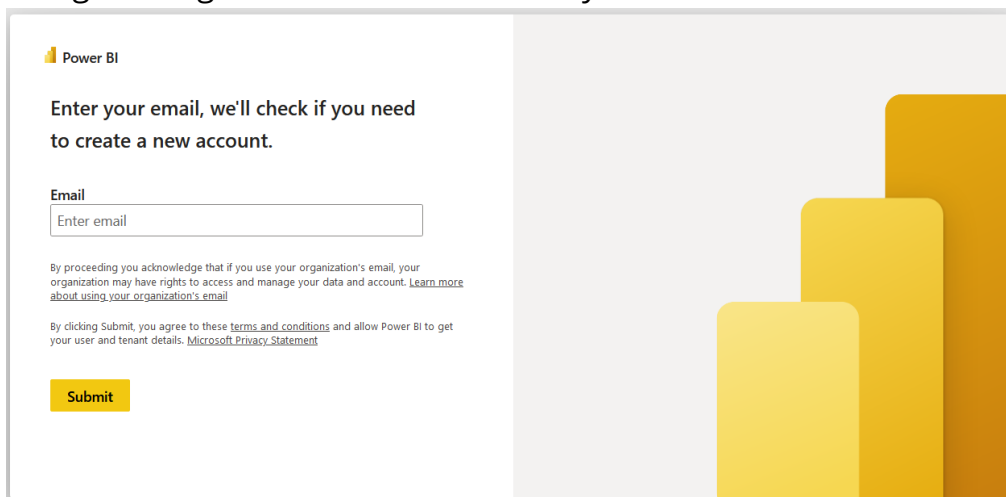
At CMU, the front end user interface for the financial data warehouse is Microsoft Power BI.

Note: *Due to Microsoft being able to update and change the Power BI interface, the images in this guide might be different than your current view.*

The Power BI interface

Logging In

- Open a web browser and type in app.powerbi.com/home. It will prompt you to log in using an email address. Enter your CMU email address.

- The next step is to use the Duo multi-factor authentication with your Andrew ID and password.

Web Login

AndrewID [   ]

Password [   ]

[Login]

Warning: The URL for this page should begin with **https://login.cmu.edu**.
If it does not, do not fill in any information, and report this site to it-help@cmu.edu.

About | Change Password | Forgot Password?

- The system will ask if you want to stay signed in. This will allow you to quickly login the next time you access Power BI.
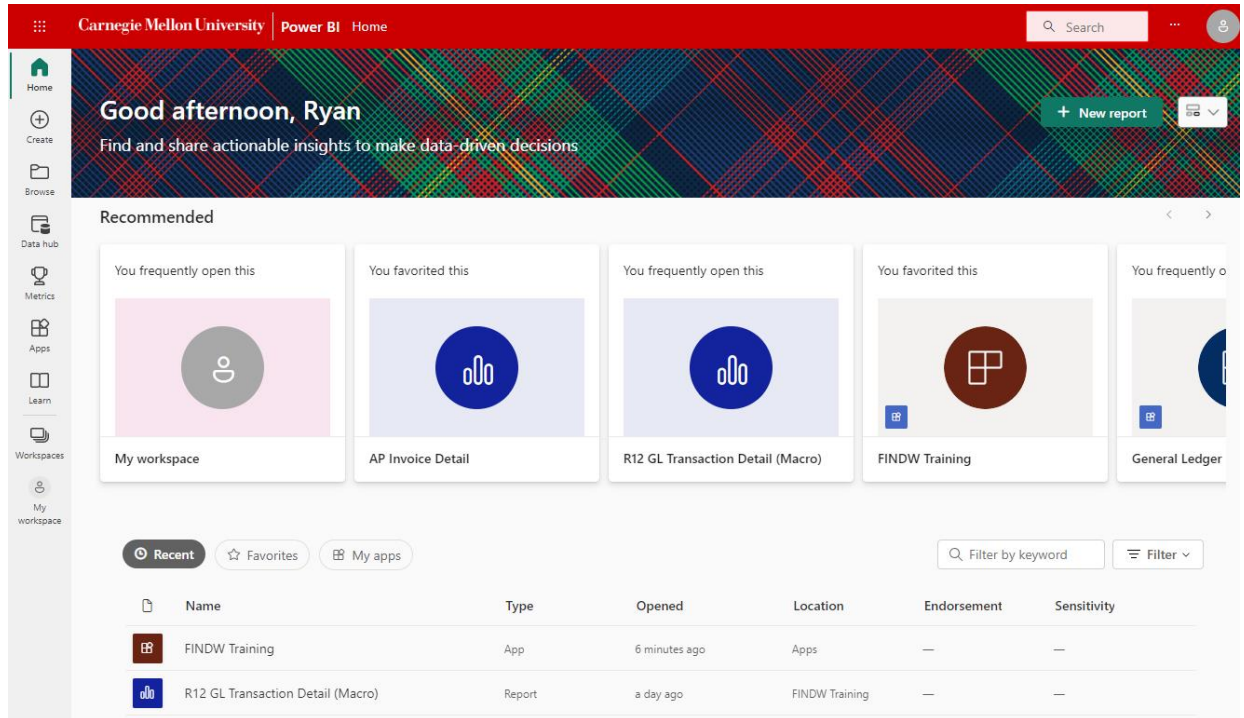
Microsoft

rpasko@andrew.cmu.edu

Stay signed in?

Do this to reduce the number of times you are asked to sign in.

☐ Don't show this again

[No] [Yes]

Carnegie Mellon University

Power BI Homepage

- Once you log in to the Power BI interface, you will be taken to the home page.
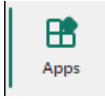

- On the home page there are many different features such as:
  - Recommended apps and reports
  - List of recent and favorite content

- On the left side is the navigation pane. Home is selected by default, but you can click on other areas to navigate to them as needed.
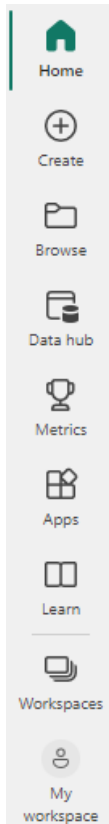
- Some common areas and features that you will likely use that are explored in more detail throughout this training are Apps, Workspaces, My workspaces, Filters, and Bookmarks.
  - o **Apps** – The web interface that allows consumption of reports in a clean, organized, and user-friendly manner.
  - o **Workspaces** – Containers or folders are used to encapsulate dashboards, datasets, reports, etc. in an organized manner and are meant for data distribution and collaboration. Therefore, the ones created for the Financial Data Warehouse (FDW) are meant to be "Public" workspaces/folders.
  - o **My workspace** – A default personal workspace or folder that holds various data-related elements that are only viewable to the individual user.
    - ▪ Users can create their own additional "private" workspaces and have the ability to share them with other users if they choose to.
  - o **Filters** – An automatic tool that provides parameters to filter datasets based on certain selection or logic per field.

- o **Bookmarks** – A saving point in a report, based on filters and configurations changed without changing the structural foundation of the report.

- Let's begin by exploring the Apps interface. Click on Apps [Apps icon] in the navigation pane on the left side.

Apps

The FINDW Training App has been built for training purposes only, using a data set limited to the Architecture organization, and will not be visible when you are logged in to the production version of Power BI.

In the Power BI production instance, you will use the 'Financial Data Warehouse' app and will have access to the same data that you have access to in the Oracle Financials systems.

- Under Apps, you will see a collection of the different Apps that are available to you. To start, click on the FINDW Training app name and that will bring up the app screen.

Apps

Apps are collections of dashboards and reports in one easy-to-find place.

	Name	Publisher	Published	App type
	General Ledger Data	Alison Campbell	10/27/22, 1:26:30 PM	Org app
	Financial Data Warehouse	Alfredo Lozano	3/6/23, 3:54:01 PM	Org app
	FINDW Training	Alfredo Lozano	3/2/23, 1:50:26 PM	Org app

- Within the app, on the left-hand side are different domains, or areas, which are listed alphabetically.
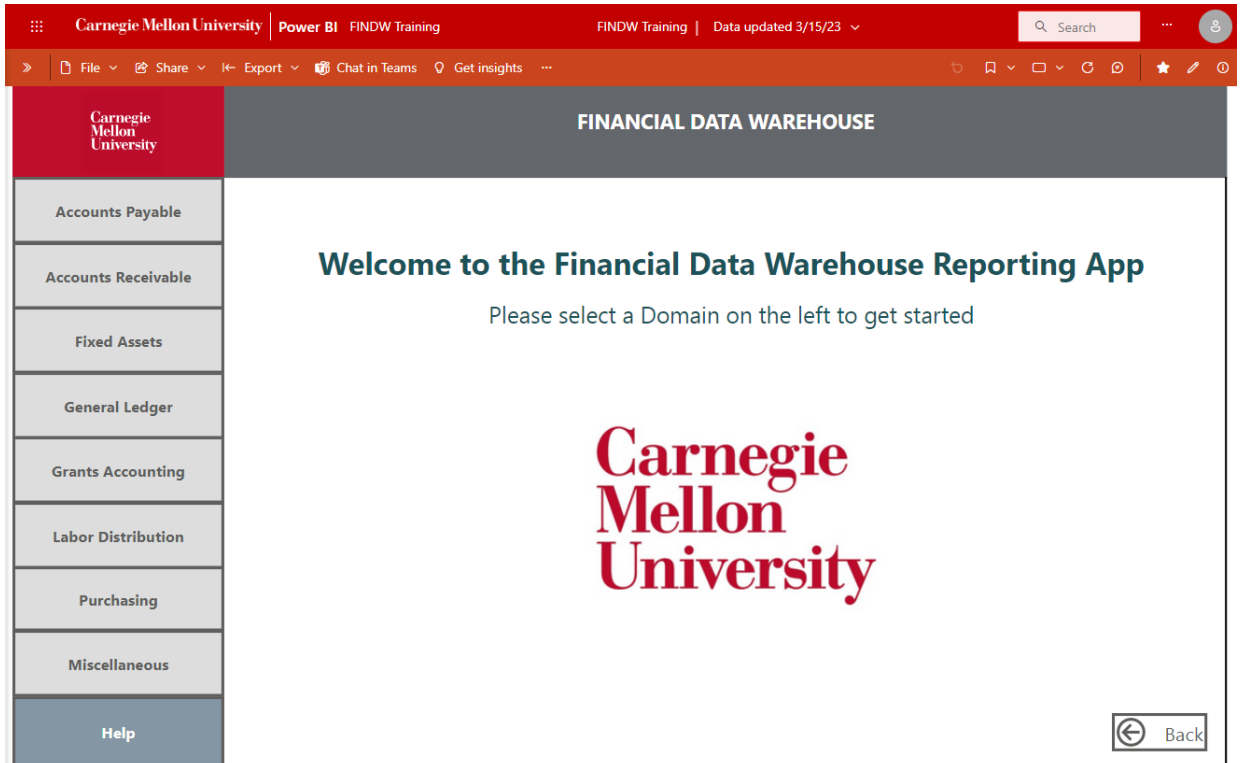
- Clicking on any of the domain names will bring up a list of available reports for that particular domain.
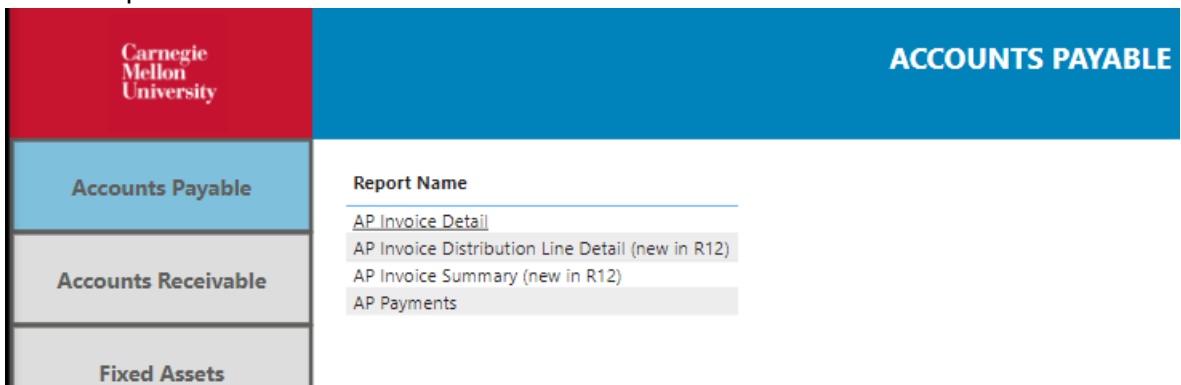
- At the bottom of the App page is the Back button. This will take you back a step from where you are.

Exercise #1 (Instructor Guided)

Your supervisor has asked you to compile detail information for domestic travel expenses for your organization (210100) incurred during the first quarter of fiscal year 2014 (FY14) in order to do some analyses.

To accomplish this, we will run the GL Transaction Detail (Macro) report using the following filters/values:

- **Organization - 210100 (used both in class and in this manual)**
- **Object Code Numbers – 85000 – 85999 (the travel object code numbers start with 85)**
- **Object Code Name – Contains "DOMESTIC"**
- **Period Name – Jul13-14, Aug13-14 and Sep13-14 will be used**

The instructor will guide you through this first exercise.

Opening a Report

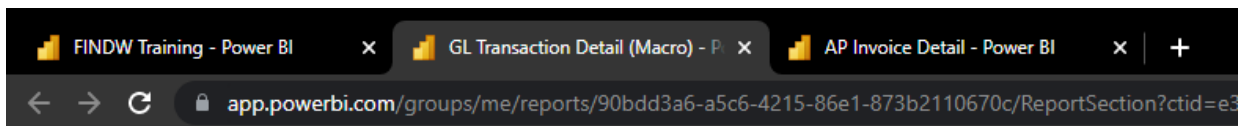- In the General Ledger domain, you can see the GL Transaction Detail (Macro) report.

- Click the report link and it will open in a separate tab at the top of your browser.

- You can open multiple reports and they will all be in separate tabs on your browser.

- The report will load, and in the upper left corner will be a spinning series of dots. When you see that spinning series of dots that means your report is loading/running.

Before we start working on the data, there are some noteworthy areas to mention. At the top of each report are several buttons and menus such as File, Export, Get Insights, and others that are hidden under a three dot ellipsis button.
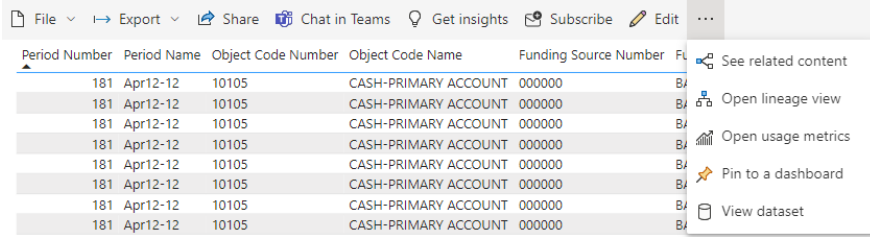
- On the right side are some additional buttons that are just icons (instead of an icon with a name), such as a Reset button, Bookmarks, Refresh, and Favorite. Hovering the cursor over these icons will show the name.
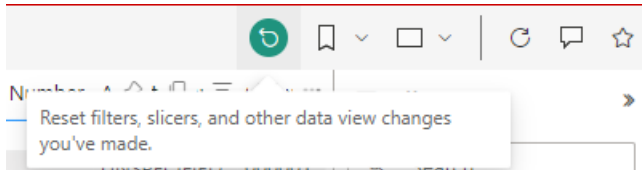
- On the left side, the navigation pane is still open. You could go to other areas such as your list of Apps or the Home page again.
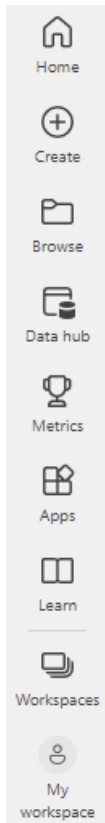
Working with Filters

- On the right side is the Filters pane in which you can collapse or expand the
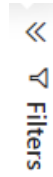
pane with the two headed arrow.

- When the Filters pane is expanded, if there are no filters displayed, you can click anywhere in the data. The filters should appear on the right hand side.
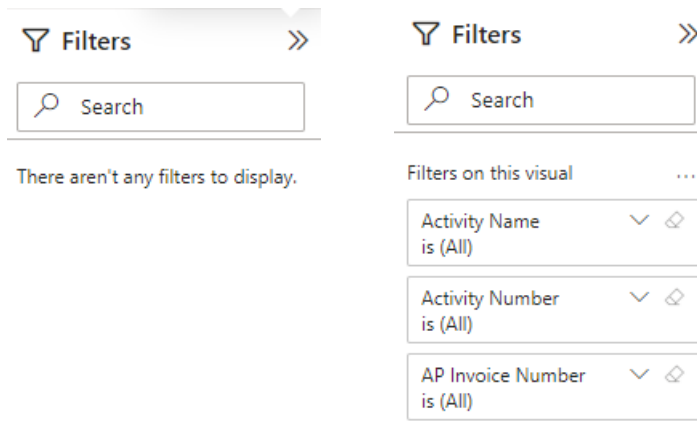
- To start filtering for the data in the exercise, please focus on the Architecture organization, whose organization number is 210100. In the Filters pane, find the Organization Number filter.

- Click the down arrow to open up the filter for that item.
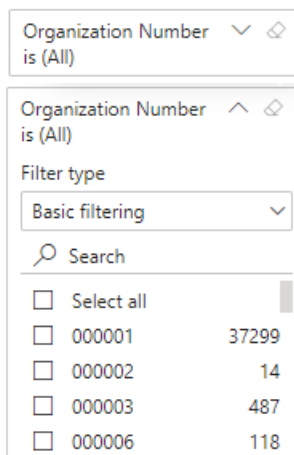
- There are two types of filtering: Basic filtering and Advanced filtering. Basic filtering allows you to check the boxes to select the items that you would like to see in your filter. Advanced filtering allows you to use filter criteria to make your selection.

- Using Basic filtering, scroll through the list to see the different Organization Numbers available to select.

- Next to each Organization Number is a different number that shows how many results there are for that item.

- Scroll down and find Organization Number 210100, it has 510 associated records.

- Check the box of 210100 and that will filter the data.

Note: Unlike DecisionCast, every time a filter is changed, the data in the report is run and changed. There is no run button to run all of the filters. Each filter is run when it is selected or applied.

- Next, set the Object Code Numbers filter.
  - For the Object Code Numbers, a specific number range that relates to travel expenses is needed.
  - If you are not familiar with Object Code Number groupings, they are available for reference in the [Chart of Accounts – Object Code [xlsx] spreadsheet](#) on the [Business Applications Development and Support Reference Materials page](#).
  - In the [Chart of Accounts – Object Code [xlsx]](#) spreadsheet, the "Travel and Other Personnel Related Costs" category begins with parent object code B8510. All of the object codes under that parent value, which includes the travel related object codes, begin with "85".

- Expand the Object Code Number filter and switch to Advanced filtering instead of waiting for the basic filtering checkboxes to load.

- In the Advanced filtering there are different criteria options for filters. Since all of the numbers for travel expenses start with 85, select the "starts with" parameter and type 85 in the field below.

- When using Advanced filtering, it doesn't automatically apply the filter when the values are typed in.
  - To start the filter click "Apply filter" at the bottom of the Advanced filtering window.

- The report will run to show all the Object Code Numbers that start with 85.

- As you review the data, what do you notice about the object codes in the 85000 – 85999 range?
  - Some object codes are domestic travel, some are foreign travel and some are not travel at all.

Object Code Number	Object Code Name
85119	CONFERENCE REG DOMESTIC
85119	CONFERENCE REG DOMESTIC
85121	AIRFARE FOREIGN
85121	AIRFARE FOREIGN
85127	OTHER TRAVEL FOREIGN
85127	OTHER TRAVEL FOREIGN
85152	MEMBERSHIPS AND DUES
85154	NON TRAVEL BUSINESS MEALS
85154	NON TRAVEL BUSINESS MEALS

- The report needs to be refined further to show only Object Codes related to domestic travel.

- Next, we will add an Object Code Name.

- Expand the Object Code Name filter by using the Advanced filtering to ensure everything with the word domestic is included.

- Use the "contains" filter parameter and enter "Domestic*". ***Note***: *Use an asterisk symbol (*) either before or after the word if you are not sure if you are using the proper case.*

Show items when the value

| contains | ∨ |

| Domestic* |

- This will mean all results will contain the word Domestic anywhere in the Object Code name, not just the names starting with domestic.

- The last items that need to be set are the Periods. The list of filters is in alphabetical order. If you can't find the filter that you need, you can use the search at the top of the Filters pane.

≡ Filters　　》

Q　Search

≡ Filters　　》

Q　Period　　✕

Period Name　∨ ✎
is Apr12-12

Period Number　∨ ✎
is (All)

- Type out the word Period, and it will just show the Period Name and Period Number filters. You do not need to click a button or press enter to start the search, it will happen automatically.

- Currently there is a filter for the Period Name of Apr12-12. You can tell this because the filter is gray. To clear a filter, click the eraser button on each of the filters that are not needed.

Period Name　∨ ✎
is Apr12-12

- Using the Basic filtering method with the Period Name will be cumbersome because Power BI puts the check box list in alphabetical order, rather than fiscal year order.
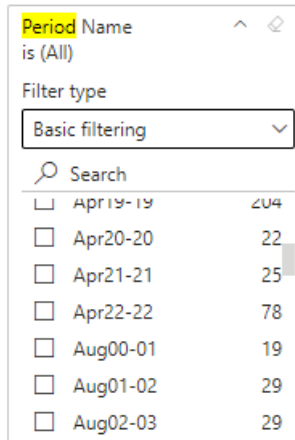
- To find the periods of July, August and September of 2013, which is the first quarter of fiscal year 2014 (FY14), one would have to scroll through this list to find each period.

- Advanced filtering could be used to filter for the items, but it is cumbersome to filter for more than two items.

- There is a more efficient way to filter for the first quarter of FY14, which is to use the Period Number filter instead of the Period Names.

The Period Numbers are numbers that are associated with each of the Period Names. To find the Period Numbers for July, August and September of 2013 use the "GL Period Number and Name" document found on the Reference Materials page at https://www.cmu.edu/finance/systems/documentation/files/dw-period-numbers.pdf

- For the fiscal year of 13-14, July, August, and September are the period numbers 198, 199, and 200.

MONTH / FISCAL YEAR	12-13	13-14
JUL	185	198
AUG	186	199
SEP	187	200
OCT	188	201
NOV	189	202

- Click the dropdown to open the Period Number filter and change the Filter type to the Advanced filtering.

Period Number ^ ⊘
is (All)

Filter type

Advanced filtering ⌄

- Change the first parameter to "is greater than or equal to." Type 198 on the next line, which will filter for items where the value is greater than or equal to 198.

is greater than or equal to ⌄

198

- Leave the radio button on the "And" option, which will make the results be inclusive of both the first and second filter parameter.

- For the second parameter, select "is less than or equal to" and type in 200 on the next line.

Filter type

Advanced filtering ⌄

Show items when the value

is greater than or equal to ⌄

198

◉ And ○ Or

is less than or equal to ⌄

200

Apply filter

- Click "Apply filter" in the bottom right of the filter window.

- To see the full list of filters again, click the "X" on the filter search bar.

The periods are now correct for the report. However, the results might not display in chronological order because the report is sorting the data by a different column/field.

Period Number	Period Name
199	Aug13-14
199	Aug13-14
200	Sep13-14
200	Sep13-14
200	Sep13-14
198	Jul13-14
198	Jul13-14

- To put the Period Numbers in numerical order, click the header name at the top of the field.
   - o Clicking the header name of a field will sort them in ascending or descending order.
   - o Click the header once for ascending Period Number, and click it a second time for descending. Period Number
   - o The arrow under the field name will tell you if the column is being sorted.

- This will put the Period Numbers in numerical order and in turn the Period Names will be in chronological order.

Period Number	Period Name
199	Aug13-14
199	Aug13-14
199	Aug13-14
199	Aug13-14
199	Aug13-14
200	Sep13-14
200	Sep13-14
200	Sep13-14
200	Sep13-14

- Now that we have the proper filters for this report, you can explore the results.

- At the bottom of the report there is a total row.

| 23,981.03	139,473.56	115,492.53

  - o The total row is always visible and does not need to be selected to be seen.

Export to Excel

One might want to export the results for this report to Excel for further analysis or to share with a colleague. It is recommended to avoid using the Export button that is located in the upper left side as the options under that button will not provide a usable Excel spreadsheet.

Instead, please use the following export option.

- Click on the three dot ellipsis button in the upper right-hand corner of the report, and there will be a button in the menu that says "Export data."
  - o Click Export data, and it will open up a window to export the report with the current layout.
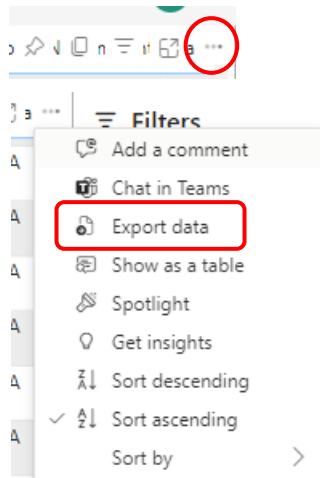
Which data do you want to export?

Export your data in the format that suits your needs. If you have a lot of data, the number of rows you export might be limited depending on the file type you select. Learn more about exporting data

Data with current layout

Export this data in the same layout you see now, but without any icons, colors, or other formatting you added.

Summarized data

Export the summarized data used to create your visual (for example, sums, averages, and medians).

Underlying data

ⓘ The report author turned off this option

File format:

.xlsx (Excel 150,000-row max) ⌄

Export   Cancel

- Click the Export button.
  - A message in the upper right says that you can still browse reports and dashboards while exporting the spreadsheet.
  - The message will change to let you know the data was successfully exported.

- The report can now be opened as an Excel spreadsheet.

- To see a list of applied filters for this data, go to the bottom of the report.

- At the bottom is a single line of text that shows what filters are being applied.

210 Applied filters:Organization Number is 210100Entity Number is 01Set of Books Name is Carnegie Mellon

  o Double click the first cell of the filter line to make the filters easier to read.

Applied filters:
Organization Number is 210100
Entity Number is 01
Set of Books Name is Carnegie Mellon
Batch Actual Flag is A
Period Number is greater than or equal to 198 and is less than or equal to 200
Object Code Number starts with '85'
Object Code Name contains 'Domestic*'

Exercise #2 (Participants complete on their own)

Your supervisor has now asked you to compile detailed information on expenses related to "MEALS" for a specific period, Dec11-12, and for a specific activity code number, 111, to do some analyses for your Organization (210100)

**Edit the GL Transaction Detail (Macro) report.**

Review and change the appropriate filter(s) as necessary.

When your results are finalized, look at the Grand Total at the bottom of the Functional Net Activity field.

Record the Grand Total for Functional Net Activity

_____

Creating Personal Bookmarks

If you would like to save your results but you do not need to create an Excel report, Power BI has an option called Bookmarks. This will allow you to save personal views of the data in the report.
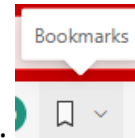
- In the upper right, there is a ribbon icon for Bookmarks.

- Click the Bookmarks button and a drop down menu will appear. Select the "Add a personal bookmark" option.
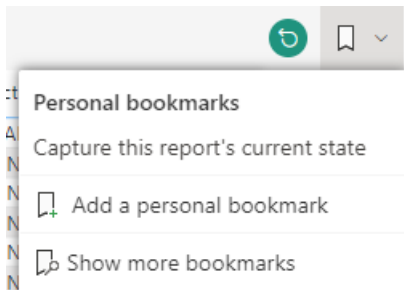
- Give the bookmark a unique name for the specific view.
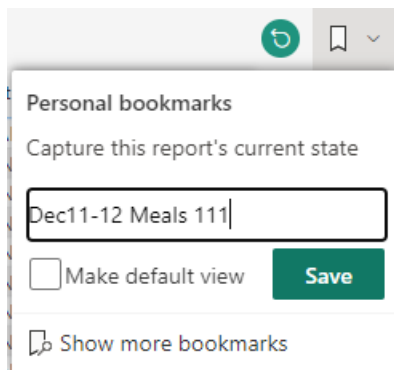
- Click the Save button. This will let you save what is called a personal bookmark.
  - A check box will allow the saved personal bookmark to be the default view of the report when it is opened.
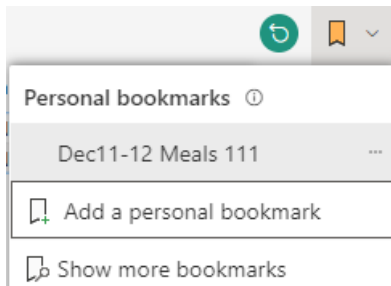
- Any time the report is opened the saved Personal bookmarks can be selected by clicking the Bookmarks button.

Resetting a Report

- The content can be reset to the original state the report is in by using the Reset button. This is found next to the Bookmarks button to the left.
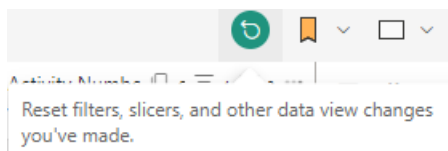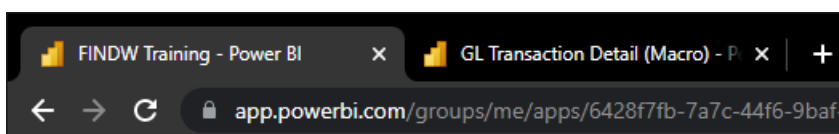

- Click Reset and that will bring the data back to what the report looked like when it was first opened and saved from the creator of the report.
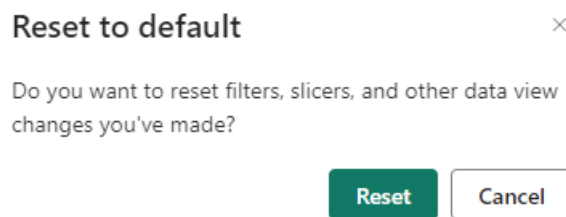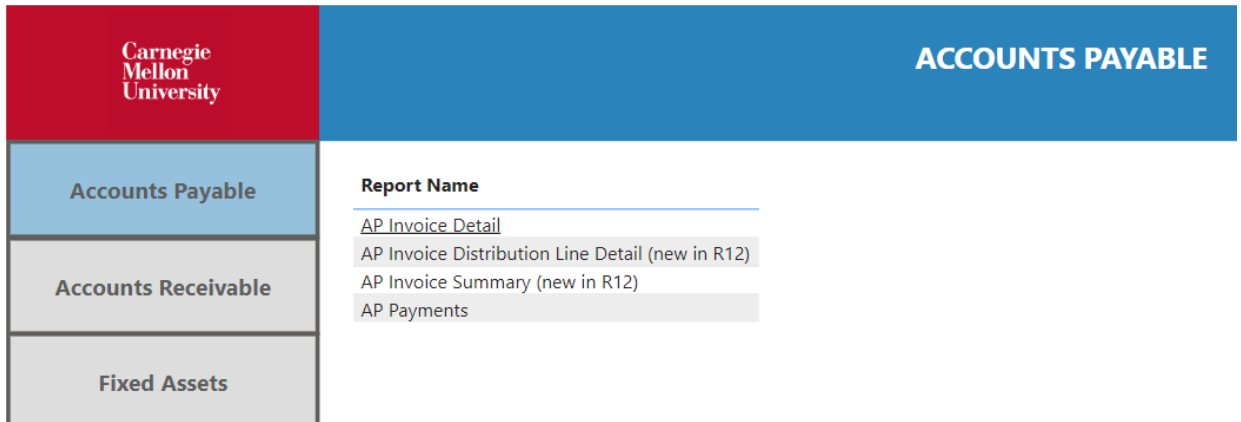

Working with Reports

This section uses an example report from another domain, namely, Accounts Payable.

- Select the FDW Training app tab at the top of the browser.

- Click the Accounts Payable button on the left to see the reports for the Accounts Payable domain.

- From the report list, select AP Invoice Detail report link. That will open the report in a new tab in your browser.
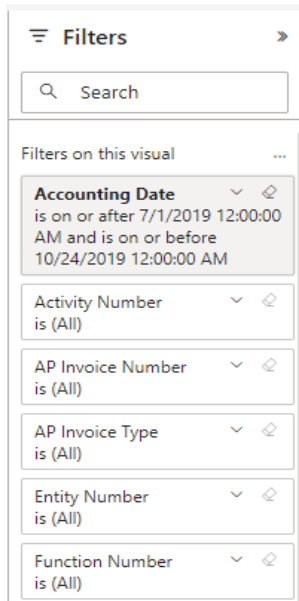

The data in the AP Invoice Detail Report is different from the GL Transactions Detail Report, but a similar setup. Understanding the data that is used is important.

When running reports in the data warehouse, the AP Invoice Detail report is not restricted to only supplier invoices. Invoices in this report also include expense reports that start with ER and purchasing card PRC transactions. If the Invoice Number/Type is an Expense Report, the vendor name is the employee that is being reimbursed. For procurement card purchases, the vendor name is the cardholder.

In the next scenario, your boss wants to get detailed information on all invoices that have been processed for December of 2009 for the organization, 210100.

- If there are no filters showing, click anywhere in the data and the filters should appear in the Filters pane on the right.

Filters

Search

Filters on this visual ...

Accounting Date
is on or after 7/1/2019 12:00:00 AM and is on or before 10/24/2019 12:00:00 AM

Activity Number
is (All)

AP Invoice Number
is (All)

AP Invoice Type
is (All)

Entity Number
is (All)

Function Number
is (All)

- Start by adding the organization number.

Organization Number
is (All)

  o Click to open the Organization Number filter.
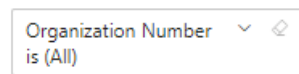
- Use Advanced filtering to show items where the value **is** 210100 and then click Apply filter.

Organization Number
is (All)

Filter type

Advanced filtering

Show items when the value

is

210100

● And ○ Or

Apply filter
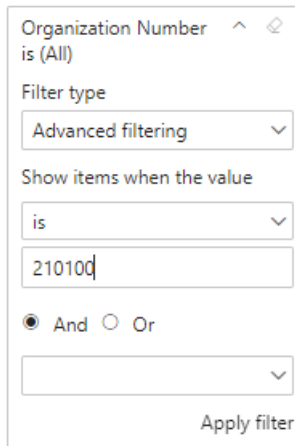
- Next, scroll to the very top of the filter list for the Accounting Date filter.


```
Accounting Date          ∨   ⌫
is on or after 7/1/2019 12:00:00
AM and is on or before
10/24/2019 12:00:00 AM
```
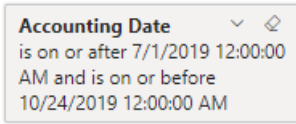
- There is already a date range applied because the filter is gray, click the eraser button to clear the filter.

- Click the Accounting Date name to open the filter window.


```
Accounting Date          ∧   ⌫
is (All)

Filter type

Advanced filtering        ∨

Show items when the value

is                        ∨

M/d/yyyy                  🗓

  ∧      ∧
 12     00    AM          ∨
  ∨      ∨

● And  ○ Or

                          ∨

              Apply filter
```
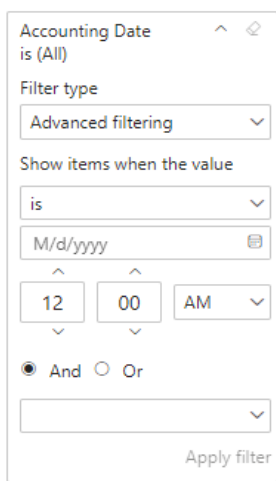
The difference between this date filter versus the period filters in the General Ledger report is these are physical dates and not a Period Name. Power BI understands that these are dates, so it gives filters with date selectors.

- Change the first filter parameter to "is on or after."

- Type in 12/1/2009, or use the date selector.

- Leave the time after the date as 12:00 AM.
- Leave the radio button on And.
- Set the second parameter to "is on or before."
- Type in the last day of December of 2009: 12/31/2009 or use the date selector.

- Click Apply filter. The results will display.

Set of Books Name	Vendor Name	Accounting Date	AP Invoice Number	AP Invoice Type	Inv
Carnegie Mellon	GUTSCHOW, KAI	12/14/2009 12:00:00 AM	ER582582	Expense Report	1
Carnegie Mellon	GUTSCHOW, KAI	12/14/2009 12:00:00 AM	ER582582	Expense Report	2
Carnegie Mellon	GUTSCHOW, KAI	12/14/2009 12:00:00 AM	ER582582	Expense Report	3
Carnegie Mellon	GUTSCHOW, KAI	12/14/2009 12:00:00 AM	ER582582	Expense Report	4
Carnegie Mellon	GUTSCHOW, KAI	12/14/2009 12:00:00 AM	ER582582	Expense Report	5
Carnegie Mellon	GUTSCHOW, KAI	12/22/2009 12:00:00 AM	ER584754	Expense Report	1
Carnegie Mellon	GUTSCHOW, KAI	12/22/2009 12:00:00 AM	ER584754	Expense Report	2
Carnegie Mellon	GUTSCHOW, KAI	12/22/2009 12:00:00 AM	ER584754	Expense Report	3
Carnegie Mellon	GUTSCHOW, KAI	12/22/2009 12:00:00 AM	ER584754	Expense Report	4
Carnegie Mellon	HANLON ELECTRIC COMPANY INC	12/15/2009 12:00:00 AM	1213	Standard	1
Carnegie Mellon	HANLON ELECTRIC COMPANY INC	12/15/2009 12:00:00 AM	1214	Standard	1
Carnegie Mellon	HAYES, HAL H	12/21/2009 12:00:00 AM	ER584682	Expense Report	1
Carnegie Mellon	HAYES, HAL H	12/21/2009 12:00:00 AM	ER584682	Expense Report	2
Carnegie Mellon	HAYES, HAL H	12/21/2009 12:00:00 AM	ER584682	Expense Report	3
Carnegie Mellon	HAYES, HAL H	12/21/2009 12:00:00 AM	ER584682	Expense Report	4
Carnegie Mellon	HAYES, HAL H	12/21/2009 12:00:00 AM	ER584713	Expense Report	1
Carnegie Mellon	HUTZELL, KELLY	12/3/2009 12:00:00 AM	PRC581831	Expense Report	1
Carnegie Mellon	HUTZELL, KELLY	12/3/2009 12:00:00 AM	PRC581831	Expense Report	2
Carnegie Mellon	HUTZELL, KELLY	12/3/2009 12:00:00 AM	PRC581831	Expense Report	3

In the results, there are two types in the column AP Invoice Type, which are Standard and Expense Report:

- **Standard**
    - If the Invoice Number begins with "ER" and the Vendor Name is a person's name it means it is a paper expense report that was entered by someone in Accounts Payable.

    - If the Invoice Number does not begin with "ER" or "PRC" and has actual Vendor Names (not employee names) it means it is a standard supplier invoice.

- **Expense Report** – This Invoice Type includes expense reports (which have invoice numbers that begin with "ER") and purchasing card transactions (which are the invoice numbers that begin with "PRC") entered in Oracle.
    - With an Invoice Number starting with ER, the Vendor Name is the name of the employee being reimbursed.
    - If the Invoice Number starts with PRC, the Vendor Name is the cardholder's name.

Exercise #3 (Participants complete on their own)

Modify the AP Invoice Detail Report to narrow down the results to only show expense reports (ER) (not PRC reports) for employee *Alexis A McCune* in Organization (210100) for October 2011.

When results are finalized, create a personal bookmark for the report

Record the Grand Total for Func Curr Inv Line Amt

_____

Exercise #4 (Optional Advanced Exercise)

Your supervisor has asked you to compile detail information for domestic airfare for your organization (210100) and activity code (233) incurred during the second quarter in FY12 to complete some analyses.

Edit the GL Transaction Detail (Macro) report.

Review/change the appropriate filter(s) as necessary.

Which fields do you need to change, update or add a filter value too?

What months make up the second quarter in FY12?

Do you know the object code number or name?

What organization are you searching for?

Is there a special activity code being used for domestic airfare?

Accept the defaults in these fields:

      Entity Number 01

      Set of Books Name = Carnegie Mellon

      Flag = A

When results are finalized, create a personal bookmark.

Record the Grand total for Functional Net Activity

Appendix: Migrating Private Queries from DecisionCast to Power BI
This appendix describes the migration process of private queries, located under each user's Private folder, from DecisionCast to Power BI.

Preparing for Migration

1. Identify queries in use in your Private folder in DecisionCast that need to be migrated to Power BI.

   o **These should be queries that you have customized (e.g. added/deleted/reordered columns) that cannot be easily recreated from a public query using filter values.**

2. Create a folder called "andrewID-Migrate" inside your Private folder. (e.g. acarnegie-Migrate)

3. Place a copy of the identified Private queries (that are in use ONLY) in the andrewID-Migrate folder.

4. Inform the FDW project team by emailing fdw-project@andrew.cmu.edu that the selected private queries are placed in the andrewID-Migrate folder referenced above and that they are ready to be built in Power BI.

5. At this point an automated process will generate the corresponding Power BI (PBIX) file per each report submitted.

6. The FDW project team will place your migrated reports in a "andrewID-Migrated FDW" workspace that you can access from your list of available workspaces in Power BI. You will be notified via your migration request ticket when they are ready for your use.
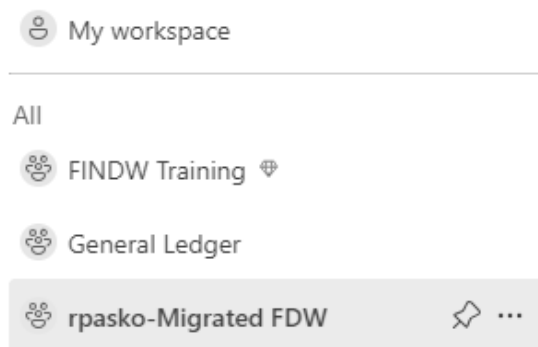
Post Migration User Actions

Users should take the following actions as needed after DecisionCast private query migration to Power BI.

1. Run the desired query/report that was migrated in both DecisionCast and Power BI. Despite the best attempts to ensure that queries are migrated without issue, **there is the possibility that when the migrated query runs in Power BI the following message will appear:**
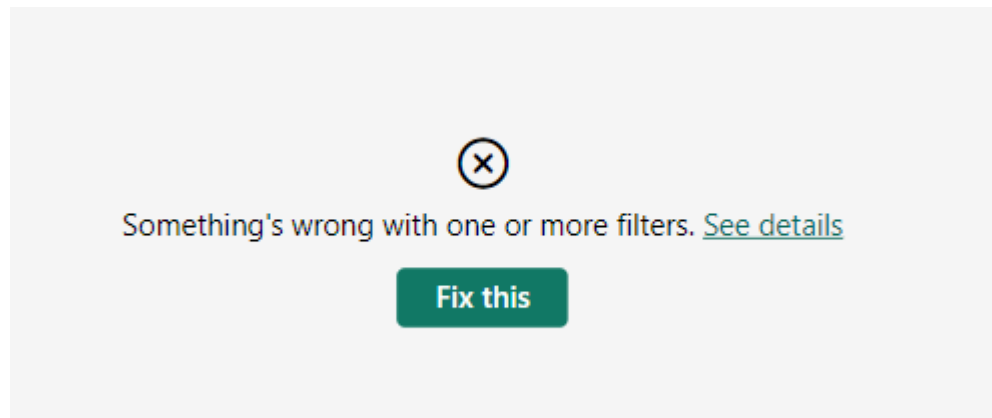
2. Clicking the 'See details' link will generate the following generic message.
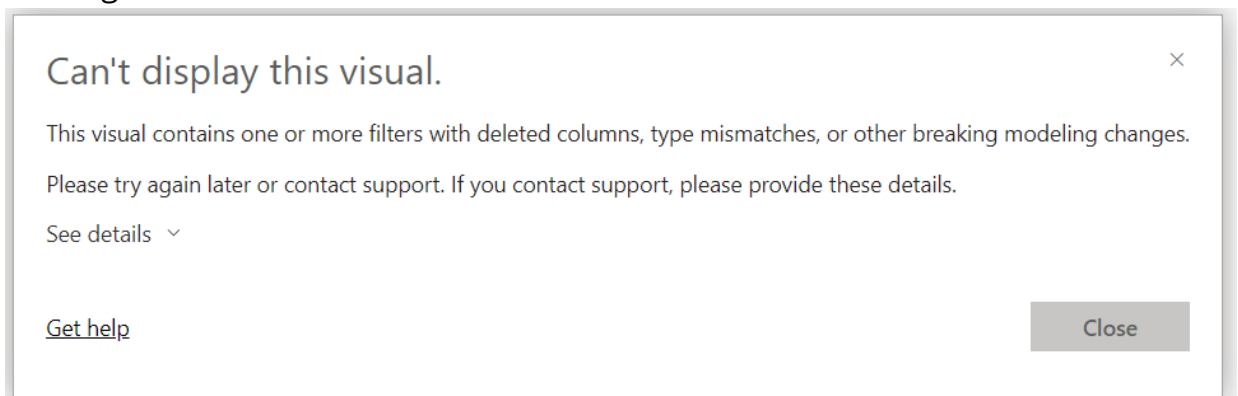
Power BI does not provide the exact fields, columns, filter values that were problematic in the migration process.

3. To resolve the error, the 'Fix this' button needs to be clicked until the error message disappears from the screen. Power BI does not provide a message when all of the issues have been resolved. Instead, the message will disappear and the query will begin to run.

NOTE: The likely result of the fixes made by Power BI through this process is that filters have been removed. Thus, step #5 below is especially important for queries that had to be fixed through this process.

4. Compare the columns that appear between the two reports. Things to note:
    a. Fields/data that are set to 'Filter Only' or 'Not Shown' in DecisionCast queries **will appear as fields/columns** in the Power BI report results due to the query migration.
        i. Example from GL Transaction Detail queries:
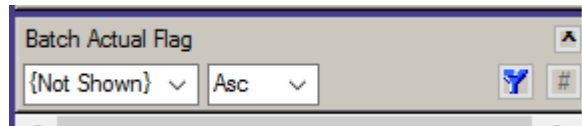
        ii. Example from USA Qtrly Expense Summary Org:
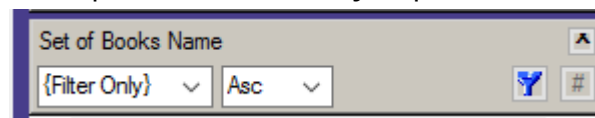
        iii. There is no corresponding functionality in Power BI to replace the 'Not Shown' option in DecisionCast. Therefore, certain fields that are necessary in the query to produce correct data results (ex. Batch Actual Flag and Expenditure Item Id) will appear as columns in your Power BI output.
        iv. To use the 'Filter Only' functionality in Power BI, ensure that the field you wish to include as a 'Filter Only' field is in the Visualization pane Row or Column list and then remove it from the Visualization Pane. The field will continue to be displayed in the Filters list but will not appear as a field in the report output. See the Appendix: Download/Upload/Edit Public Reports section for instructions related to customizable report modifications for how to remove the field.

5. Compare the filters that are set on the DecisionCast queries to the filter values on the migrated Power BI report.
    a. DecisionCast queries that have filters set for a range of values that are migrated to Power BI may need to be updated if the 'Between' filter operator in DecisionCast was used. These filter operators are not able to be migrated in all circumstances.
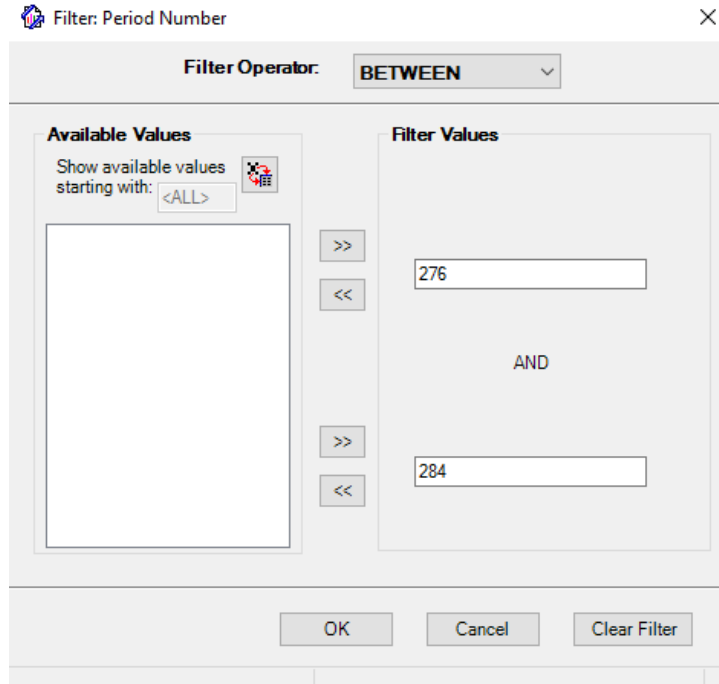
i. Example from GL Transaction Detail queries - Object Code Number between 60000 and 99999:

ii. Example from GL YTD Balances Across Periods by Account String - Funding Source Number between 000000 and 999999:

iii. Example from AR Miscellaneous Receipt Distributions - Period Number between 276 and 284:

6. Compare the results of the DecisionCast query against the Power BI report. Depending on the data being retrieved in the query, there may be discrepancies in the results - either in number of rows returned or data values.

    a. If you find a discrepancy in the data between DecisionCast and Power BI, the data should be validated against the corresponding transactions/balances in Oracle Financials. There are known reasons for discrepancies between Power BI and DecisionCast. Examples include:

        i. User data access/security was manually managed in DecisionCast whereas in Power BI this information is being sourced directly from Oracle Financials. This information is used to determine the data access privileges in Power BI, and differences could exist between Power BI and DecisionCast output due to this.

        ii. A discrepancy may exist because records (ex. PO Lines) have been deleted in Oracle Financials but not in DecisionCast. Because the Power BI is being sourced from Oracle Financials,

36

these records will not appear in the Power BI output which will cause a difference between the DecisionCast and Power BI output.

      iii. A discrepancy may exist because of vendor name changes. The vendor/employee name on a transaction that was extracted into DecisionCast may be different today than it was at the time of the original extraction. Power BI will display the transactions associated with the updated vendor/employee name.

b. Due to Oracle upgrades, the processes and table structures changed over the years and sub-ledger transactions (AR, AP, LD, etc.) were grouped/summarized when posting to Oracle General Ledger. Power BI data is sourcing directly from Oracle Financials, so these summarizations will result in less transactional detail records but the account strings and dollar amounts will remain accurate.

c. Depending on the query structure, Power BI may group records in a different manner than DecisionCast while still providing the same amounts. One example of this can be found in queries that provide Grants Expenditure data.

      i. To ensure that the natural grouping of Power BI does not occur, the Source System ID needs to be added to the query as a column.

      ii. This column can be found in the GA Expenditures Detail table found in the Data pane when in Edit Mode of Power BI.

	Σ Quantity
☑	Σ Raw Cost
☐	Revenue Distributed
☑	Source System Id
☐	System Linkage

7. Other miscellaneous notes:
   a. Matrix style reports do not display well in Power BI. Matrix reports can have both column groups and row groups. A regular table report only has column groups. Scrolling to the right to see the columns of data that exist is limited. One way to navigate around this is to resize the columns of the report.
      i. Example - Original output:

      ii. Resize the columns to see more of the report on the screen by hovering the mouse at the end of each column and then shrink the column size:

Please refer any questions about the private query migration process to [fdw-project@andrew.cmu.edu.](mailto:fdw-project@andrew.cmu.edu)

Appendix: Download/Upload/Edit Public Reports

Download a PBIX Report File

1. In the Financial Data Warehouse App, click the Help button on the bottom left.
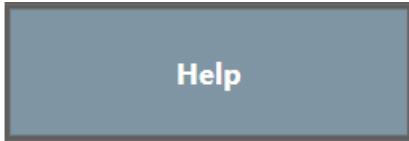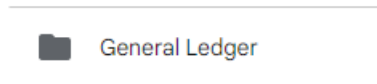

2. To download a PBIX file of a report from the Data Warehouse click the Click Here button.
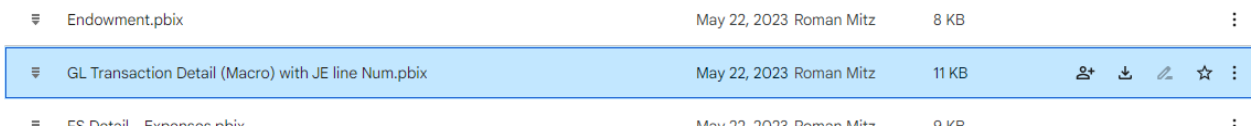

3. The FINDW PBIX Report Files Google Drive location will open.

4. Double click the domain name of the location the desired report is in. In this example we will double click the General Ledger domain folder.

5. Find the report you want to download and hover your cursor over it or click it to select that report.
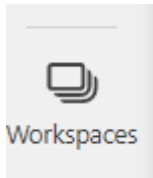

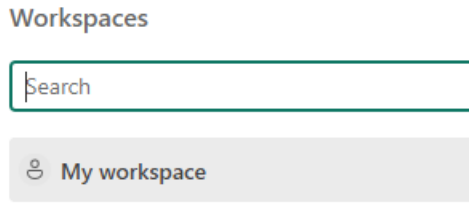6. To download the report, click the download button at the top or on the side of the report.

7. Download the PBIX files you need and save them to your computer.
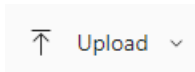
Upload a PBIX Report File

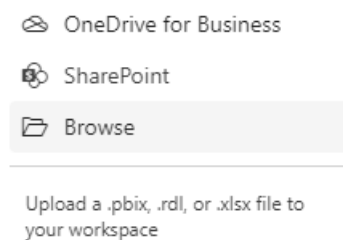1. Click on the Workspaces icon on the navigation bar.

2. Click on My Workspace at the top of the Workspaces panel.

3. Click Upload at the top of the My Workspace.

4. From the menu click browse to upload the saved PBIX file
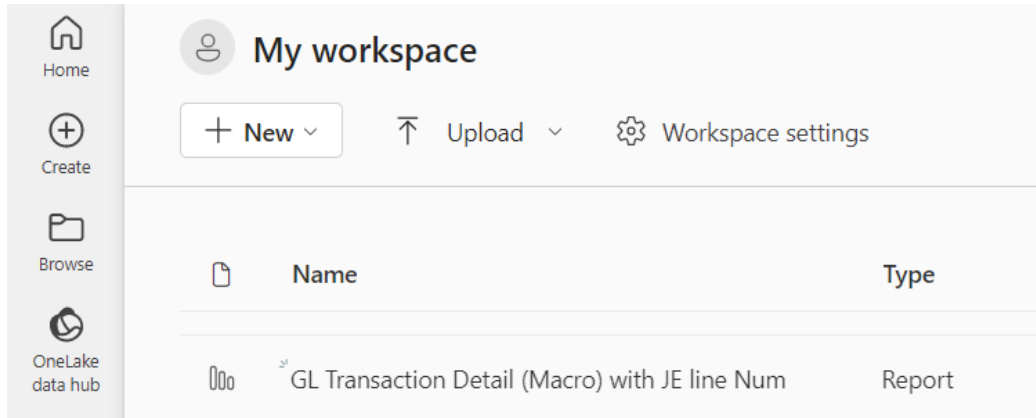

5. Navigate to the location of the saved PBIX file(s) and select one file to upload. Power BI will only allow one file to upload at a time.
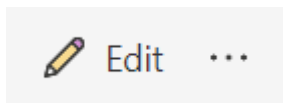6. Once the file has been uploaded you will have a new report in your my workspace.
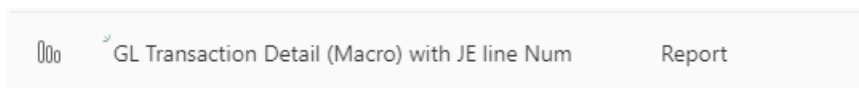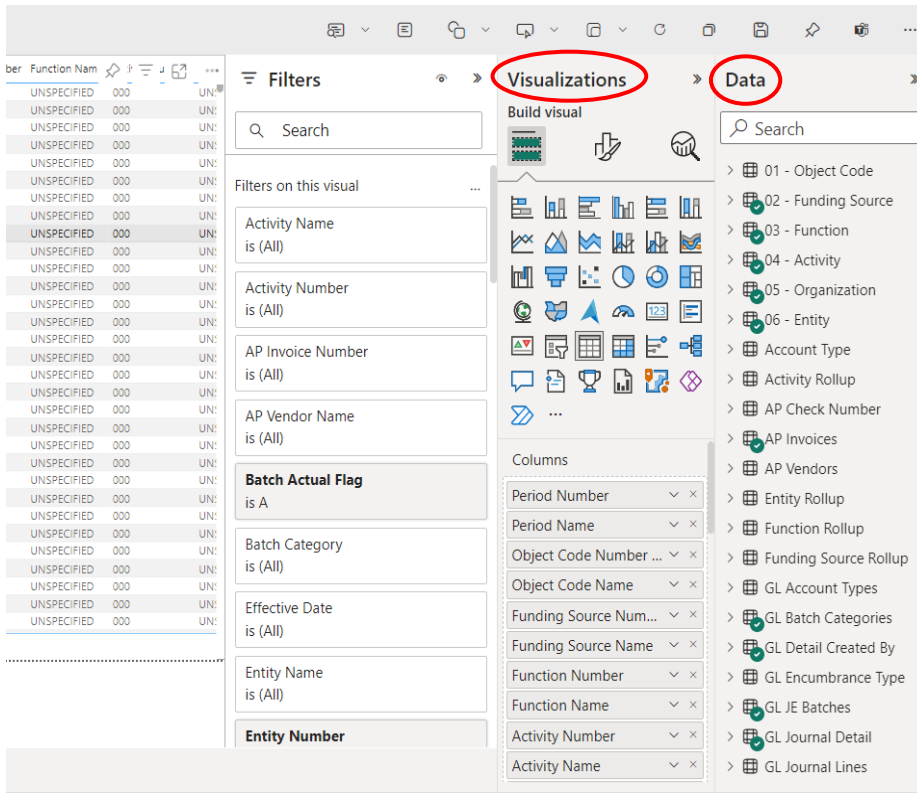
Editing Reports

1. Find the report you want to use in the list of reports and click on the report name to open it.


2. The report will run and open in a new tab in your browser.
3. To edit the report (e.g. add, remove, or re-order columns), click on the **Edit** icon in the menu bar.

4. Click into the report area to display two new panes in addition to Filters: **Visualizations** and **Data**.

a. The Filters pane will display the fields that are available for filtering.
b. The Visualizations pane will display the fields that are included in the report output.
c. The Data pane displays all of the facts and measures that are available to include in the report. A green checkmark on a fact or measure table indicates that a field from that table is included on the report or is being used as a filter value.
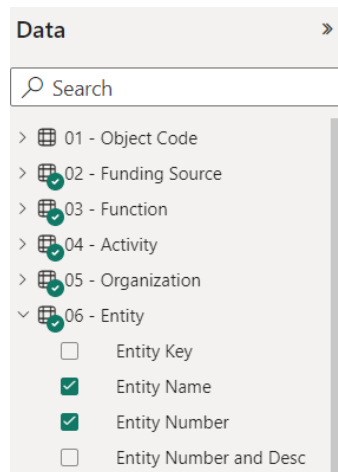
Removing, Adding, Moving Fields

1. To remove a field from a report:
    a. In the Visualizations pane, find the field for deletion in the Columns, Row, or Value section (these are dependent on the style of report) and click the X on the field name to remove the field.
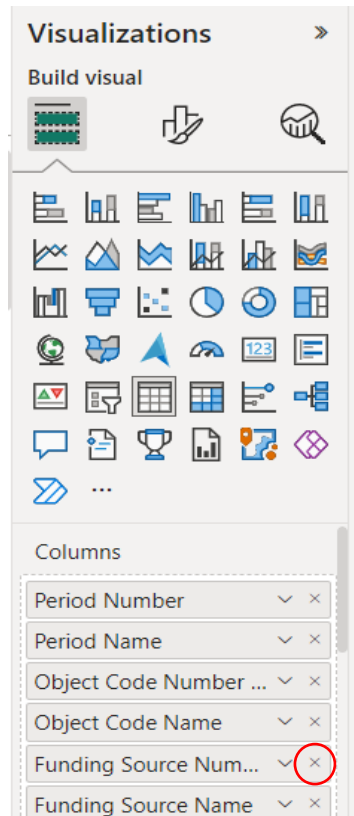

    b. The report will refresh without the deleted field.

2. To add fields to the existing report:
    a. In the Data pane, find the desired field to add to the report by clicking on the arrow to expand the table and display available fields.
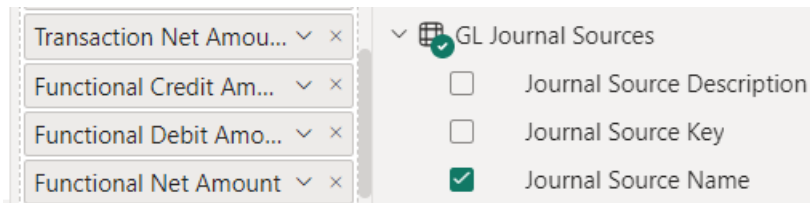
b. In this example, the Journal Source Description field is selected to add to the report. The newly added field will, by default, be added as the last field on the report.
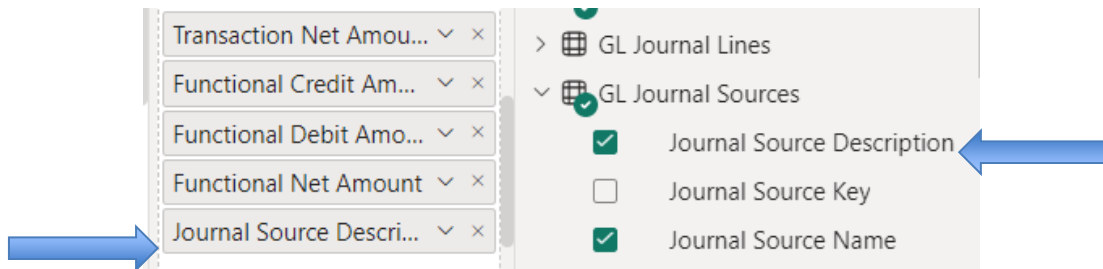

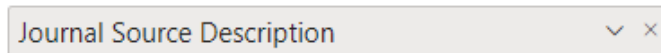c. The report refreshes with the new field added to the report and to the list of filter values as well.
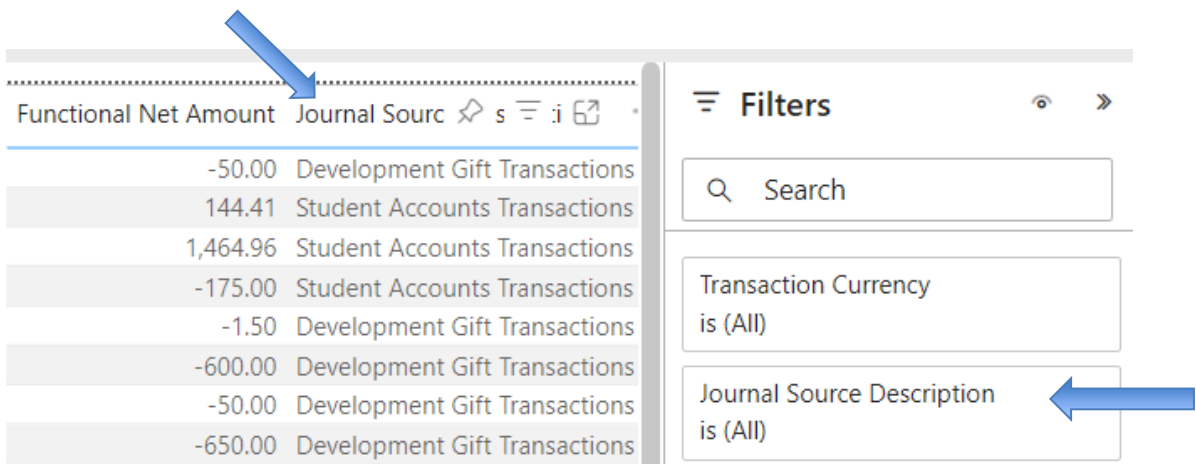
3. To find a field to add:
   a. Use the search box in the Data pane to type parts of a field name that is desired.
   b. Power BI dynamically searches as the field name or parts of a field name are entered. All fields that contain part or all of the information entered will be displayed and available for selection.
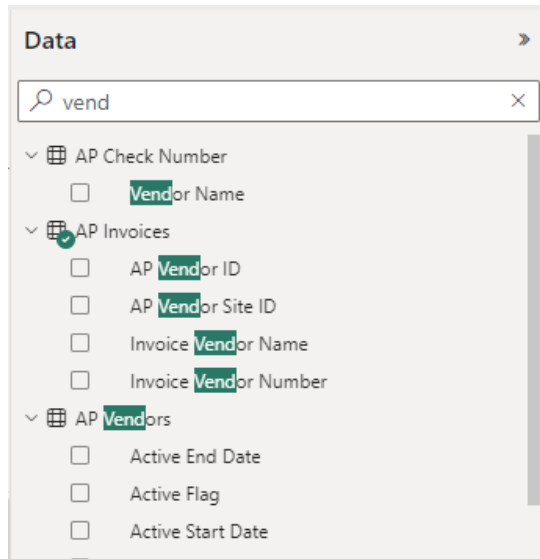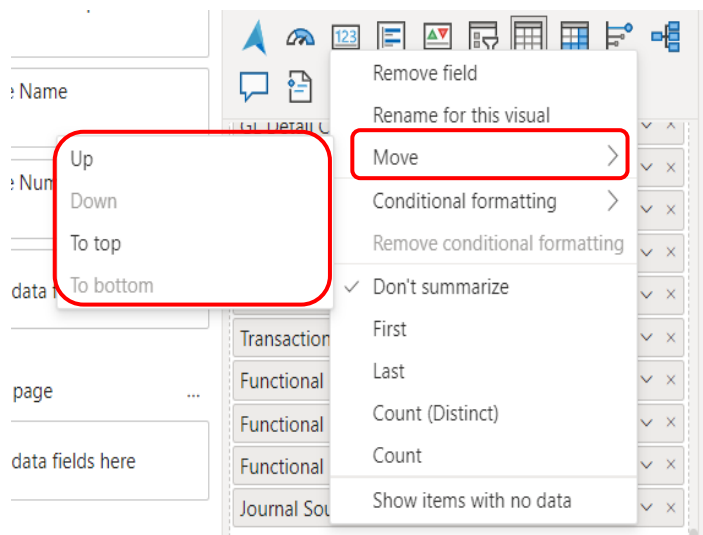
4. To move a field within the report:
   a. In the Visualizations pane, fields can be moved around in a report by dragging and dropping or by using the arrow on the field to expand the field options menu.
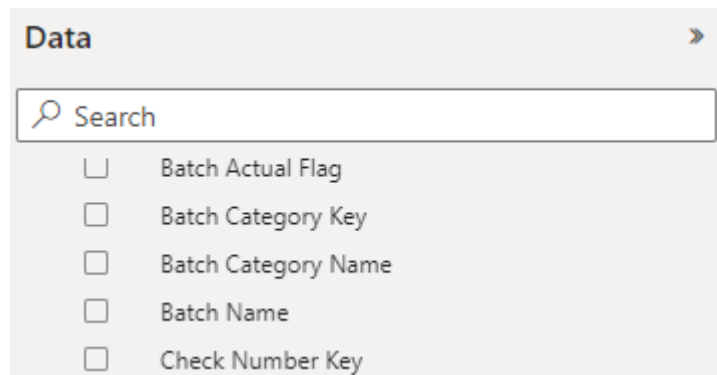

   b. With the menu expanded, the Move menu has options that can be used to move the field.

c. The report refreshes with the field moved to the chosen location within the report.

| Journal Source Name	Journal Source Description	Tracking Number	AP Vendor Name
DEVELOPMENT-BSR	Development Gift Transactions	N/A	N/A
SIS/SAR	Student Accounts Transactions	N/A	N/A
SIS/SAR	Student Accounts Transactions	N/A	N/A
SIS/SAR	Student Accounts Transactions	N/A	N/A
DEVELOPMENT-BSR	Development Gift Transactions	N/A	N/A
DEVELOPMENT-BSR	Development Gift Transactions	N/A	N/A

5. To add a field as a filter value without adding it to the report as a column in the report output:
   a. In the Data pane, find the desired field to add to the report by clicking on the arrow to expand the table and display available fields. For this example, we'll choose to add the 'Batch Name' to the filter list.

Data »

🔍 Search

- ☐ Batch Actual Flag
- ☐ Batch Category Key
- ☐ Batch Category Name
- ☐ Batch Name
- ☐ Check Number Key

   b. Rather than clicking in the checkbox next to the Batch Name field to add it to the report, drag and drop the field to the Filters pane wherever you want it to appear. Power BI will automatically refresh the filter values associated with the field.
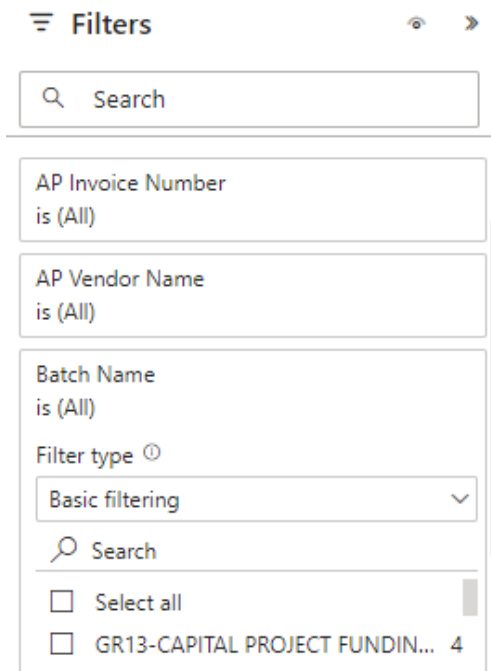
c. You can also click the three dot, More Options, button and select Add to filters.
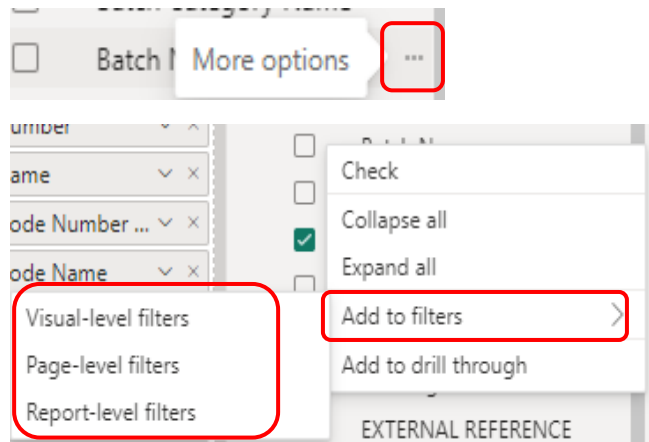
d. You can select to add the field to only this visuals filters, all report visuals on the page, or all report visuals on every page.

6. To remove a field that is included as a filter value:

a. If the field has been added only to be used as a Filter and is not in the Visualization field list, use the x in the top right of the field to remove the field from the Filters list.
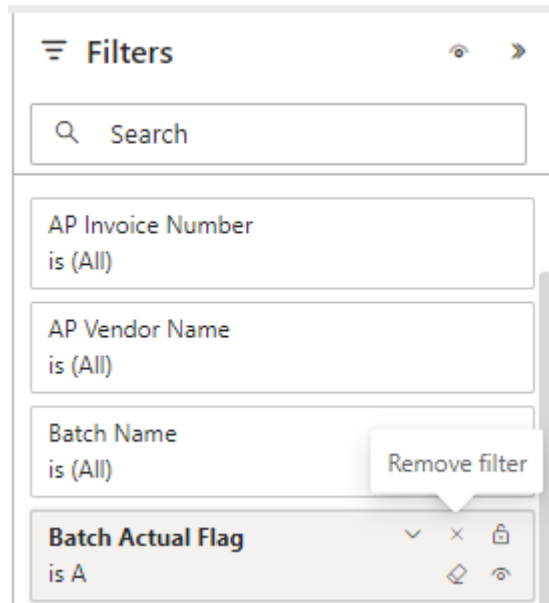

b. All fields that are included in the report output (found in the Visualization field list) must be removed from the report output before they are able to be removed from the Filter list. By default, all fields added to either the column, row, or values on the Visualization pane are added to the Filter pane list. The field must first be removed from the Visualization Pane because it is included in the report output. Use the $\times$ on the field name to remove the field from the Visualization pane and then follow the steps above to remove the filter.

Saving Changes to the Report

1. Once finished making modifications to the report, click on the Save icon in the menu bar to save the changes and overwrite the original report.
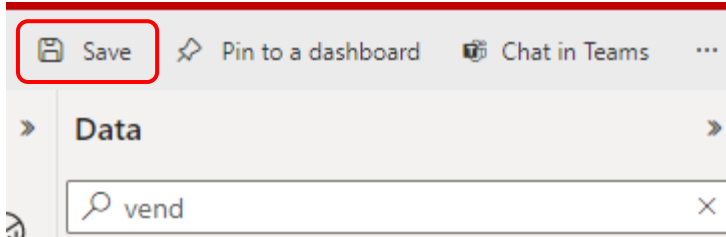
2. To save the changes as another version/name of the report click the File menu, then the Save As option.
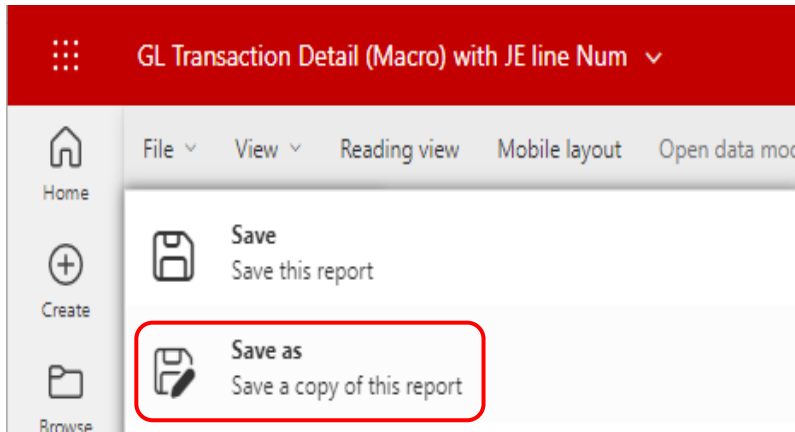
a. Enter a name for the modified report. The report should be saved to the My Workspace destination.