

# HOW TO CREATE REPORTS IN MICROSOFT POWER BI



In this article, we'll show you how to create reports with Microsoft BI.

The approach of Microsoft Power BI is a bit different than other products—it's not always clear. The basic procedure is to repeat the steps below for each widget (graphical object) that you want on the report.

You can follow along in this article without doing the tutorial yourself. If you do want to work with it, we'll use the same banking data from .csv files [that we used previously](#), so review that to have some data to work with.

Let's get started.

*(This article is part of our [Power BI Guide](#). Use the right-hand menu to navigate.)*

## How Power BI works: repeating pattern of steps

You can think of any report as a dashboard. A widget is some kind of visual display: a chart, a table, or just a single metric displayed in a text box.

The basic procedure is to repeat this process for each widget:

1. Create a data source
2. Run a transformation (Optional)
3. Create a query or data model

4. Pick a visualization
5. Select fields
6. Arrange visualization on dashboard

## How to create Power BI reports

To illustrate, let's move through each of these steps. First, we create a data source. That connects to a file, like a .csv, or a database.

Next, you have the option to run a **transformation**. In our example, we use financial data. We will:

- Apply a filter to select only negative values (payments)
- Drop and rename columns
- Optionally apply a function, such as an aggregation

Step 3 is the natural result of step 2, because you have built up a query in stages.

Alternatively, at this point, you could create a data model. For example, if you have sales and inventory movements in two data sources you can model that. You would create a model to show the common element between tables: product number. (But in the example we're using, we only have a single data source.)

In step 4, you create a visualization. In this example, we will have a table of transactions. A table is a row and column display. We will also have a single **card** (like a text box) to show a single number, the maximum transaction amount.

Next, we'll pick fields from step 4. Finally, in the last step, we'll position the visualizations on the dashboard.

Now, let's walk through an actual example.

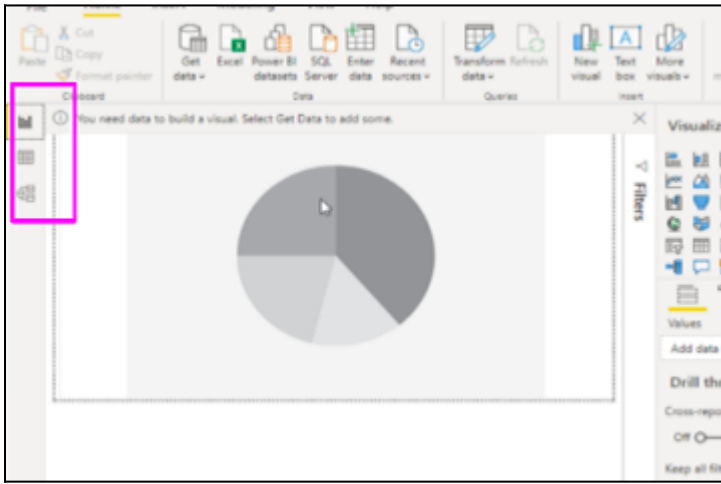
## A hands-on tutorial

Here is the landing page for BI. By default, it shows a pie chart with no data. Notice the three icons on the left:

- Dashboard
- Queries
- Data model

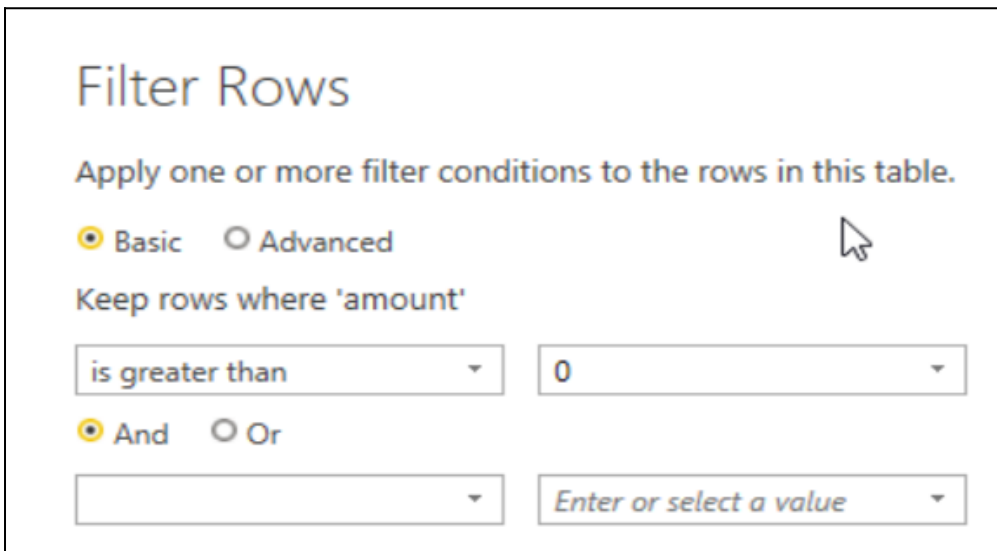
## Adding the first visualization

The logical place to start is to select a **data source**.



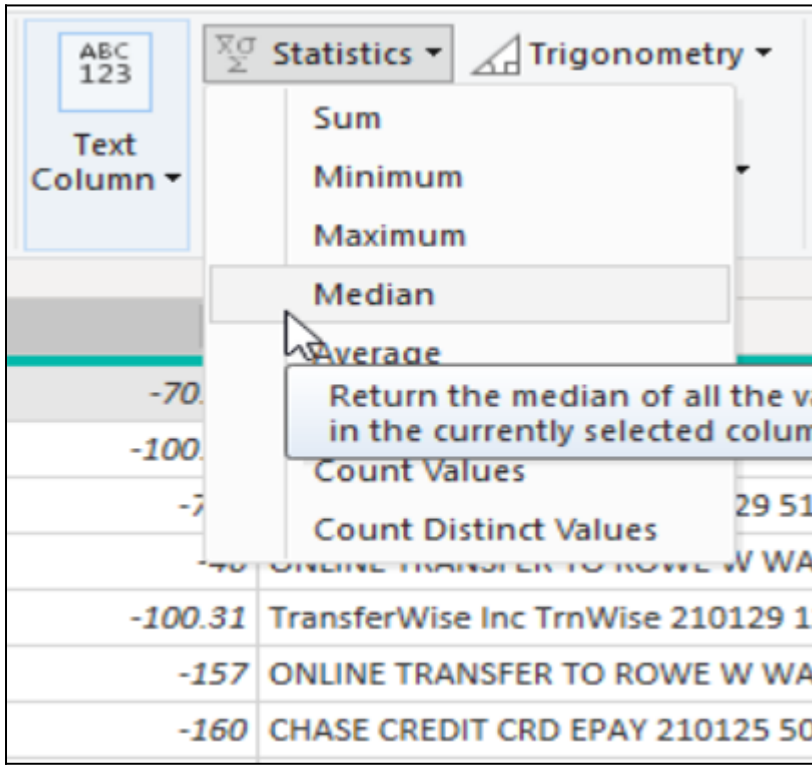
The basic procedure is to load and optionally select **transform**. In most cases, you would want to do a transformation.

For example, let's click a column, then apply a filter to only have negative values (payments):



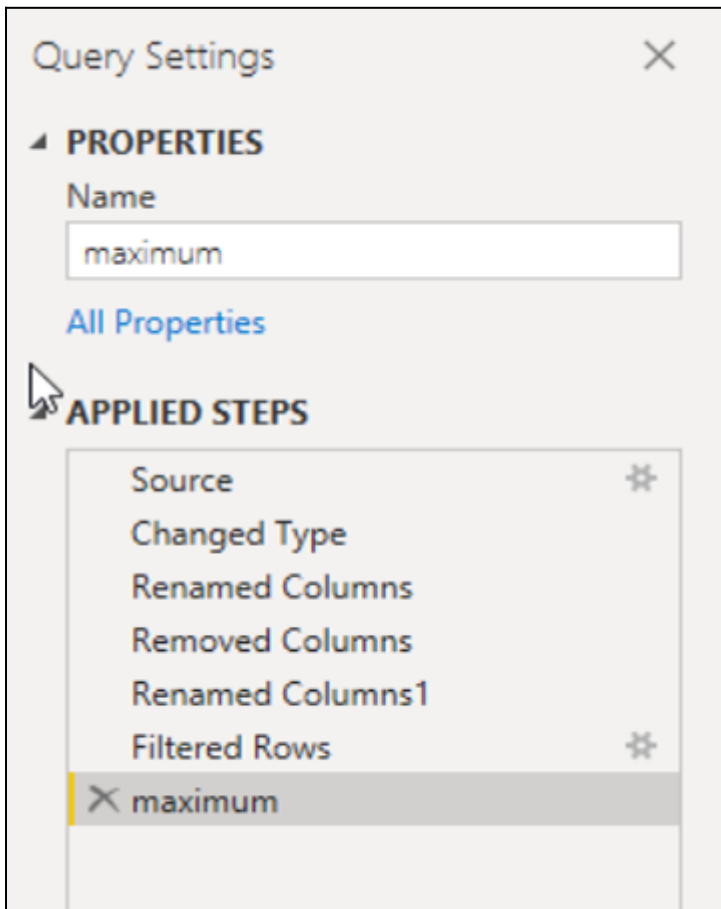
Here we select a numeric column, **amount**. Because it's a number, we can run a math or aggregation function on it.

We select the **Statistics** function **Maximum**:

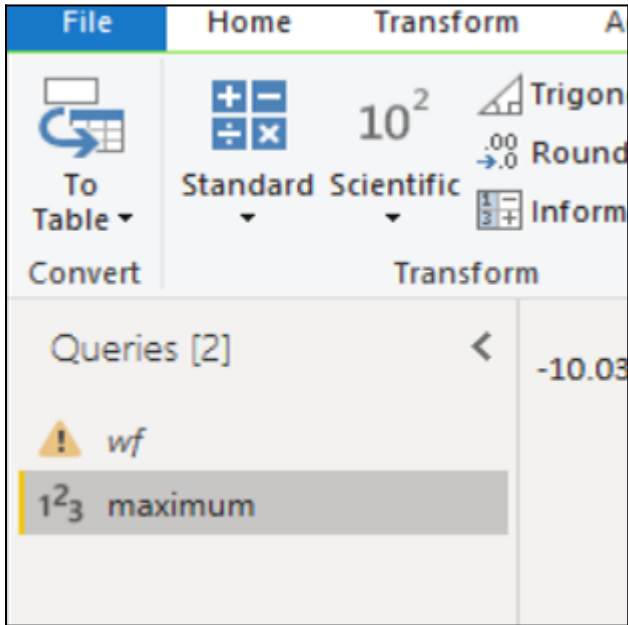


The result is a scalar (single value), as opposed to a row in a row-column table.

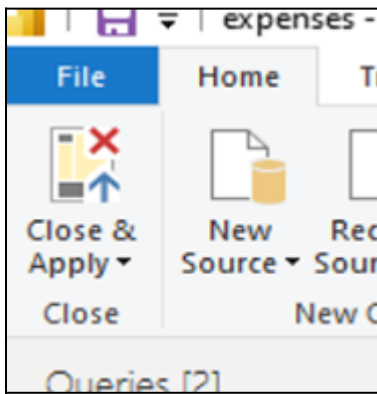
Now click on the new field and give it a meaningful name. Notice that BI keeps track of the steps we have taken.



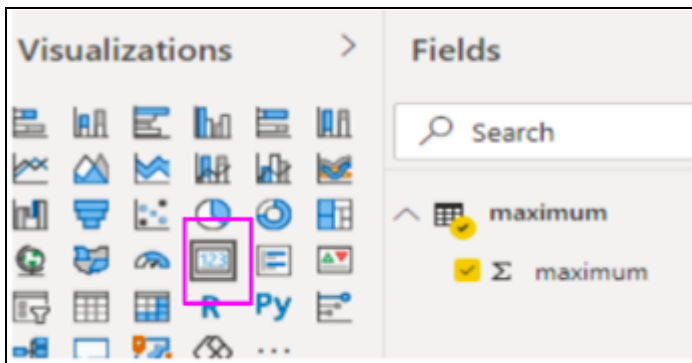
You'll also want to rename the query. At this point, BI calls the results of the transformation a **query**.



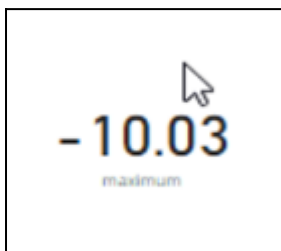
Click the **close & apply** button to close the Power BI editor and return to the dashboard view.



Select the **card** visualization, then select field **maximum** from the query **maximum**.



The card is added to the report:

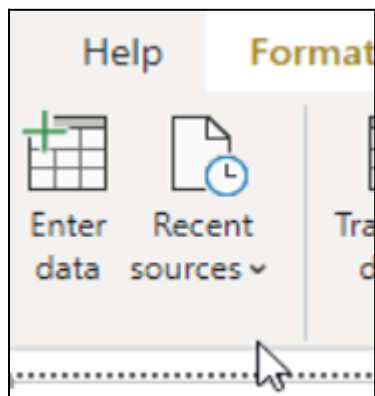


## Adding more visualizations

Now we can add another visualization to show how to build up your report.

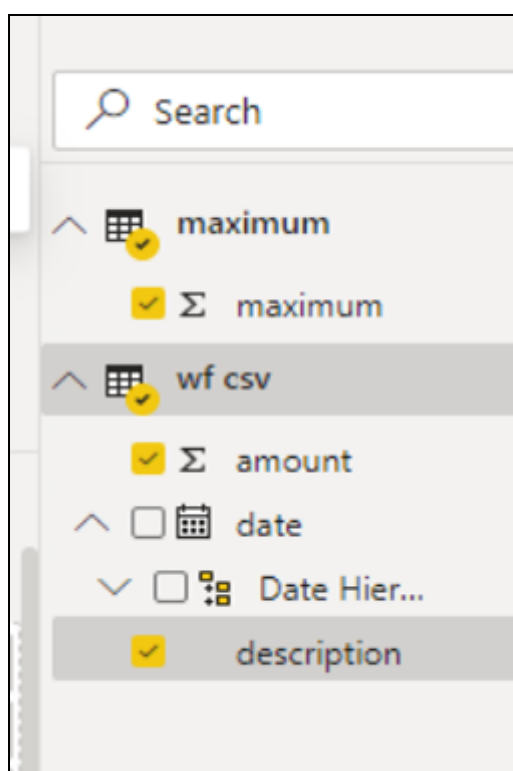
We will make a table. Select **recent sources** and pick the same .csv file. Importantly, we have to go

all the way back to the beginning data source because we turned the first source into a query. (We can't use the query to make a table, since it's already transformed into a scalar.)



Now we have two queries:

- **wf** is a table
- **maximum** is the data source or the card visualization



Here's what the table looks like when attached to the dashboard:

maximum	amount	description
-10.03	-385.25	AMERICAN EXPRESS ACH PMT 210122 W0756 WALKER ELLIOTT ROWE
-10.03	-206.00	AMERICAN EXPRESS ACH PMT 210122 W3748 WALKER ELLIOTT ROWE
-10.03	-50.00	CHASE CREDIT CRD EPAY 210112 5077258610 WALKER E ROWE
-10.03	-215.00	CHASE CREDIT CRD EPAY 210116 5085043269 WALKER E ROWE
-10.03	-160.00	CHASE CREDIT CRD EPAY 210125 5088442683 WALKER E ROWE
-10.03	-700.00	CHASE CREDIT CRD EPAY 210129 5104886436 WALKER E ROWE
-10.03	-157.00	ONLINE TRANSFER TO ROWE W WAY2SAVE SAVINGS XXXXXXXXXXXX/123 REF #B09WELJCH DN 12/31/20
-10.03	-46.00	ONLINE TRANSFER TO ROWE W WAY2SAVE SAVINGS XXXXXXXXXXXX/123 REF #B09K89P5 DN 01/01/21
-10.03	-118.00	ONLINE TRANSFER TO ROWE W WAY2SAVE SAVINGS XXXXXXXXXXXX/123 REF #B09LC8PY9 DN 01/01/21
-10.03	-46.00	ONLINE TRANSFER TO ROWE W WAY2SAVE SAVINGS XXXXXXXXXXXX/123 REF #B09LM86HK DN 01/08/21
-10.03	-307.00	ONLINE TRANSFER TO ROWE W WAY2SAVE SAVINGS XXXXXXXXXXXX/123 REF #B09MLKWCH DN 01/14/21
-10.03	-46.00	ONLINE TRANSFER TO ROWE W WAY2SAVE SAVINGS XXXXXXXXXXXX/123 REF #B09MYDWB4 DN 01/15/21
-10.03	-46.00	ONLINE TRANSFER TO ROWE W WAY2SAVE SAVINGS XXXXXXXXXXXX/123 REF #B09NMMWIN DN 01/20/21
-10.03	-176.00	ONLINE TRANSFER TO ROWE W WAY2SAVE SAVINGS XXXXXXXXXXXX/123 REF #B09NKH2WW DN 01/21/21
-10.03	-46.00	ONLINE TRANSFER TO ROWE W WAY2SAVE SAVINGS XXXXXXXXXXXX/123 REF #B09PK5LV DN 01/25/21
-10.03	-157.00	ONLINE TRANSFER TO ROWE W WAY2SAVE SAVINGS XXXXXXXXXXXX/123 REF #B09Q26Q3DN DN 01/28/21
-10.03	-46.00	ONLINE TRANSFER TO ROWE W WAY2SAVE SAVINGS XXXXXXXXXXXX/123 REF #B09Q1H385 DN 01/31/21
-10.03	-677.63	TransferWise Inc IrnWise 210104 12373180 Walker Rowe
-10.03	-150.47	TransferWise Inc IrnWise 210104 12373180 Walker Rowe
-10.03	-150.47	TransferWise Inc IrnWise 210104 12388186 Walker Rowe
-10.03	-100.51	TransferWise Inc IrnWise 210104 12388212 Walker Rowe
-10.03	-40.12	TransferWise Inc IrnWise 210104 12392421 Walker Rowe
-10.03	-50.16	TransferWise Inc IrnWise 210105 12442277 Walker Rowe
-10.03	-46.61	TransferWise Inc IrnWise 210108 12502194 Walker Rowe
-10.03	-200.62	TransferWise Inc IrnWise 210108 12502219 Walker Rowe
-10.03	-390.00	TransferWise Inc IrnWise 210108 12502256 Walker Rowe
-10.03	-10.03	TransferWise Inc IrnWise 210108 12512684 Walker Rowe
-10.03	-175.00	TransferWise Inc IrnWise 210111 12523000 Walker Rowe
-10.03	-25.52	TransferWise Inc IrnWise 210111 12523007 Walker Rowe
-10.03	-158.49	TransferWise Inc IrnWise 210111 12546613 Walker Rowe
-10.03	-490.62	TransferWise Inc IrnWise 210115 12618544 Walker Rowe
-10.03	-123.31	TransferWise Inc IrnWise 210115 12618562 Walker Rowe

The text looks annoyingly small and graphic-like. It's not like a spreadsheet, which would be clear and easy to read. (We will show how to clean that up in an upcoming tutorial.)

Finally, move the card over to make room for the table. Select the corner so you can resize it.



That concludes this tutorial. Now, you can begin building your reports with repeating the widget pattern.

## Related reading

- [BMC Machine Learning & Big Data Blog](#)
- [Power BI: Create Pie Chart with Power Query Editor](#)
- [Data Visualization Guide](#), a series of tutorials
- [Data Storage Explained: Data Lake vs Warehouse vs Database](#)
- [Enabling the Citizen Data Scientists](#)
- [MySQL vs MongoDB: Comparing Databases](#)