

CREATING & USING LINKED TABLES IN POWER BI



One good thing about Power BI is that when you add two tables to a dashboard they are synchronized.

So, when you click on one table, the linked table filters on that selected value. (It uses [relationships between tables](#) to do that, which we've previously explained.)

Let's take a look at how this works.

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

How to create linked tables

To illustrate, below is a report (dashboard) we want to make:

- On the left, we have transaction categories from our financial accounts
- On the right, transaction details.

The data is from the transactions.csv data file. (You can download your bank statement if you want to follow along.)

The data on the left is **categories**. The data on the right are **transactions**.

To put this in terms of SQL, the data on the left is basically the data:

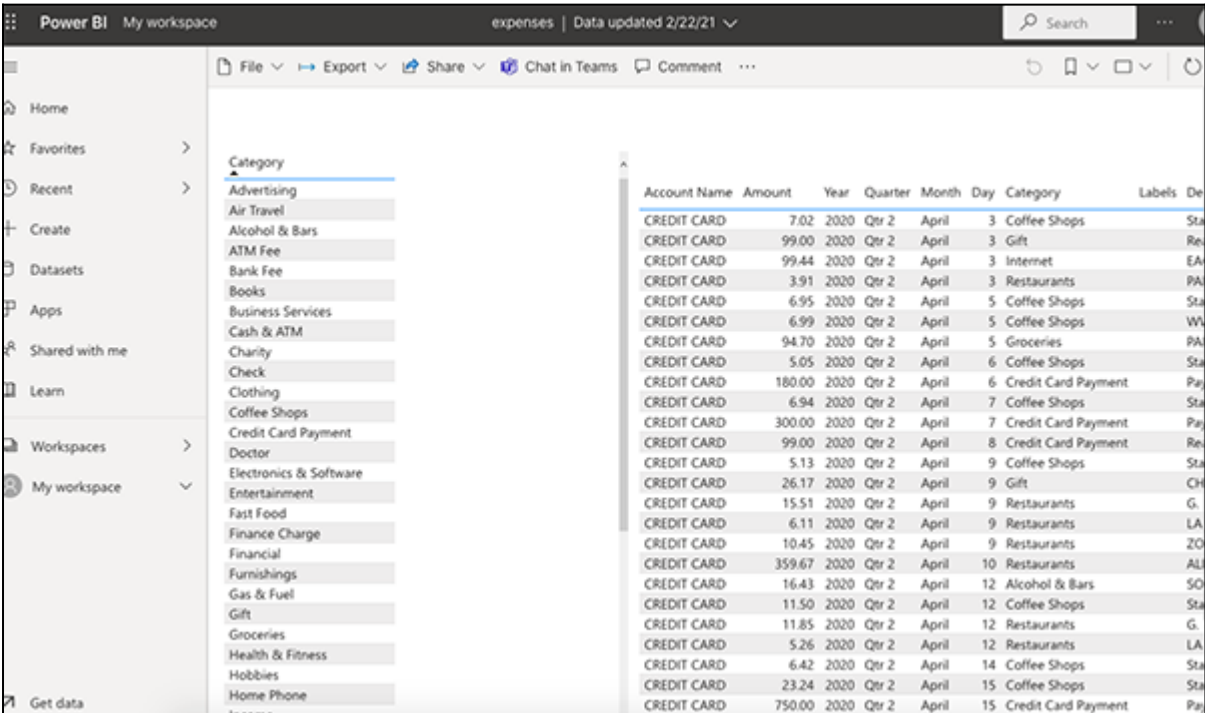
```
select category, count(*) from transactions
```

The data on the right is:

Select * from transactions

We use the relationship wizard in Power BI to join them on the common element **category**. Then when we put two tables on the dashboard, Power BI uses this relationship to let us drill into the tables by category. In other words, we can see all our office expenses, advertising expenses, travel expenses, etc.

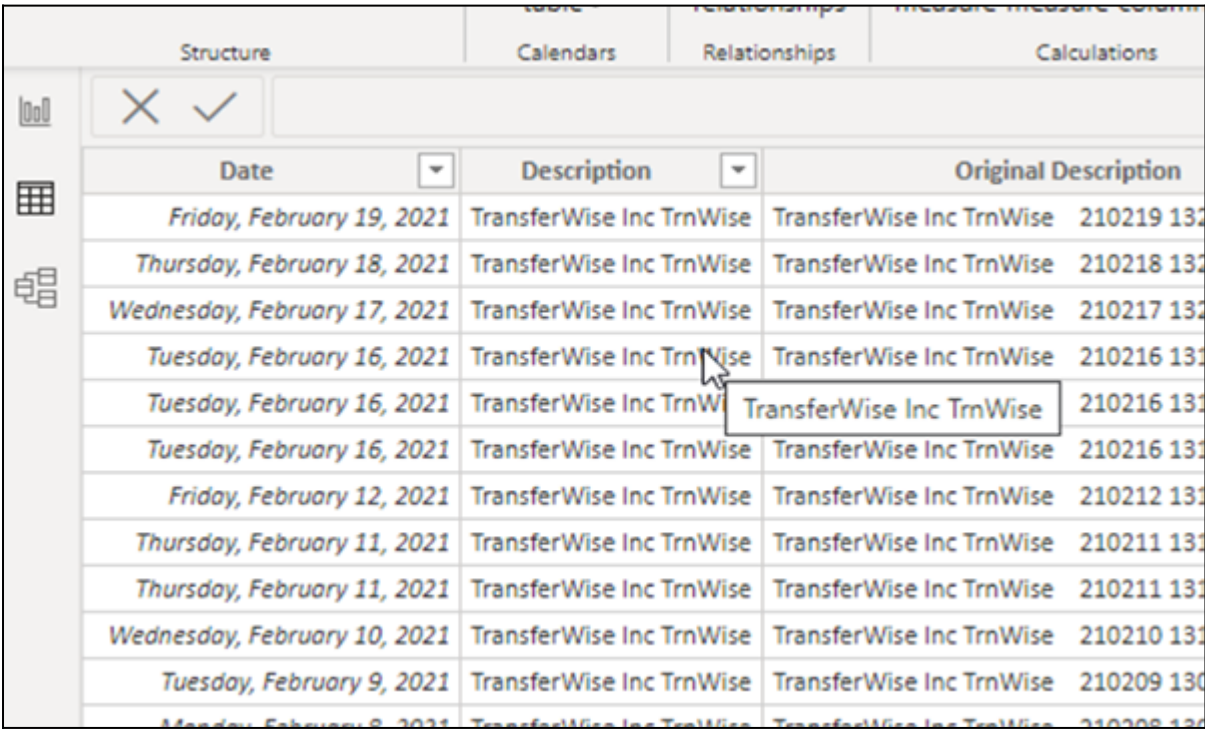
This is what the report looks like when we [publish it](#) to powerbi.com:



The screenshot shows the Power BI interface. On the left, there is a sidebar with navigation options: Home, Favorites, Recent, Create, Datasets, Apps, Shared with me, Learn, Workspaces, and My workspace. The 'My workspace' section is expanded, showing a list of categories: Advertising, Air Travel, Alcohol & Bars, ATM Fee, Bank Fee, Books, Business Services, Cash & ATM, Charity, Check, Clothing, Coffee Shops, Credit Card Payment, Doctor, Electronics & Software, Entertainment, Fast Food, Finance Charge, Financial, Furnishings, Gas & Fuel, Gift, Groceries, Health & Fitness, Hobbies, and Home Phone. The main area displays a table of transaction details with columns: Account Name, Amount, Year, Quarter, Month, Day, Category, and Labels. The table contains 20 rows of data, all from 2020 Qtr 2, April.

Account Name	Amount	Year	Quarter	Month	Day	Category	Labels
CREDIT CARD	7.02	2020	Qtr 2	April	3	Coffee Shops	Sta
CREDIT CARD	99.00	2020	Qtr 2	April	3	Gift	Re
CREDIT CARD	99.44	2020	Qtr 2	April	3	Internet	EA
CREDIT CARD	3.91	2020	Qtr 2	April	3	Restaurants	PA
CREDIT CARD	6.95	2020	Qtr 2	April	5	Coffee Shops	Sta
CREDIT CARD	6.99	2020	Qtr 2	April	5	Coffee Shops	WV
CREDIT CARD	94.70	2020	Qtr 2	April	5	Groceries	PA
CREDIT CARD	5.05	2020	Qtr 2	April	6	Coffee Shops	Sta
CREDIT CARD	180.00	2020	Qtr 2	April	6	Credit Card Payment	Pay
CREDIT CARD	6.94	2020	Qtr 2	April	7	Coffee Shops	Sta
CREDIT CARD	300.00	2020	Qtr 2	April	7	Credit Card Payment	Pay
CREDIT CARD	99.00	2020	Qtr 2	April	8	Credit Card Payment	Re
CREDIT CARD	5.13	2020	Qtr 2	April	9	Coffee Shops	Sta
CREDIT CARD	26.17	2020	Qtr 2	April	9	Gift	CH
CREDIT CARD	15.51	2020	Qtr 2	April	9	Restaurants	G.
CREDIT CARD	6.11	2020	Qtr 2	April	9	Restaurants	LA
CREDIT CARD	10.45	2020	Qtr 2	April	9	Restaurants	ZO
CREDIT CARD	359.67	2020	Qtr 2	April	10	Restaurants	AL
CREDIT CARD	16.43	2020	Qtr 2	April	12	Alcohol & Bars	SO
CREDIT CARD	11.50	2020	Qtr 2	April	12	Coffee Shops	Sta
CREDIT CARD	11.85	2020	Qtr 2	April	12	Restaurants	G.
CREDIT CARD	5.26	2020	Qtr 2	April	12	Restaurants	LA
CREDIT CARD	6.42	2020	Qtr 2	April	14	Coffee Shops	Sta
CREDIT CARD	23.24	2020	Qtr 2	April	15	Coffee Shops	Sta
CREDIT CARD	750.00	2020	Qtr 2	April	15	Credit Card Payment	Pay

This is what the transaction detail data looks like:

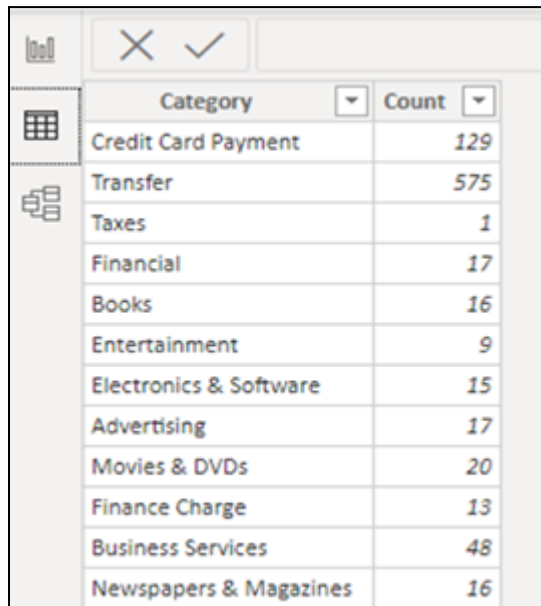


The screenshot shows a table with three columns: Date, Description, and Original Description. The table contains 12 rows of data, all from February 2021. The 'Date' column shows dates from Friday, February 19, 2021, down to Monday, February 8, 2021. The 'Description' column shows 'TransferWise Inc TrnWise' for all rows. The 'Original Description' column shows 'TransferWise Inc TrnWise' for all rows. A mouse cursor is pointing at the 'Description' column header.

Date	Description	Original Description
Friday, February 19, 2021	TransferWise Inc TrnWise	TransferWise Inc TrnWise 210219 132
Thursday, February 18, 2021	TransferWise Inc TrnWise	TransferWise Inc TrnWise 210218 132
Wednesday, February 17, 2021	TransferWise Inc TrnWise	TransferWise Inc TrnWise 210217 132
Tuesday, February 16, 2021	TransferWise Inc TrnWise	TransferWise Inc TrnWise 210216 132
Tuesday, February 16, 2021	TransferWise Inc TrnWise	TransferWise Inc TrnWise 210216 132
Tuesday, February 16, 2021	TransferWise Inc TrnWise	TransferWise Inc TrnWise 210216 132
Friday, February 12, 2021	TransferWise Inc TrnWise	TransferWise Inc TrnWise 210212 132
Thursday, February 11, 2021	TransferWise Inc TrnWise	TransferWise Inc TrnWise 210211 132
Thursday, February 11, 2021	TransferWise Inc TrnWise	TransferWise Inc TrnWise 210211 132
Wednesday, February 10, 2021	TransferWise Inc TrnWise	TransferWise Inc TrnWise 210210 132
Tuesday, February 9, 2021	TransferWise Inc TrnWise	TransferWise Inc TrnWise 210209 130
Monday, February 8, 2021	TransferWise Inc TrnWise	TransferWise Inc TrnWise 210208 132

Group by category

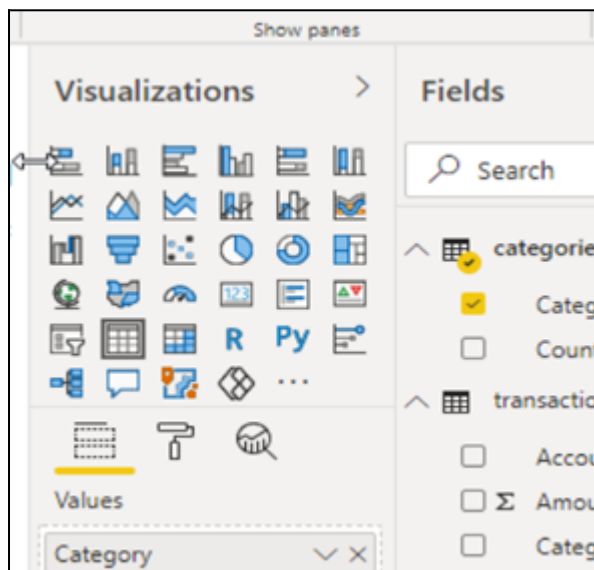
Here are the categories. To make this view of the data we add data the **data source** transactions.csv a second time, then we dropped all the columns except category. Then we pick group by category.



A screenshot of a table visualization in a data tool. The table has two columns: 'Category' and 'Count'. The 'Category' column lists various transaction types, and the 'Count' column shows the frequency of each. The table is displayed in a light gray theme with a white background for the data rows.

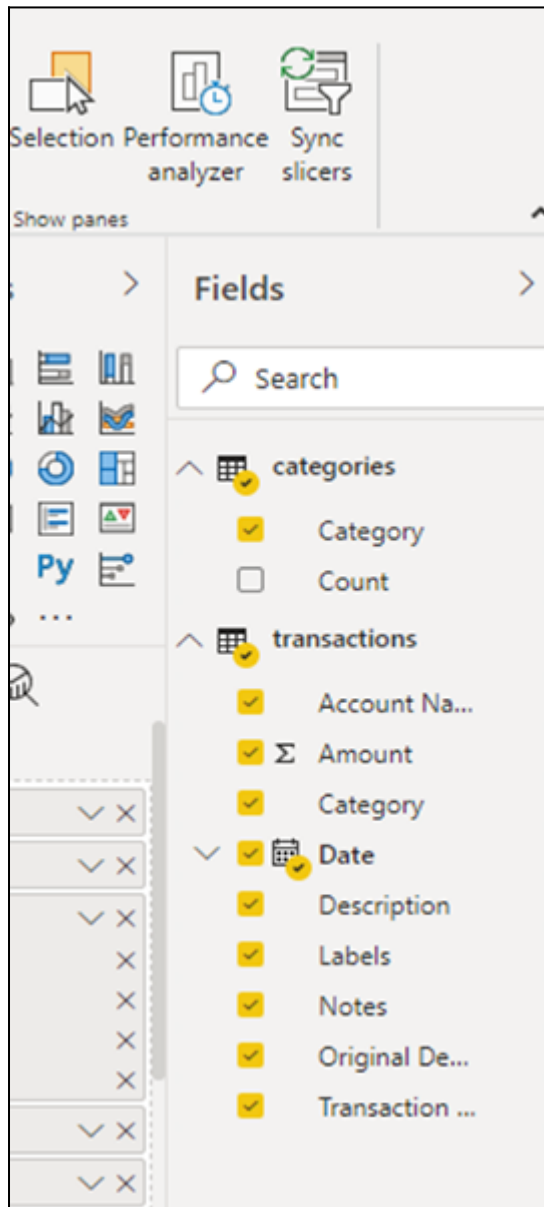
Category	Count
Credit Card Payment	129
Transfer	575
Taxes	1
Financial	17
Books	16
Entertainment	9
Electronics & Software	15
Advertising	17
Movies & DVDs	20
Finance Charge	13
Business Services	48
Newspapers & Magazines	16

Now, pick the table visualization and the fields. For the category table we obviously just pick one field, **category**.



For the transactions table we pick all the transactions fields. Under fields we have the two data sources:

- Categories
- Transactions

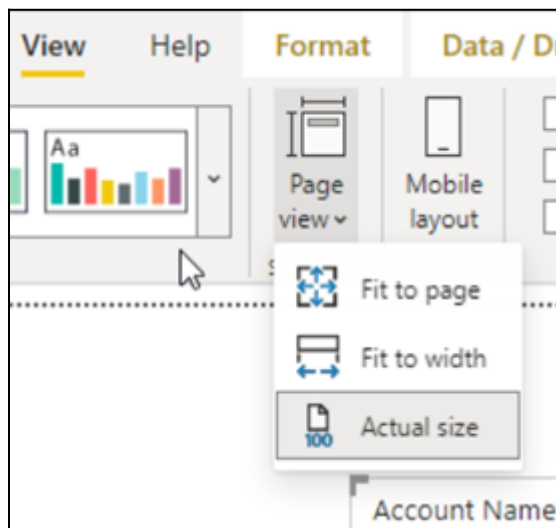


Resizing the dashboard

Here is what the tables look like when put onto the dashboard. The table and table text are too small and not positioned in the right place when we start. So, grab the edges to move them around and then go to **Page View/Actual Size** to make them large enough to read.

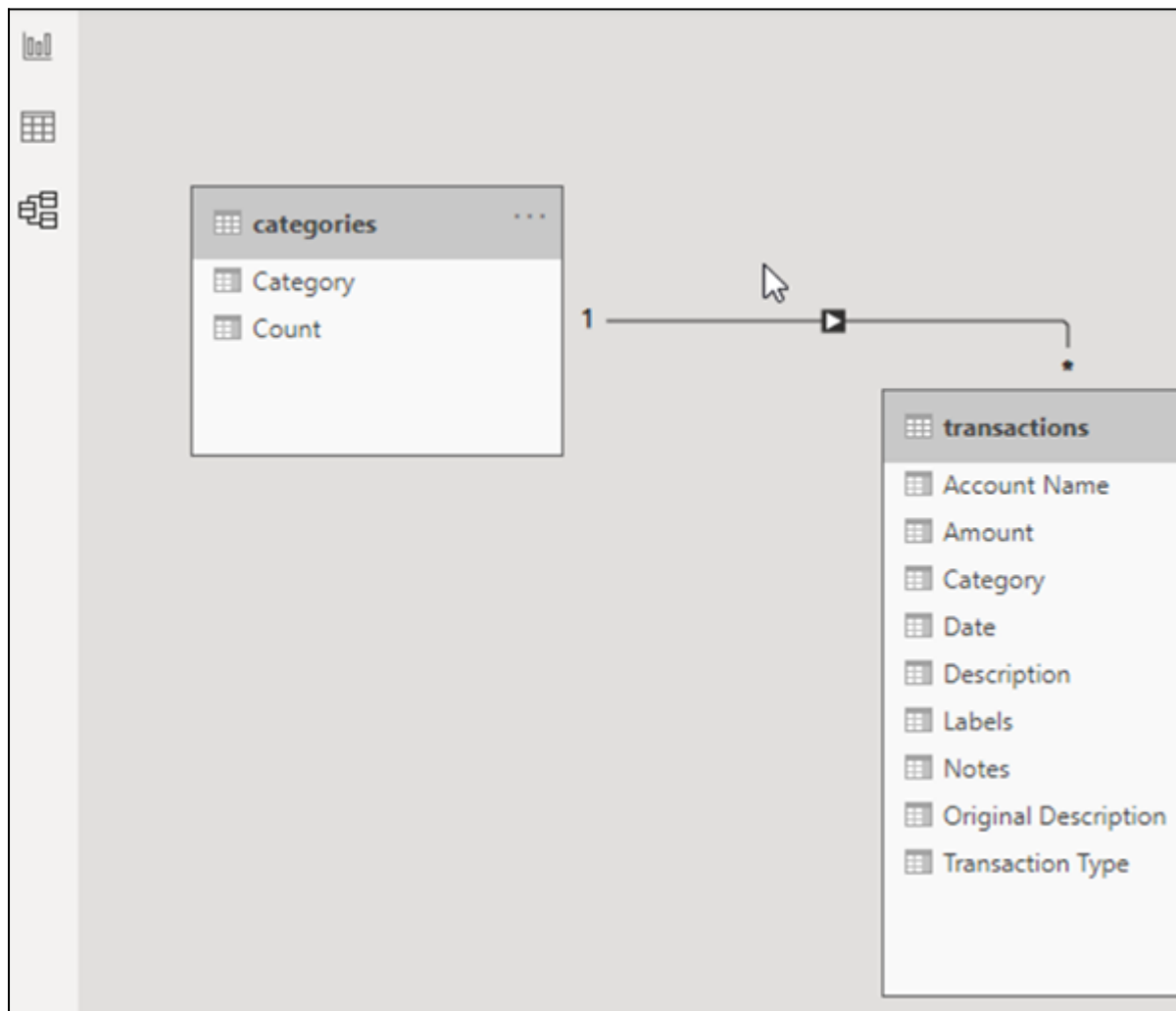
The screenshot shows the Power BI Desktop interface with the 'View' tab selected. The ribbon includes 'File', 'Home', 'Insert', 'Modeling', 'View', 'Help', 'Format', and 'Data / Drill'. The 'View' ribbon has options for 'Page view' (with a dropdown), 'Mobile layout', 'Gridlines', 'Snap to grid', 'Lock objects', 'Filters', and 'Bookmarks'. The 'Page view' dropdown is open, showing 'Fit to page', 'Fit to width', and 'Actual size'. The 'Mobile layout' option is also visible. The 'Data / Drill' ribbon is partially visible. The main area shows a list of categories on the left and a data table on the right.

Category	Account Name	Amount	Year	Quarter	Month
Advertising	CREDIT CARD	7.02	2020	Qtr 2	Apr
Air Travel	CREDIT CARD	99.00	2020	Qtr 2	Apr
Alcohol & Bars	CREDIT CARD	99.44	2020	Qtr 2	Apr
ATM Fee	CREDIT CARD	3.91	2020	Qtr 2	Apr
Bank Fee	CREDIT CARD	6.95	2020	Qtr 2	Apr
Books	CREDIT CARD	6.99	2020	Qtr 2	Apr
Business Services	CREDIT CARD	94.70	2020	Qtr 2	Apr
Cash & ATM	CREDIT CARD	5.05	2020	Qtr 2	Apr
Charity	CREDIT CARD	180.00	2020	Qtr 2	Apr
Check	CREDIT CARD	6.94	2020	Qtr 2	Apr
Clothing	CREDIT CARD	300.00	2020	Qtr 2	Apr
Coffee Shops	CREDIT CARD	99.00	2020	Qtr 2	Apr
Credit Card Payment	CREDIT CARD	5.13	2020	Qtr 2	Apr
Doctor	CREDIT CARD	26.17	2020	Qtr 2	Apr
Electronics & Software	CREDIT CARD	15.51	2020	Qtr 2	Apr
Entertainment	CREDIT CARD	6.11	2020	Qtr 2	Apr
Fast Food	CREDIT CARD	10.45	2020	Qtr 2	Apr
Finance Charge					



Viewing relationships

Here is the **relationship** screen. We don't have to do anything as power BI matches by the common element, category.



When designing the table, before we publish it to powerbi.com, we can test it. We cannot see the layout very well, meaning the full screen size or mobile layout.

But we can click on the category on the left. Then the table on the right updates to show only transactions in that selected category. You could call this **synchronized tables**.

Category	Account Name	Amount	Year	Quarter	Month
Advertising	CREDIT CARD	54.88	2020	Qtr 2	May
Air Travel	CREDIT CARD	17.84	2020	Qtr 2	May
Alcohol & Bars	CREDIT CARD	6.88	2020	Qtr 2	May
ATM Fee	CREDIT CARD	9.76	2020	Qtr 2	May
Bank Fee	CREDIT CARD	17.84	2020	Qtr 2	June
Books	CREDIT CARD	15.83	2020	Qtr 2	June
Business Services	CREDIT CARD	17.84	2020	Qtr 3	July
Cash & ATM	CREDIT CARD	17.84	2020	Qtr 3	August
Charity	CREDIT CARD	17.84	2020	Qtr 3	September
Check	CREDIT CARD	17.84	2020	Qtr 4	October
Clothing	CREDIT CARD	17.84	2020	Qtr 4	November
Coffee Shops	CREDIT CARD	16.75	2020	Qtr 4	November
Credit Card Payment	CREDIT CARD	17.84	2020	Qtr 4	December
Doctor	CREDIT CARD	17.84	2021	Qtr 1	January
Electronics & Software	CREDIT CARD	17.84	2021	Qtr 1	February
Entertainment	Green Card	2.99	2020	Qtr 2	April
Fast Food	Green Card	14.99	2020	Qtr 2	April
Finance Charge					
Financial					
Furnishings					

Viewing full-size


As always, click Publish to Power BI to test the final version. And as we just said, it's really the only way to see the full-sized screen as Power BI Desktop does not have a very good preview function.

Publishing to Power BI

✓ Success!

Open 'expenses.pbix' in Power BI

Get Quick Insights

 **Did you know?**
 You can create a portrait view of your report, tailored for mobile phones.
 On the **View** tab, select **Mobile Layout**. [Learn more](#)

Got it

Related reading

- [BMC Machine Learning & Big Data Blog](#)
- [Power BI Basics: Creating a 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](#)