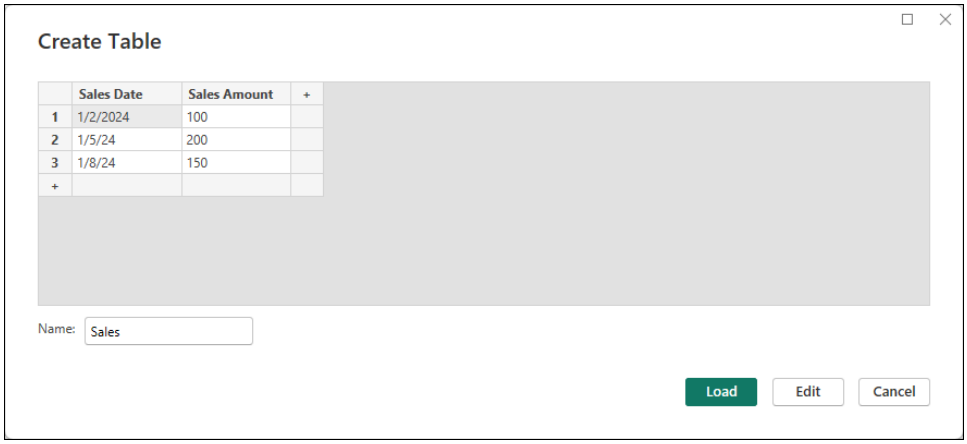
# Why Every Power BI Report Needs a Date Table

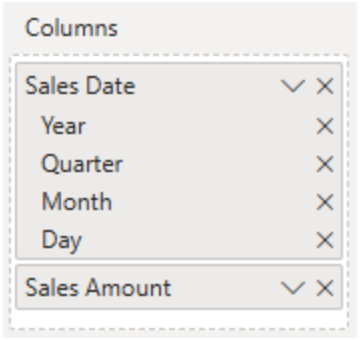
In this exercise you will see that DAX time-intelligence formulas work *incorrectly* without a Date Table. You will then see that the formula works correctly after you add a date table and relate it to your data table.

1. Load a Simple Data Set:

   Use the Home > Data > Enter data feature to create a new table named **`Sales`**.




2. Add a Table Visualization with the **Sales Date** and **Sales Amount** fields.

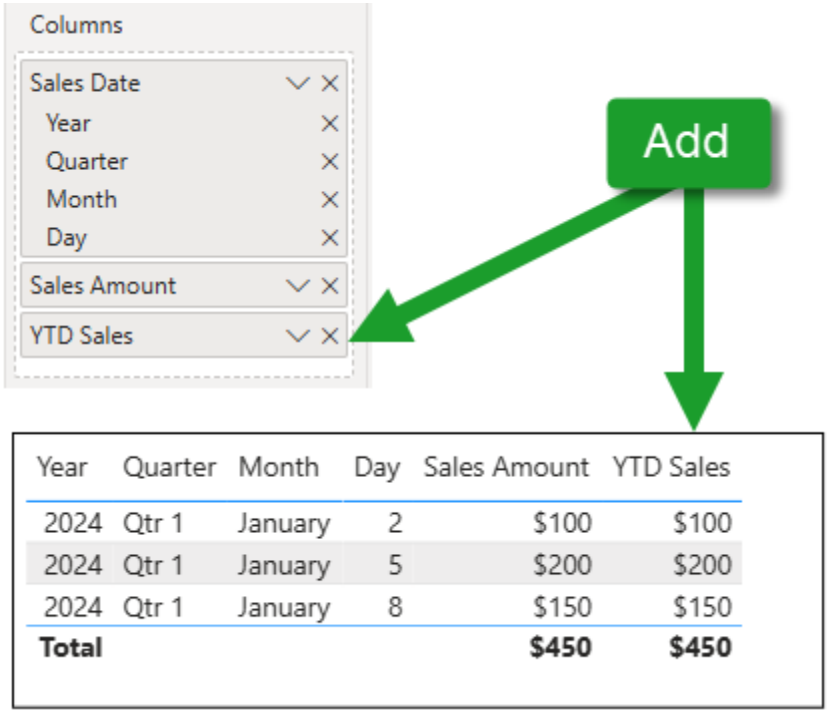



| Year | Quarter | Month | Day | Sales Amount |
|---|---|---|---|---|
| 2024 | Qtr 1 | January | 2 | $100 |
| 2024 | Qtr 1 | January | 5 | $200 |
| 2024 | Qtr 1 | January | 8 | $150 |
| **Total** | | | | **$450** |

3. Create a **YTD Sales** measure with the following formula:

```
YTD Sales = TOTALYTD(SUM(Sales[Sales Amount]), Sales[Sales Date])
```

4. Add the YTD Sales measure to the table visual.




| Year | Quarter | Month | Day | Sales Amount | YTD Sales |
|---|---|---|---|---|---|
| 2024 | Qtr 1 | January | 2 | $100 | $100 |
| 2024 | Qtr 1 | January | 5 | $200 | $200 |
| 2024 | Qtr 1 | January | 8 | $150 | $150 |
| **Total** | | | | **$450** | **$450** |

Notice the YTD Sales are not correct. The YTD Sales for January 5th should be $300 ($100 + $200).

5. Add a new table named `Report Calendar`.

   a. In the Data Pane, select the **Sales table**.
   b. Table tools > New table.
   c. Enter the following formula:

```
Report Calendar = ADDCOLUMNS(
    CALENDARAUTO()
,   "Year",Year([Date])
,   "Month", Month([Date])
,   "Month Name", Format([Date], "MMMM")
)
```

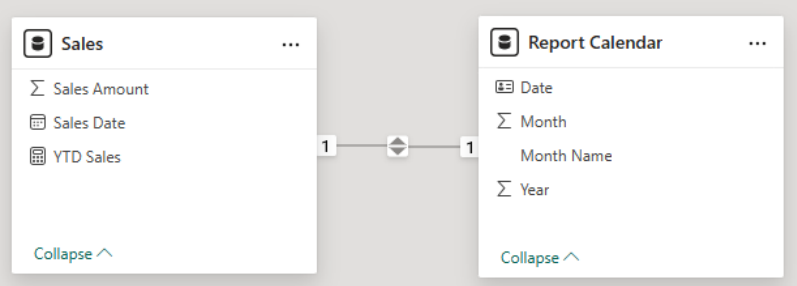
6. Mark the **Report Calendar** table as a **Date Table**.

   a. In the Data Pane, select the **Report Calendar**.
   b. Table tools > Mark as date table.

7. Create a relationship between the **Report Calendar** and the **Sales** tables via the two date fields. You can use either the Modeling View method or the Manage Relationships method.

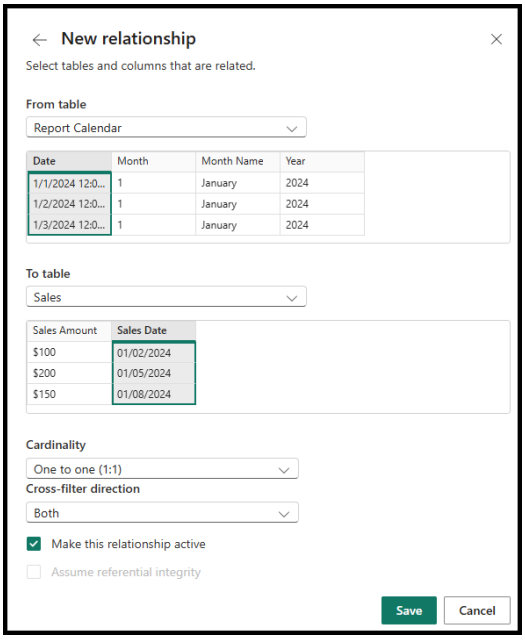
### Modeling View method

a. Go to the Modeling view.
b. Drag the **Report Calendar**'s **Date** field to the **Sales** table's Sales Date field.




### Manage Relationships method

a. Modeling > Manage Relationships.
b. Click the + New Relationship button.
c. Set From table to `Report Calendar`.
d. Click the `Date` column.
e. Set To table to `Sales`.
f. Click the `Sales Date` column.
g. Click the Save button and then the Close button.



Notice the YTD Sales now reflects accurate values.

| Year | Quarter | Month | Day | Sales Amount | YTD Sales |
|---|---|---|---|---|---|
| 2024 | Qtr 1 | January | 2 | $100 | $100 |
| 2024 | Qtr 1 | January | 5 | $200 | $200 |
| 2024 | Qtr 1 | January | 8 | $150 | $150 |
| **Total** | | | | **$450** | **$450** |

*Before*

| Year | Quarter | Month | Day | Sales Amount | YTD Sales |
|---|---|---|---|---|---|
| 2024 | Qtr 1 | January | 2 | $100 | $100 |
| 2024 | Qtr 1 | January | 5 | $200 | $300 |
| 2024 | Qtr 1 | January | 8 | $150 | $450 |
| **Total** | | | | **$450** | **$450** |

*After*