✓ **Congratulations! You passed!**

Grade received 100%   **To pass** 100% or higher

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Hands-On Activity: Combine multiple pieces of data

Total points 2

1.

1 / 1 point

Activity overview

In previous activities, you gained experience using spreadsheet functions for manipulating and cleaning data. In this activity, you'll use the CONCAT and CONCATENATE functions to help you quickly and efficiently combine multiple pieces of raw data into new data.

By the time you complete this activity, you will be able to use these functions to combine data. This will enable you to simplify and condense data, which is important for processing and cleaning data in your career as a data analyst.

What you will need

To get started, you will need the CONCAT function exercise spreadsheet.

To use the template for the spreadsheet, click the link below and select "Use Template."

Link to template: <u>CONCAT Function Exercise Spreadsheet</u>

OR

If you don't have a Google account, you can download the spreadsheet directly from the attachment below.

📄 **Dataset for Project_ CONCAT function** XLSX File	Download file ↓

Using the CONCAT and CONCATENATE functions

Occasionally, you will encounter a dataset with data values in separate cells that you want to combine as a single value in a single cell. This is common when dealing with names and dates. The dataset may have separate columns for first names and last names, but you may want a column with the full names.

City/state and month/year combinations are also often desirable to have together, as they are likely to be recorded together.
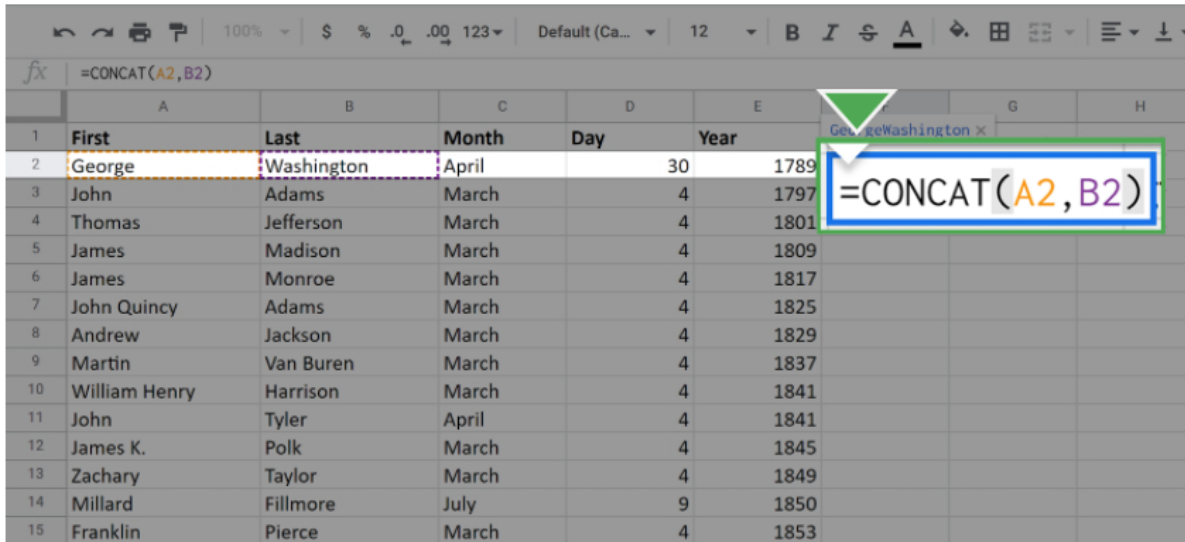
The **CONCAT** function in spreadsheets can combine these kinds of data.

Combining data from two cells

First, using the spreadsheet you downloaded, you'll combine the two sets of names in columns **First Name** and **Last Name** in a new column called **Full Name**.

To do this, follow these steps:

1. Click on cell **F2**. This is where you start the data for the new column. After you click on the cell, type **=CONCAT(A2,B2)** into the function bar and hit **Enter (Windows)** or **Return (Mac)**.

Once you press enter, the following data should appear in the cell:
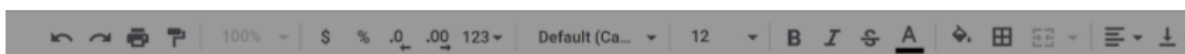
A	B	C	D	E	F	G
First	Last	Month	Day	Year		
George	Washington	April	30	17	GeorgeWashington	
John	Adams	March	4	179		
Thomas	Jefferson	March	4	1801		
James	Madison	March	4	1809		
James	Monroe	March	4	1817		
John Quincy	Adams	March	4	1825		
Andrew	Jackson	March	4	1829		
Martin	Van Buren	March	4	1837		
William Henry	Harrison	March	4	1841		
John	Tyler	April	4	1841		
James K.	Polk	March	4	1845		
Zachary	Taylor	March	4	1849		
Millard	Fillmore	July	9	1850		
Franklin	Pierce	March	4	1853		

You have merged or, technically, **concatenated** the two data values from cells **A2** and **B2**. Because you listed A2 first in the CONCAT function argument, it comes first in the final result.

Notice that the two names were combined without a space between them.

If you want to put the space in between, you need to use the full **CONCATENATE** function, which allows you to combine multiple strings.

2. Click again on the cell **F2**. In the function call, place a space in quotes between **A2** and **B2** separated by commas.

fx | =CONCATENATE(A2, " ",B2)

	A	B	C	D	E	F	G	H
1	First	Last	Month	Day	Year	George Washington ×		
2	George	Washington	April	30		=CONCATENATE(A2, " ",B2)		
3	John	Adams	March	4				
4	Thomas	Jefferson	March	4				
5	James	Madison	March	4	1809			
6	James	Monroe	March	4	1817			
7	John Quincy	Adams	March	4	1825			
8	Andrew	Jackson	March	4	1829			
9	Martin	Van Buren	March	4	1837			
10	William Henry	Harrison	March	4	1841			
11	John	Tyler	April	4	1841			
12	James K.	Polk	March	4	1845			
13	Zachary	Taylor	March	4	1849			
14	Millard	Fillmore	July	9	1850			
15	Franklin	Pierce	March	4	1853			

Once you press enter or return, your screen should appear like this:

| 100% ▼ | $ % .0 .00 123 ▼ | Default (Ca... ▼ | 12 ▼ | B I S A | ⬧. ⊞ |

fx | =CONCATENATE(A2, " ",B2)

	A	B	C	D	E	F
1	First	Last	Month	Day	Year	
2	George	Washington	April	30		George Washington
3	John	Adams	March	4		
4	Thomas	Jefferson	March	4	1801	
5	James	Madison	March	4	1809	
6	James	Monroe	March	4	1817	
7	John Quincy	Adams	March	4	1825	
8	Andrew	Jackson	March	4	1829	
9	Martin	Van Buren	March	4	1837	
10	William Henry	Harrison	March	4	1841	
11	John	Tyler	April	4	1841	
12	James K.	Polk	March	4	1845	
13	Zachary	Taylor	March	4	1849	
14	Millard	Fillmore	July	9	1850	
15	Franklin	Pierce	March	4	1853	

Now there is a space between the first name and the last name.

Next, repeat this process for all the remaining cells in **Column F**. Of course, you don't want to do this manually for each cell. (Especially if the dataset were larger, it would be laborious to do this cell-by-cell.) Luckily, you can fill out the data in the column by using your mouse.

1. Click on the cell **F2**. Locate the small square in the lower-right corner of the highlighted boundary of the cell.

| 100% ▼ | $ % .0 .00 123 ▼ | Default (Ca... ▼ | 12 ▼ | B I S A | ⬧. ⊞ |

fx | =CONCATENATE(A2, " ",B2)

	A	B	C	D	E	F
1	First	Last	Month	Day	Year	
2	George	Washington	April	30		George Washington
3	John	Adams	March	4		
4	Thomas	Jefferson	March	4	1801	
5	James	Madison	March	4	1809	
6	James	Monroe	March	4	1817	
7	John Quincy	Adams	March	4	1825	
8	Andrew	Jackson	March	4	1829	
9	Martin	Van Buren	March	4	1837	
10	William Henry	Harrison	March	4	1841	
11	John	Tyler	April	4	1841	
12	James K.	Polk	March	4	1845	
13	Zachary	Taylor	March	4	1849	

14	Millard	Fillmore	July	9	1850
15	Franklin	Pierce	March	4	1853

2. Click on this square, drag your mouse to the bottom of the column, and release. All the cells in the column should populate with the full name of the appropriate president.

	.00 123▾	Default (Ca... ▾	12 ▾	
	C	**D**	E	**George Washington**
	Month	**Day**	**Year**	**John Adams**
	April	30		**Thomas Jefferson**
	March	4		**James Madison**
	March	4		**James Monroe**
	March	4		**John Quincy Adams**
	March	4		**Andrew Jackson**
	March	4		**Martin Van Buren**
	March	4		**William Henry Harrison**
	March	4		**John Tyler**
	March	4		**James K. Polk**
	April	4		**Zachary Taylor**
	March	4		**Millard Fillmore**
	March	4		**Franklin Pierce**
	July	9		
	March	4		

- Note: While it does not happen in this dataset, you may have extra spaces in your result after you CONCAT. If you notice you have extra spaces, you can use the TRIM function to remove them.

Combining data from three cells

The procedure for combining three pieces of data from different cells is almost identical to what you just did. The only difference is that you include a third cell in the full CONCATENATE argument.

Now, combine the month, day, and year into a single data value: **Date**. This will occupy column **G**.

1. Click on the cell where you would like the new data to start. Here, this is cell **G2**.

2. Enter the **CONCAT** command as **=CONCATENATE(C2," ",D2,", ",E2)**

	A	B	C	D	E	F	G	H
							fx =CONCATENATE(C2, " ", D2,", ", E2)	
1	First	Last	Month	Day	Year		Apri 30, 1789 ×	
2	George	Washington	April	30			=CONCATENATE(C2, " ", D2,", ", E2)	
3	John	Adams	March	4	1801			
4	Thomas	Jefferson	March	4				
5	James	Madison	March	4	1809			
6	James	Monroe	March	4	1817			
7	John Quincy	Adams	March	4	1825			
8	Andrew	Jackson	March	4	1829			
9	Martin	Van Buren	March	4	1837			
10	William Henry	Harrison	March	4	1841			
11	John	Tyler	April	4	1841			

	John	Tyler	April	4	1841
12	James K.	Polk	March	4	1845
13	Zachary	Taylor	March	4	1849
14	Millard	Fillmore	July	9	1850
15	Franklin	Pierce	March	4	1853

Pay particular attention to the extra strings you added between the month and the day, and between the day and the year. This is how you get the spaces and comma in your final result.

3. Fill out the rest of the column using the same click-and-drag technique as before. Your screen should appear like this:

Congratulations! You've combined data in spreadsheets using the CONCAT and CONCATENATE functions.

Confirmation and reflection

In an empty cell in the CONCAT function exercise spreadsheet, type the function =CONCATENATE(A7, " ", B7). What does this function return?

○ #N/A

◉ John Quincy Adams

○ JohnQuincyAdams

○ John QuincyAdams

✓ **Correct**
The function =CONCATENATE(A7, " ", B7) would return "John Quincy Adams." The correct function to use here would be CONCATENATE, which you can use to combine strings. Using CONCAT with these arguments would resolve this correctly in Microsoft Excel, but return an error in Google Sheets. Going forward, you can use this distinction to write proper spreadsheet functions.

2. In this activity, you used spreadsheet functions to combine data. In the text box below, write 2-3 sentences (40-60 words) in response to each of the following questions: 1 / 1 point

- What are some other kinds of data you could combine using CONCAT or CONCATENATE?

- What happens if a data analyst tries to work with dates or names that haven't been combined with CONCAT or CONCATENATE?

> What are some other kinds of data you could combine using CONCAT or CONCATENATE?
> Geographic codes.
> What happens if a data analyst tries to work with dates or names that haven't been combined with CONCAT or CONCATENATE?
> They may end up with inconsistent data.

✓ **Correct**
Congratulations on completing this hands-on activity! A good response would include how combining data with CONCAT and CONCATENATE helps you simplify and clean data by combining string data from multiple cells into a single cell.

In order to properly and efficiently analyze data, the data has to be clean and understandable. Data analysts use functions like CONCAT to make data easier to work with, which may require combining multiple cells. Coming up, you will learn more spreadsheet functions that will help you analyze data in spreadsheets.