

Your grade: 100%

Next item →



Activity overview

In the previous video, you were introduced to pivot tables as a tool for quickly comparing metrics, performing calculations, and generating readable reports. In this activity, you'll navigate an example of a workplace scenario where you will create a pivot table to answer stakeholder questions and visualize data.

By the time you complete this activity, you will be able to apply pivot tables in your own analysis projects. This will enable you to draw insights and create reports directly from your spreadsheets, which is important for your career as a data analyst.

Review the following scenario. Then complete the step-by-step instructions.

Scenario

You are a data analyst working with a filmmaking company. The company is trying to identify what genre of film they should make next. In order to help them make this decision, your manager has asked you to answer the following questions:

- On average, how much money do movies make in each genre?
- On average, how much money is spent on a movie broken by genre?
- On average, which genre has the most profitable movies?

Pivot tables make answering these types of questions much quicker and more accurate when compared to doing these same calculations by hand!

Step-By-Step Instructions

Follow the instructions to complete each step of the activity. Then answer the questions at the end of the activity before going to the next course item.

Step 1: Access the Template

To get started, access the movie spreadsheet from the previous video.

Select the link to the movie spreadsheet to create a copy. If you don't have a Google account, you may download the data directly from the attachments below.

Link to movie data: [Movie Data Starter Project](#)

OR



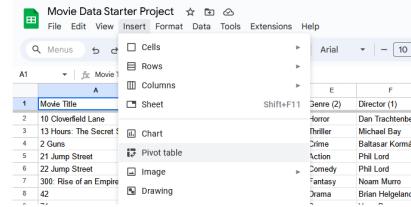
Step 2: Create Your Pivot Table

For this exercise, you will use Google Sheets to work with pivot tables. If you are using Excel, the interface might be different. However, the majority of the functions are similar.

First, you need to generate your pivot table:

1. Open the Movie Data Starter Project spreadsheet.
2. Navigate to the **Movie Data** sheet.
3. With your cursor in a non-blank field, select the **Insert** menu.

4. Select Pivot Table.



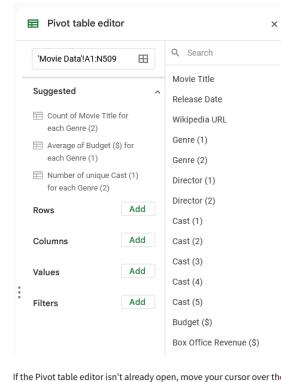
5. Verify the following Create pivot table settings:

- a. Data range = 'Movie Data'!A1:H509
- b. Insert to = New Sheet

6. Select Create.

7. In the newly created sheet, right-select on the tab and select **Rename** to rename the sheet to **Summary**.

8. Now, your Pivot table editor is likely going to be open on the right side of the screen.



If the Pivot table editor isn't already open, move your cursor over the pivot table area to reveal a small green pencil icon. Select it to open the **Pivot table editor**.



Step 3: Find the Average Amount of Money Movies Make in Each Genre

In the Pivot table editor:

- Select on the **Add** button to the right of the **Rows** section.

- Select **Genre (1)**.

The screenshot shows the 'Pivot table editor' interface. In the top navigation bar, there is a dropdown menu labeled 'Movie Data!A1:N509' and a search bar with placeholder text 'Search'. Below the search bar, there are sections for 'Suggested', 'Rows', 'Columns', 'Values', and 'Filters'. The 'Rows' section has an 'Add' button highlighted in green. A dropdown menu is open under 'Add' containing options: 'Movie Title', 'Release Date', 'Wikipedia URL', 'Genre (1)', 'Genre (2)', and 'Director (1)'. The 'Genre (1)' option is selected. The main table area shows a list of movie genres from 1 to 19, ending with 'Grand Total'. Column headers 'A' and 'B' are shown above the table.

- Next, select on the **Add** button to the right of the **Values** section.

- Select **Box Office Revenue (\$)**.

- In that smaller box, change the **Summarize by** selection by using the dropdown and changing the summarization from **SUM** to **AVERAGE**.

Genre (1)	AVERAGE of Bo
Action	233,839,500.00
Adventure	386,632,333.33
Animation	276,200,000.00
Biography	58,896,666.67
Comedy	123,442,857.14
Crime	57,669,565.22
Documentary	68,500,000.00
Drama	80,990,337.08
Family	270,958,333.33
Fantasy	244,610,000.00
Horror	75,646,511.63
Musical	130,000,000.00
Mystery	96,780,000.00
Religious	36,914,285.71
Romance	53,705,384.62
Sci-Fi	255,443,571.43
Thriller	136,937,500.00
Grand Total	151,983,208.66

Now you have the breakdown of Average Box Office Revenue (\$) by genre.

Step 4: Find the Average Amount of Money Spent on a Movie in Each Genre

Now, investigate the budget of these movies so you can compare them to the revenue you just calculated and determine their profit. Repeat the previous process to find the Budget (\$):

- Select on the **Add** button to the right of the **Values** section.

- Select **Budget (\$)**.

- In that smaller box, change the **Summarize by** selection by using the dropdown and changing the summarization from **SUM** to **AVERAGE**.

Genre (1)	AVERAGE of Bo	AVERAGE of Bu
Action	233,839,500.00	82,810,000.00
Adventure	386,632,333.33	82,810,000.00
Animation	276,200,000.00	89,666,666.67
Biography	58,896,666.67	28,760,000.00
Comedy	123,442,857.14	39,914,285.71
Crime	57,669,565.22	30,443,478.26
Documentary	68,500,000.00	10,000,000.00
Drama	80,990,337.08	26,785,955.06
Family	270,958,333.33	78,483,333.33
Fantasy	244,610,000.00	91,000,000.00
Horror	75,646,511.63	14,800,000.00
Musical	130,000,000.00	40,250,000.00
Mystery	96,780,000.00	22,600,000.00
Religious	36,914,285.71	10,142,857.14
Romance	53,705,384.62	19,730,769.23
Sci-Fi	255,443,571.43	65,254,285.71
Thriller	136,937,500.00	33,243,750.00
Grand Total	151,983,208.66	48,871,397.64

Now you have the average revenue and budget broken down by genre.

Step 5: [Optional] Find the Genre that is Most Profitable on Average

Note: You may not be able to complete this part of the activity in Microsoft Excel. If you're completing this activity in Microsoft Excel and do not find a **Custom** option in step 5.4, move on to step 6, complete the activity in Google Sheets, or use the resources provided earlier in this lesson to complete this step.

You can also use pivot tables to calculate profitability directly in the pivot table:

- Select the **Add** button to the right of the **Values** section.

- Select **Calculated Field**.

- Copy and paste the following into the **formula**:

```
=AVERAGE("Box Office Revenue ($)") - AVERAGE("Budget ($)")
```

- Change the **Summarize by** selection from **SUM** to **Custom**.

- Select on cell **D1** (in your Summary tab) and enter **Average Profit** to rename the newly calculated field.

Genre (1)	AVERAGE of Box Office Revenue (\$)	AVERAGE of Budget (\$)	Average Profit
Action	233,839,500.00	82,810,000.00	151,029,500.00
Adventure	386,632,333.33	82,810,000.00	223,822,333.33
Animation	276,200,000.00	89,666,666.67	186,533,333.33
Biography	58,896,666.67	28,760,000.00	30,046,666.67
Comedy	123,442,857.14	39,914,285.71	83,526,571.43
Crime	57,669,565.22	30,443,478.26	27,226,088.96
Documentary	68,500,000.00	10,000,000.00	58,500,000.00
Drama	80,990,337.08	26,785,955.06	54,204,382.02
Family	270,958,333.33	78,483,333.33	192,475,000.00
Fantasy	244,610,000.00	91,000,000.00	153,610,000.00
Horror	75,646,511.63	14,800,000.00	60,846,511.63
Musical	130,000,000.00	40,250,000.00	89,750,000.00
Mystery	96,780,000.00	22,600,000.00	74,180,000.00

Religious	36,914,265.71	10,142,857.14	26,771,426.51
Romance	53,705,324.42	10,750,789.23	33,974,013.30
Sci-Fi	255,443,571.43	65,054,085.71	199,189,265.71
Thriller	136,937,500.05	33,243,750.00	103,693,750.00
Grand Total	151,983,268.66	48,871,397.64	103,111,811.01

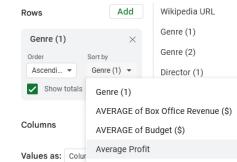
Perhaps your manager also asks you if there's any way to sort the sheet to make it easier to identify which genres are most profitable.

To do that, follow these steps:

6. In the Pivot table editor, go to the **Genre (1)** in your rows and update these settings:

a. For the **Sort by** dropdown, change the value from **Genre (1) to Average Profit**.

b. For the **Order** dropdown, change the value from **Ascending to Descending**.



The screenshot shows the Pivot Table Editor interface. The 'Rows' section has 'Genre (1)' selected. The 'Order' dropdown is set to 'Descending'. A tooltip for 'Genre (1)' indicates 'AVERAGE of Box Office Revenue (\$)'.

Genre (1)	AVERAGE of Box Office Revenue (\$)	AVERAGE of Budget (\$)	Average Profit
Adventure	308,633,333.33	82,828,571.43	225,804,761.90
Family	270,958,333.33	78,483,333.33	192,475,000.00
Sci-Fi	255,443,571.43	65,254,265.71	199,189,265.71
Animation	276,290,000.00	89,666,666.67	186,533,333.33
Fantasy	244,610,000.00	91,000,000.00	153,610,000.00
Action	233,000,000.00	82,910,000.00	151,090,000.00
Thriller	136,937,500.05	33,243,750.00	103,693,750.00
Musical	130,000,000.00	40,250,000.00	89,750,000.00
Comedy	173,442,857.14	39,914,285.71	131,528,571.43
Mystery	96,780,000.00	22,600,000.00	74,180,000.00
Horror	75,646,511.63	14,688,372.09	60,958,139.53
Documentary	68,500,000.00	10,000,000.00	58,500,000.00
Drama	80,990,337.08	26,785,955.06	54,204,382.02
Romance	53,705,384.62	19,730,769.23	33,974,615.38
Biography	50,760,000.00	36,780,000.00	30,980,000.00
Crime	57,655,565.22	30,443,479.26	27,226,086.96
Religious	36,914,265.71	10,142,857.14	26,771,426.51
Grand Total	151,983,268.66	48,871,397.64	103,111,811.01

Here is that pivot table, now sorted to have the most profitable genres at the top of the list!

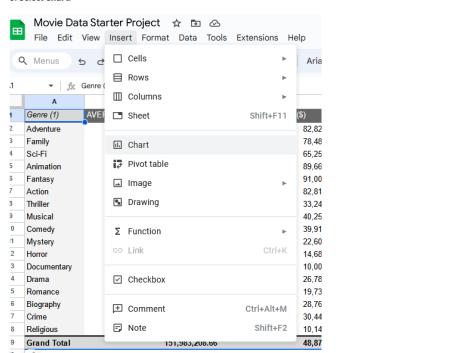
Step 6: Visualize Your Data

Tables provide useful information, but visualizations can be even more effective for communicating data insights.

1. Select any cell in your pivot table.

2. Navigate to the **Insert** menu.

3. Select **Chart**.



This creates a chart in the same worksheet as your pivot table.

4. Now, move the chart to the side of your table:

a. Select the **chart**.

b. Left-select in the chart and—while holding down your cursor—drag the **cursor** next to your table. This should move the chart with the movement of your cursor.

5. Next, set up your chart.

a. In the chart editor, navigate to **Setup**.

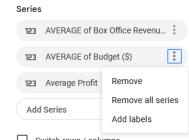
b. In the **Setup** window, change the **Chart Type** to **Bar chart**.

c. Under **Series**, select on the three dots to the right of **AVERAGE of Budget (\$)**.

d. Select **Remove**.

e. Next, under **Series**, select the three dots to the right of **AVERAGE of Profit**.

f. Select **Remove**.

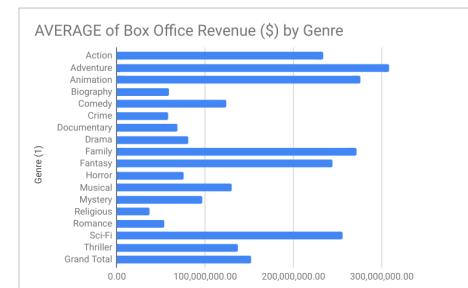


6. Next, customize your chart.

a. In the chart editor, navigate to **Customize**.

b. Under **Chart & Titles**, select **Chart title**.

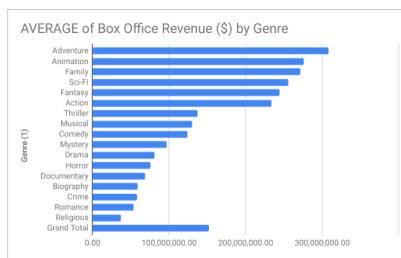
c. Change the chart title to **Average of Box Office Revenue (\$) by Genre**.



Great work! Now you have a visual of box office revenue by genre.

7. The graph you created displays genre in alphabetical order. However, if you're interested in knowing which genre garners the highest average box office revenue (\$), you'll want to sort the data from highest to lowest. You can do that by sorting the information in the pivot table. To do this:

- a. Open the Pivot table editor.
- b. In the Pivot table editor, go to the **Genre (1)** in your rows and update these settings:
 1. For the **Sort by** dropdown, select **Average of Box Office Revenue (\$)**.
 2. For the **Order** dropdown, select **Descending**.



Note: You may have noticed that there may be a **Grand Total**, which doesn't appear to fall into the middle of your sorting. That's okay! This is because it's the total across all genres. You can choose to remove this by going back into your pivot table editor, in your Rows section, uncheck the **Show totals** box. This should automatically update any other references (charts or other) that were pointed at your pivot table!

Pro Tip: Save the Activity Template

Be sure to save a copy of the spreadsheet template you used to complete this activity. You can use it for further practice or to help you work through your thought processes for similar tasks in a future data analyst role.

Reflection

Using pivot tables, you were able to answer all three of your stakeholders' questions about movie revenue, budget, and profit by genre! Notice that, you presented your findings in an organized way to make your findings clearer to your audience and provided them with a useful visualization.

Pivot tables are incredibly powerful. The ability to calculate these types of values will allow you to be more efficient in how you work, as well.

1. Adjust your pivot table to include information about directors [use the **Director (1)** field] instead of genre. 1 / 1 point

Which director had the highest average box office revenue?

- Tim Miller
 Peter Jackson

Peter Jackson averaged \$956M in box office revenue, which is the highest box office revenue in this dataset.

- Zach Snyder
 Michael Mann

2. In the text box below, write 2-3 sentences (40-60 words) in response to each of the following questions: 1 / 1 point

- How can using pivot tables directly in a spreadsheet help you analyze data in the future?
- What are some of the benefits of being able to summarize data directly in your spreadsheet?

Analyzing Data with Pivot Tables Using pivot tables directly in a spreadsheet allows you to quickly reorganize and summarize large datasets without altering the raw data. This helps you efficiently identify trends, patterns, and outliers by letting you drag and drop fields to instantly change the data's perspective for future analysis. Benefits of Summarizing Data Directly in Your Spreadsheet: Using features like pivot tables or functions like COUNTIF, provides immediate insights and saves time on manual calculations. It makes complex information easier to read and share, allowing for faster, data-driven decision-making right where the data lives.

Congratulations on completing this hands-on activity! In this activity you created a pivot table and some basic visualizations directly in your spreadsheet to gain insight into your data. An effective response would include that this will allow you to analyze data quickly using one analysis tool. This can help you quickly find answers for stakeholders and generate shareable reports to share your findings.

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