How to Set up a Budget in Excel — Part 3 of 4

Creating a PivotTable to Summarize Expenditures

In the first two parts of our Advanced Budget Project for Excel 2016 in Windows, we set up the Budget itself and then created a Ledger table to keep track of our expenses. In the Ledger table, we set up filters using Excel's Slicers so that we could see the total expenditures for each expense category and each month. The Slicer buttons are slick, but it will be tedious to use them to examine every single category and every month. There must be a better way.

And there is, of course. The fastest and easiest way to summarize a table is to use Excel's PivotTables. This amazing feature has somehow obtained the reputation of being difficult, but I will let you in on a secret: Even though Pivot Tables are incredibly powerful, they are also surprisingly easy.

In this third part of our Advanced Budget project, we will set up a Pivot Table to see how the expenditures in our Expense Ledger are doing. In just a handful of mouse clicks, we'll be able to peruse a summary of total expenses for *all* categories and months at the same time. We'll also use two Excel features to give us a visual summary of our expenditures. Sparklines will show us a basic look at how our expenditures vary month to month, while a Pivot Chart will give us a much more detailed look.

Once you create a Pivot Table, you will be amazed at how easy it was. But don't tell anyone. Let everyone continue to believe that this feature is too difficult for most people. And, of course, they will all be very impressed when you create them so quickly.

— Rich Malloy
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Skills Used:

- Creating a Pivot Table
- Formatting a Pivot Table
- Using Sparklines
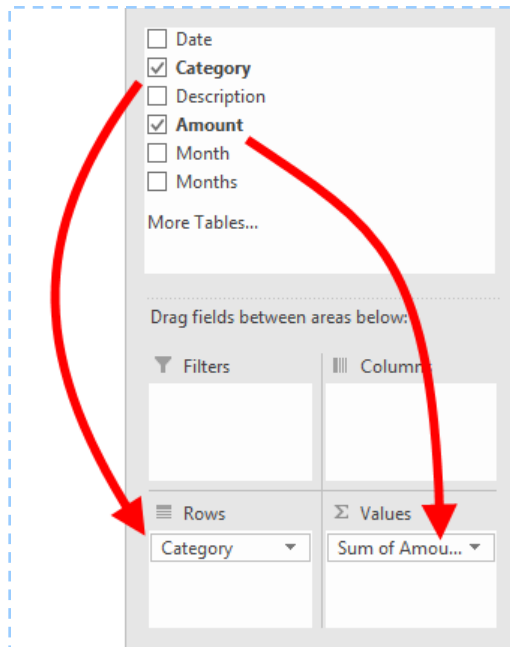- Creating a Pivot Chart

Procedure:

Open the Spreadsheet:

- If it is not open already, open the file: advbudget.xlsx
- Go to the **Ledger 2** sheet.

Insert a Pivot Table:

Okay, here we go. Watch how easy it is to create a Pivot Table:

- Click somewhere in the Ledger table.
- Click **Insert** > **Pivot Table**.
- Click the **OK** button to set the Pivot Table on a new sheet.
- A new sheet will appear, with a strange design on the left hand and a list of column headers (or fields) on the right. Below the fields, are four boxes. All we need to do now is to move the right field into the right box.
- Drag **Category** into the **Rows** box.

- Drag **Amount** into the **Values** box.

- There you have it! You've create a Pivot Table. Now let's make it even better.
- Drag **Month** into the **Columns** box.

	A	B	C	D	E
1					
2					
3	**Sum of Amount**	**Column Labels** ▼			
4	**Row Labels** ▼	**January**	**February**	**March**	**Grand Total**
5	Auto Loan	300	300	300	900
6	Groceries	303.72	202.51	410.38	916.61
7	Misc	106.23	226.34	481.23	813.8
8	Rent	2000	2000	2000	6000
9	Savings	200	250	200	650
10	TV	89.76	89.76	89.76	269.28
11	Utilities	221.21	198.45	211.98	631.64
12	**Grand Total**	**3220.92**	**3267.06**	**3693.35**	**10181.33**
13					

- Let's stop and admire what we have done here: With a few mouse clicks we have sliced and diced our Ledger data by two different criteria. Amazing.

Format the PivotTable:

We need to make some cosmetic improvements:

- Click any of the number cells in the Pivot Table.
- Click the **PivotTable Tools Analyze** tab.
- On the left of the ribbon, click **Field Settings**.
- Click the button **Number Format**.
- Select a **Number** format, with **0 Decimal places** and a **1000 Separator**.
- Click **OK** twice.
- Click the **PivotTable Tools Design** tab.
- Click: **Report Layout**.

- Click: **Show in Outline Format**.
- The PivotTable now shows titles for the table axes.

Sum of Amount Month ▾				
Category ▾	January	February	March	Grand Total
Auto Loan	300	300	300	900
Groceries	304	203	410	917
Misc	106	226	481	814
Rent	2,000	2,000	2,000	6,000
Savings	200	250	200	650
TV	90	90	90	269
Utilities	221	198	212	632
Grand Total	3,221	3,267	3,693	10,181

Update the PivotTable:

A Pivot Table is great, but does it immediately respond to new data?

- Rename the sheet tab for your Pivot Table as, well, **Pivot Table**
- Click the tab for **Ledger 2** (*not* **Ledger**).
- Add a new expense entry to the bottom of the Expense Ledger.
- Click the tab for the **Pivot Table**.
- Note that the Pivot Table does not automatically recalculate.
- Right-click any cell in the Pivot Table and choose **Refresh**.
- The table will now update itself.

Insert Sparklines to Analyze Data:

Sparklines are tiny graphs that reside inside individual cells. They can give you a quick visual cue of trends in your data.

- Click cell **F4**.
- Enter: **Trend**
- With **Format Painter**, copy the format from **E3:E4** to **F3**.
- Click cell **F5**.
- In the **Sparklines** group on the **Insert** tab, click the button: **Column**
- In the **Data Range** box that appears, type **B5:D5**
- Click **OK**.
- Copy cell **F5** down to the cells below it.
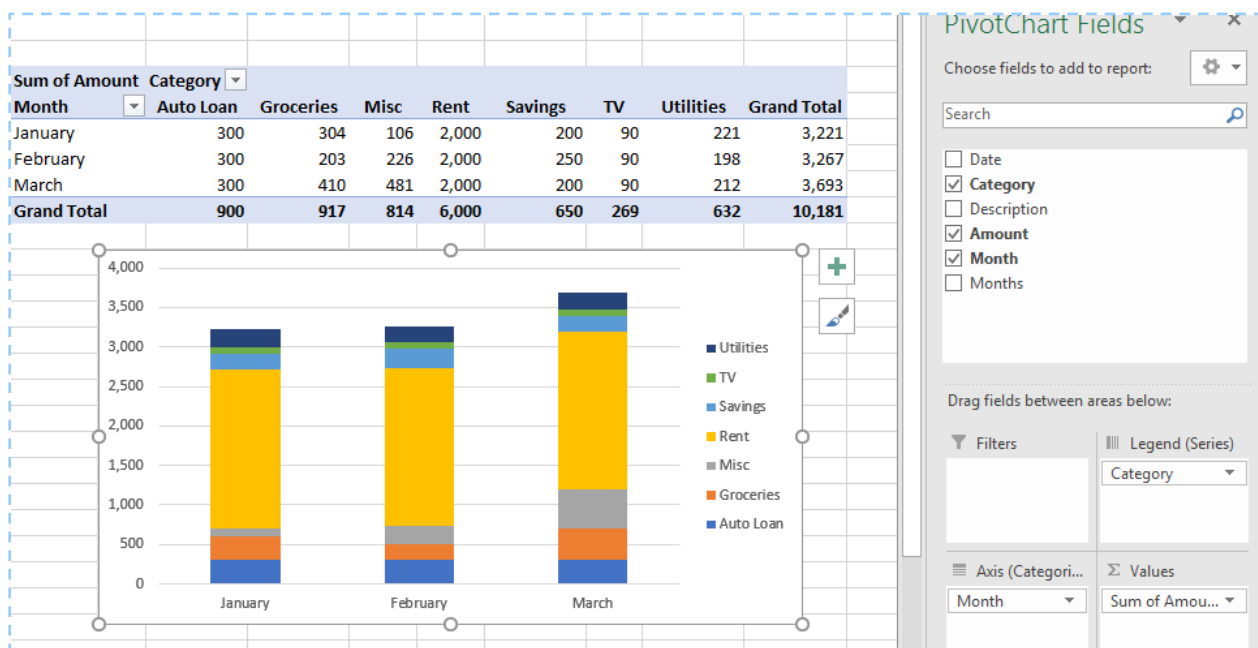- With **Format Painter**, copy the format of cell **E12** to **F12**.

Sum of Amount Month ▾					
Category ▾	January	February	March	Grand Total	Trend
Auto Loan	300	300	300	900	▪▪▪
Groceries	304	203	410	917	▪_▪
Misc	106	226	481	814	__▪
Rent	2,000	2,000	2,000	6,000	▪▪▪
Savings	200	250	200	650	_▪_
TV	90	90	90	269	▪▪▪
Utilities	221	198	212	632	▪_▪
Grand Total	3,221	3,267	3,693	10,181	__▪

- With the Sparklines, you can quickly see that there were big jumps in March for the Groceries and Misc. categories.

Insert a Pivot Chart (Stacked Column) to Analyze the Data More Precisely:

One of the advantages of a Pivot Table is that you can quickly and easily create a chart. Yes, it is unlikely that you will ever need to create a chart of your expenses, but if this were a table of business expenses, it might prove useful.

- When we create a chart, the Sparklines will be unnecessary, and they might get in the way. So, let's remove them by deleting column F.
- Click any of the cells in the Pivot Table.
- Click the **PivotTable Tools Analyze** tab.
- On the right of the ribbon, click **PivotChart**.
- Choose a **Stacked Column Chart**.
- In our chart, the Months are listed in the Legend. But chronological data is usually placed on the horizontal axes. Let's fix it.
- Drag the **Category** field from the **Legend (Series)** box to the **Axis (Categories)** box.
- Drag the **Month** field from the **Axis (Categories)** box to the **Legend (Series)** box.
- You have just pivoted the table (and the chart) with two mouse clicks! That's why they call it a Pivot Table. Now the chart shows the data chronologically by month.
- Move the chart below the Pivot Table and resize it to fit the space.
- In the **PivotChart Tools Analyze** tab, click the button on the right: **Field Buttons**
  - This removes the headings above the two axes and the legend.

Your Pivot Table is finished. If you've done everything right, it should look like the table in the worksheet PivotTable 2. The table provides an excellent summary of our expenses for the last 3 months. With the table, the Sparklines, and/or the chart you can quickly analyze the category expenses month to month or with the other expenses.

The next step, obviously, is to compare these actual expenses with our budget. Unfortunately, the Pivot Table now presents us with two problems:

First, unlike formulas, charts, and pretty much everything else in Excel, Pivot Tables do *not* automatically recalculate when the underlying data change. You can verify this yourself: Just add a new expenditure to the bottom of the Expense Ledger and then look back at the Pivot Table. Incredibly, there is no change. Pivot Tables keep a static version of the data, which is a fancy

way of saying that this feature is taking a nap. To wake the Pivot Table up, as it were, you need to Refresh it. Just right-click any cell in the table and choose Refresh. That is not too difficult, but the likelihood of forgetting to Refresh is too real, which could cause you to miss sudden pattern changes in your expenditures.

The second problem is that the structure of the Pivot Table is too rigid to be used in our Budget Report. To compare actual expenditures with our budgeted amounts, we want to be able to intersperse our actual columns with our budget columns. So, let's try it: Insert a column in the Pivot Table. Excel won't let you. But Excel does provide us with an excellent alternative, which we will explore in the next part of our Advanced Budget project.