Excel PivotTables for Analysis

A PivotTable is an Excel tool that summarises a large table of data in a few clicks, so that we can answer business questions without writing formulas. It lets us rearrange the same data in many ways, for example sales by region, by product or by month. The steps here follow Microsoft Excel, and other spreadsheet programs offer similar tools. We follow Tariq, a sales analyst at a regional distributor, who has a sheet with thousands of sales rows.

1. Prepare the Data

A PivotTable works best on a clean, simple table. The first row should hold one clear heading for each column, and every other row should be one record, such as one sale. There should be no blank rows or columns, no merged cells and no mixed types, for example text in a column of numbers. Formatting the range as an Excel table helps, because the PivotTable then includes new rows when it is refreshed.

Example: A teacher keeps a grade list with one row for each test result and clear headings such as Student, Subject and Score. Because the list is tidy, totals by student or by subject are easy to find.

At work: Tariq's sheet has blank rows, merged title cells and the same region written in two ways. He removes the blank rows, unmerges the cells and corrects the names. Then he formats the data as a table, with columns for date, region, product, salesperson and amount.

2. Build the Table

To build it, we select a cell in the data and insert a PivotTable, usually on a new sheet. A field list then shows the column headings, and we drag them into four areas. Rows list the items down the side, and columns list items across the top. Values decide what is calculated, such as the sum of the sales amount, and filters limit the whole table to part of the data. Moving a field to another area reshapes the table at once.

Example: A family sorts a year of receipts: categories such as food and fuel go down the side, months go across the top and the money goes in the cells. This is the same layout as rows, columns and values.

At work: Tariq puts region in rows, product in columns and the sum of the amount in values. He instantly gets a grid showing each region's sales for each product.

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3. Summarise and Group

By default, number fields are summed, but the value settings let us choose count, average, maximum or minimum, or show each value as a percentage of the total. Date fields can be grouped by months, quarters or years, so that thousands of daily rows become a clear trend. We can also sort the table to put the largest items first. Double-clicking a value opens the rows behind it, which helps to check the numbers.

Example: A fitness app groups daily step counts into months and shows an average for each one. A long list becomes a pattern that is easy to read.

At work: Tariq groups the dates by month and changes the value from sum to average order amount. He then shows each region as a percentage of total sales. By double-clicking one value, he checks the rows behind a surprising number.

4. Filter and Refresh

Report filters and slicers let us show only part of the data, such as one salesperson or one year. A slicer is a set of buttons that filters the table with one click and shows which filter is active. A PivotTable does not update by itself when the source data changes, so we use the Refresh command after adding or correcting rows. A PivotChart can then turn the table into a chart that follows the same filters.

Example: A supermarket's price list lets a shopper show only one aisle with a click. The rest of the list is still there, hidden until needed.

At work: Tariq adds a slicer for salesperson, so a manager can click a name and see that person's sales. When new sales rows arrive, he uses Refresh, and the numbers update. He adds a PivotChart for the monthly report.

Conclusion

In summary, a PivotTable summarises a large table of data into a clear report without formulas. Four steps put it to work: prepare the data, build the table, summarise and group, and filter and refresh. With tidy data and a few clicks, we can turn thousands of rows into answers.

Sources

- Microsoft Support: Create a PivotTable to analyze worksheet data – https://support.microsoft.com/en-us/office/create-a-pivottable-to-analyze-worksheet-data-a9a84538-bfe9-40a9-a8e9-f99134456576
- Microsoft Support: Use slicers to filter data – https://support.microsoft.com/en-us/office/use-slicers-to-filter-data-249f966b-a9d5-4b0f-b31a-12651785d29d

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