ABSTRACT
A pivot table uses data organized on two dimensions to create a three-dimensional table. It represents a very proper means to concentrate a lot of information in a small space. Pivot tables allow data audit as well. The unique characteristic of pivot tables is their capacity to move fields by drag and drop. Excel instantaneously replaces the data in a new arrangement. New formulae or the re-filtering of data are not necessary, as the pivot table is automatically recalculated when the fields are recalculated.

Key words: data analysis, Excel, pivot table, table report

Introduction

In order to make a report with a pivot table, the information that is taken and processed in it must be distributed on columns, in a table. We should not forget that Excel means spreadsheets.

Secondly (and this where the mistake usually appears), it is advisable, before making a report, to have all the necessary information for future reports in the respective table.

The Pivot Table Wizard application can be used to create a new pivot table or to edit an existing pivot table.

In order to create a pivot table one must go through the following steps:

1. To execute the sequence Data\PivotTable and PivotChart Report.
2. At the first step of the PivotTable Wizard application, one must indicate the data source one intends to use for the pivot table. For the data source that needs to be analyzed, the following four options are available:
   - Microsoft Excel List or Database – uses organized data with row and column labels on a calculation sheet. It is a pre-defined parameter.
External Data source – uses a file or database outside the current calculation register.

- Multiple Consolidation Ranges – creates a pivot table or chart comprising more Excel calculation sheets.

Another PivotTable or PivotChart – creates a pivot table or pivot chart from another pivot report from the same calculation register.

3. To establish the type of pivot report that you want to create: a table or a chart. Then, select Next.

4. During the second step of the Pivot Table Wizard application, select a data source if one is not selected, or if the data comes from a different calculation register or field than the one present in the dialogue box.

5. The third step of the PivotTable Wizard application provides one with more options to place and format the pivot table. The pivot table can be placed on a new calculation sheet or the current sheet. If one opts for the existing calculation sheet one must specify the location of the pivot table. Also, one can use the Layout and Options buttons to continue the specification of desired parameters for the new pivot table. These parameters can be altered afterwards as well, after the creation of the pivot table or chart.

6. When one has finished the selection of desired options, one clicks Finish to create the table.

The use of pivot tables to improve activity

We have chosen for the analysis a smaller database, in terms of entries, in order to make it easier to explain the work method. Thus, a database with 89 entries has been chosen, containing information from the period 2009-2014.

One can see some of the data in Figure 1, which contains only a part of the analyzed information, for lack of space. As one can see in the figure below, the information has been centralized according to the invoices issued to the supermarkets by the client, according to the city or county they belong to, as well as according to the timeline, respectively by months and years.
For a better understanding of the functioning of pivot tables and of the data manipulation module, we shall use various examples. A first such instance would be to determine the sum of sales every year, centralized by counties.
Figure 3: The sum of sales in 2009/2010, centralized by counties
Source: Microsoft Office-Excel 2013

With the help of pivot tables dynamic graphs can be made as well, which change by themselves the moment we choose other data.

In figure 4 we are presenting a graph that shows the evolution of sales in 2009, for each month in part, arranged chronologically for each client.

Figure 4: The chronological arrangement of sales for each company in part
Source: Microsoft Office-Excel 2013

Of Settings: Value Field Settings, one can make sums, products, a calculation of the biggest/smallest value.
In order to exemplify the way in which the available options in the Value Field Settings window can be used, we wish to determine the amount of sales for the year 2010 for the Abra Hotel and the Mix Hotel, centralized in one graph.

As we can see in figure 7, the calculation of the sales average for each month and in a centralized way, on each city, is not at all a complicated task. It can be done by selecting the fields place, sales amount, year and month, positioned on a row or in a column. According to one’s preferences, we can determine the sales average just by choosing the average option from Settings.
In case we want to generate multiple reports, we use Report Filter. For a better understanding of the way in which these multiple reports are made, we wish to generate a report for every county, in which the sales average centralized on each month of the year should be displayed.
**Figure 9:** Data filtering  
Source: Microsoft Office-Excel 2013

**Figure 10:** The average (%) of the total amount of sales for each county, monthly and yearly  
Source: Microsoft Office-Excel 2013

**Figure 11:** The sales average in percentages  
Source: Microsoft Office-Excel 2013
In figures 10 and 11 we can see the way the average percentages are calculated out of the total of sales, centralized monthly and yearly. We have chosen 2009 and 2010 for the analysis.

![Figure 12: The spreadsheet](source: Microsoft Office-Excel 2013)

In figure 12 we can see the way calculations can be made based on already existing data, with the help of the Calculated Field tools which are made available to the user of the program. To exemplify, we can take an instance in which we are interested in determining the VAT corresponding to the monthly sales for all counties in one table.

In figure 13 we calculate a discount of 20% of the sales and the difference that remains after subtracting the VAT and the sales discount from the sales.

![Figure 13: Insertion of new fields calculated with the help of the formulae chosen by the user](source: Microsoft Office-Excel 2013)

In figures 13 and 14, we can see that, apart from pre-defined calculations, new calculation formulae can be made based on the already existent ones from the initial database or based on the new information previously created by us based on predefined formulae as well.
CONCLUSIONS

To conclude, we can say that Microsoft Office pivot tables can be a handy tool in data manipulation and decision making in all types of activities. Hence, various processes can be upgraded due to the conclusions we draw based on this information obtained with reasonable ease, and which could not be reached employing the work of human beings. Hence, this tool turns out to be of real help for all users, even though if they are inexperienced in data manipulation, due to its being quite easy to use, which represents a major advantage.

REFERENCES

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