What is the purpose of grouping data and how is it used in various fields?

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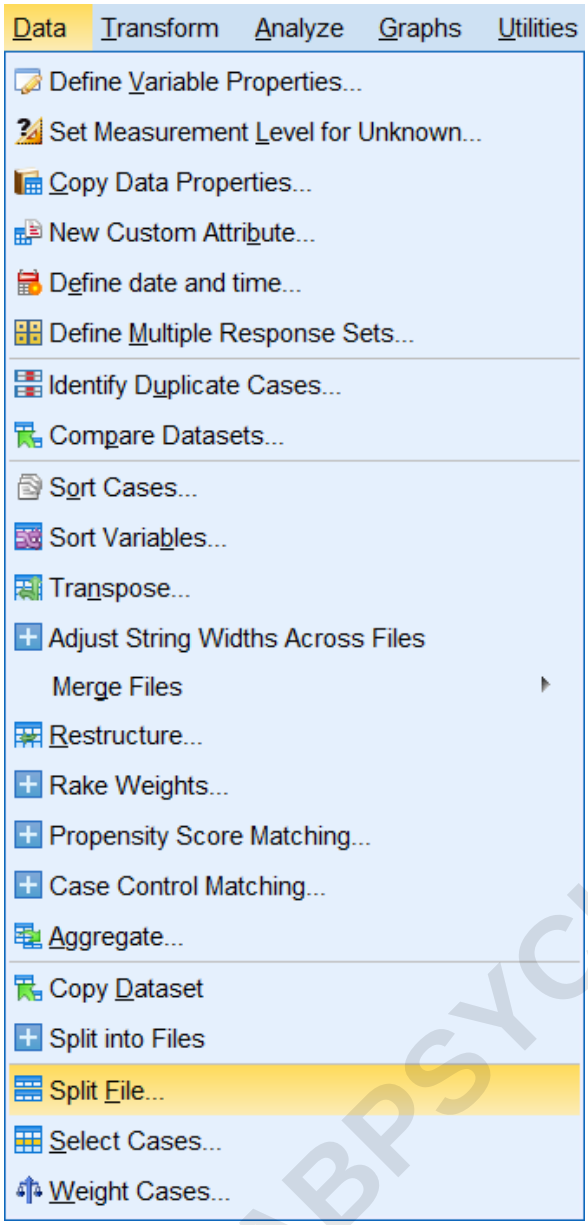
Grouping data refers to the process of categorizing and organizing information into distinct groups based on common characteristics. The purpose of grouping data is to make large and complex datasets more manageable and understandable. By grouping data, patterns and trends can be identified, and insights can be drawn from the data. This is particularly useful in various fields such as business, marketing, and research, where data analysis is crucial for making informed decisions. For example, in business, grouping customer data can help identify target demographics and tailor marketing strategies accordingly. In research, grouping data allows for better comparisons and statistical analysis. Overall, grouping data is an essential tool for organizing and making sense of large amounts of information in various fields.

Grouping or Splitting Data

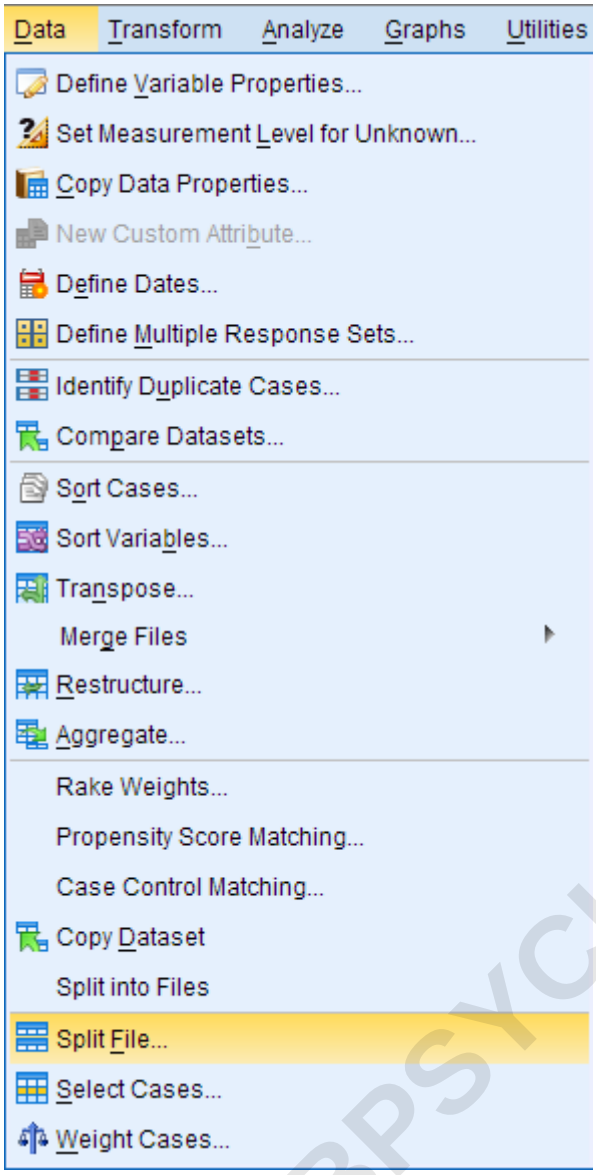
When analyzing data, it is sometimes useful to temporarily "group" or "split" your data in order to compare results across different subsets. This can be useful when you want to compare frequency distributions or descriptive statistics with respect to the categories of some variable (e.g., Gender) - especially if you want separate tables of results for each group.

To split your dataset, click **Data > Split File**.

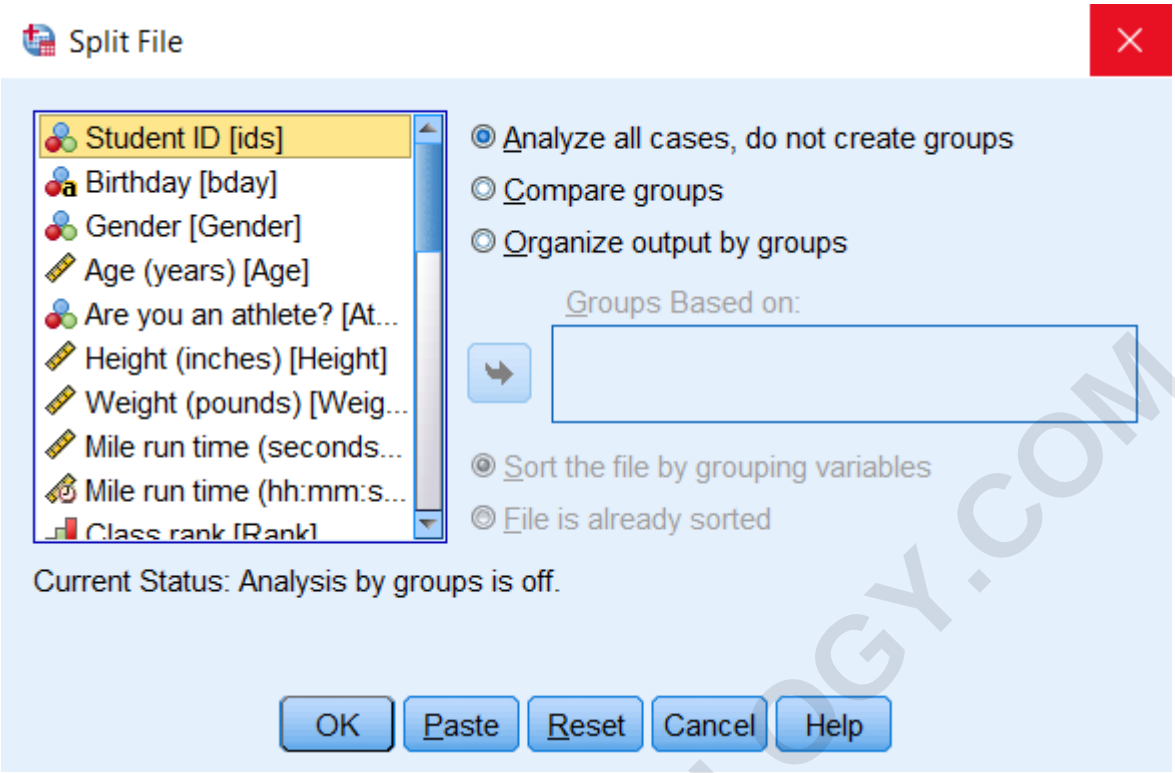
SPSS Version 25 Drop-Down Menu



SPSS Version 22 Drop-Down Menu



The Split File window will appear. By default, the dataset is not split according to any criteria; this is indicated by **Analyze all cases, do not create groups**.



You can choose one of two ways to split the data:

Compare groupsOrganize output by groups

For both splitting methods, there are two considerations to be made:

The splitting variable(s) should be nominal or ordinal categorical. SPSS will not stop you from using a continuous variable as a splitting variable, but it is a bad idea to try to attempt this; SPSS will see each unique numeric value as a distinct category.In order to split the file, SPSS requires that the data be sorted with respect to the splitting variable. By default, **Sort the file by grouping variables** is selected.

Turning Off Split File

When you no longer want to split your analyses by group, you can turn Split File off through the same window you used to turn it on.

Click **Data > Split File.**Click **Analyze all cases, do not create groups**.Click **OK**.

You can now run all analyses normally again.

Syntax

```
SPLIT FILE OFF.
```

Example

What are the differences in the split file options?

The Compare and Organize options produce numerically identical results when the same grouping variable(s) are applied. This is true regardless of what statistical analysis is used. The difference between the two options is how the numeric results are presented.

If **Compare groups** is used, then all of the results will be shown in a single table. The table will have sections showing the results for each group.If **Organize output by groups** is used, then each groups' results will be put into a separate table.

The choice of which splitting method to use is entirely about what format the user wants their results in. Do you want a single table with all results, or separate tables for each group's results? A good rule of thumb is to choose Compare Groups if you want to be able to directly compare the results of your groups, and to choose Organize Output by Groups if the information is from separate trials or samples (such as cohorts from different years).

Problem Statement

Suppose that we want to get a summary of the differences in height between males and females in the sample data. Let's couple the Split File procedure with the Descriptives procedure to get summary statistics for the two groups. We'll use both Split File methods so that we can compare what their outputs look like.

Splitting using Compare Groups

If you choose to split your data using the **Compare groups** option and then run a statistical analysis in SPSS, your output will be displayed in a single table that organizes the results according to the grouping variable(s) you specified.

Running the Procedure

To split the data in a way that will facilitate group comparisons:

Click **Data > Split File**.Select the option **Compare groups**.Double-click the variable *Gender* to move it to the **Groups Based on** field.When you are finished, click **OK**.

After splitting the file, the only change you will see in the Data View is that data will be sorted in ascending order by the grouping variable(s) you selected.

Now let's view the aforementioned descriptive statistics for the variable *Height* with respect to *Gender*. Select **Analyze > Descriptive Statistics > Descriptives**. Double click on the *Height* variable, then click **OK**.

Syntax

```
SORT CASES BY Gender.
```

SPLIT FILE LAYERED BY Gender.

DESCRIPTIVES VARIABLES=Height
/STATISTICS=MEAN STDDEV MIN MAX.

Output

Descriptives

Descriptive Statistics

Gender		N	Minimum	Maximum	Mean	Std. Deviation
.	Height	9	61.32	71.72	66.1833	3.53144
	Valid N (listwise)	9				
Male	Height	189	60.49	84.41	70.6990	5.00595
	Valid N (listwise)	189				
Female	Height	210	55.00	77.33	65.7105	4.49654
	Valid N (listwise)	210				

This table gives us a breakdown of how many observations were in each group (N), and the minimum, maximum, average, and standard deviation of each group. The '.' group contains cases with missing gender values and nonmissing height values. At a glance, we can quickly take note that in this sample:

The height of the tallest male was greater than the height of the tallest female.The male heights tended to have a slightly larger standard deviation (spread) than the female heights.On average, the males were taller than the females.The individuals with missing values for gender had a much smaller range of heights than did the males or females.

Note: This combination of Split File: Compare Groups with Descriptives is very similar to what you would get with the Compare Means procedure. The major difference is that Split File includes the

missing values in the grouping/splitting variable, whereas Compare Means excludes missing values in the grouping variable.

Splitting using Organize Output by Groups

If you choose to split your data using the **Organize output by groups** option and then run a statistical analysis in SPSS, your output will be broken into separate tables for each category of the grouping variable(s) specified.

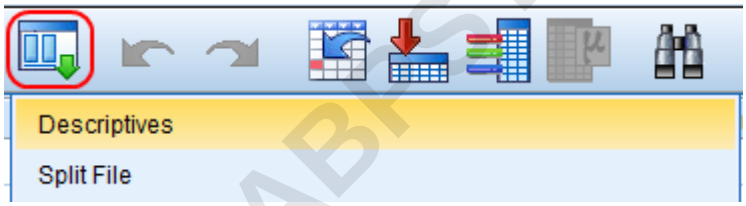
Running the Procedure

To split the data in a way that separates the output for each group:

Click **Data > Split File**.Select the option **Organize output by groups**.Double-click the variable *Gender* to move it to the **Groups Based on** field.When you are finished, click **OK**.

After splitting the file, the only change you will see in the Data View is that data will be sorted in ascending order by the grouping variable(s) you selected.

Now we will re-run the same descriptive statistics procedure that we ran before. You can go through the menu system again (**Analyze > Descriptive Statistics > Descriptives**), or you can click on the **Recall recently used dialogs** icon, which will bring up a list of recently used procedures:



Syntax

```
SORT CASES BY Gender.
```

SPLIT FILE SEPARATE BY Gender.

DESCRIPTIVES VARIABLES=Height
/STATISTICS=MEAN STDDEV MIN MAX.

Output

After re-running the descriptive statistics, we see that the output is broken into three sections based on values of the *Gender* variable. The first section ("Gender = .") reports the minimum, maximum, average, and standard deviation of *Height* for the students who had missing values for *Gender*. The second section reports those same statistics for the male students; the third section reports the statistics for the females.

Descriptives

Gender = .

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean	Std. Deviation
Height	9	61.32	71.72	66.1833	3.53144
Valid N (listwise)	9				

a. Gender = .

Gender = Male

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean	Std. Deviation
Height	189	60.49	84.41	70.6990	5.00595
Valid N (listwise)	189				

a. Gender = Male

Gender = Female

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean	Std. Deviation
Height	210	55.00	77.33	65.7105	4.49654
Valid N (listwise)	210				

a. Gender = Female

Tutorial Feedback