Difference Between SAS and SPSS

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With the increasing use of technology, data is generated for every little thing. To analyze this data and we need statistics so that it can further give us value and help us in predicting and providing data trends. SPSS and SAS are tools that help statistical analysis easier. SPSS is comprehensive and flexible. SAS is a programming language which comes with its own suite.
SAS was developed at the North Carolina State University and was primarily developed to be able to analyse large quantities of agriculture data. The abbreviation SAS stands for Statistical Analysis System. In 1976 the company SAS was founded as the demand for such software increased. Statistical Package for the Social Sciences (SPSS) was developed for the social sciences and was the first statistical programming language for the PC. It was developed in 1968 at the University of Stanford and eight years later the company SPSS Inc. was founded, which was bought by IBM in 2009.
When were looking at SPSS and SAS, both of these languages originate from the explanatory side of Data Analysis. They are developed in an academic environment, where hypotheses testing plays a major role. This makes that they have significant less methods and techniques in comparison to R and Python. Nowadays, SAS and SPSS both have data mining tools (SAS Enterprise Miner and SPSS Modeler), however these are different tools and youll need extra licenses.
Both SPSS and SAS have a comprehensive user interface, with the consequence that a user doesnt necessarily need to code. Furthermore, SPSS has a paste-function which creates syntaxes from steps executed in the user interface and SAS has Proc SQL, which makes SAS-coding a lot easier for people who know the SQL query language. SAS and SPSS code are syntaxtically far from similar to each other and also very different from other relevant programming languages.
Both SAS and SPSS are commercial products and therefore have official support. This motivates some companies to choose for these languages: if something goes wrong, theyve got support.
There is a misconception around the support for open-source tooling. Its true that there is no official support from the creators or owners, nonetheless, theres a large community for both languages most willing to help you to solve your problem. And 99 out of 100 times (if not more often), your question has already been asked and answered on sites like Stack Overflow.
The graphical capabilities of SAS and SPSS are purely functional; although it is possible to make minor changes to graphs, to fully customize your plots and visualizations in SAS and SPSS can be very cumbersome or even impossible.

1 SAS Applications

1.1 Multivariate Analysis

For instance, consider a person wishes to buy stock in bulk. So he or she would weigh various factors like price and quantity or price and quality etc. The multivariate analysis does the same thing. It detects and analyses various statistical variables of an outcome at the same time. A technique is used in this analysis. It uses various studies which depict the effect of variable factors on one single result. It includes analysis of factor analysis, bivariate analysis, and multiple regressions.

1.2 Business Intelligence

It refers to strategies and technologies used by any enterprise for data analysis of business information. It provides insights regarding predictive, current and historical views of business working. The analysis of data helps the senior board with scope for decision making. These technologies include reporting, data mining, process mining, complex event processing, benchmarking etc.

1.3 Predictive Analytics

As the name suggests it uses already available data to predict the future. It uses various statistical techniques to draw inferences. For instance, in a company, the trend in sales of product A has been constant over years. So, it suggests non-changing demand of the product. But for product B with changing demand every month. It analyses all the factors causing the variation, hidden inferences in text, customer thought process etc. Here predictive model exploits patterns found in historical data to identify risk.

1.4 Clinical Research and Forecasting

Diagnosis and prognosis are a very critical element of medicine. They should always be very precise and accurate. SAS has played a revolutionary role in the field of medicine. It is used in clinical decision making support system. This is used to monitor whether patients are at risk. They are even used to find small opportunities for improvement in the condition of a patient. SAS is a 4GL language. The main SAS application is to minimize programming efforts and reduce the time and money required to develop software.

2 SPSS Applications

2.1 Data Collections and Organization

SPSS is often used as a data collection tool by researchers. The data entry screen in SPSS looks much like any other spreadsheet software. You can enter variables and quantitative data and save the file as a data file. Furthermore, you can organize your data in SPSS by assigning properties to different variables. For example, you can designate a variable as a nominal variable, and that information is stored in SPSS. The next time you access the data file, which could be weeks, months or even years, you'll be able to see exactly how your data is organized.

2.2 Data Output

Once data is collected and entered into the data sheet in SPSS, you can create an output file from the data. For example, you can create frequency distributions of your data to determine whether your data set is normally distributed. The frequency distribution is displayed in an output file. You can export items from the output file and place them into a research article you're writing. Therefore, instead of recreating a table or graph, you can take the table or graph directly from the data output file from SPSS.

2.3 Statistical Tests

The most obvious use for SPSS is to use the software to run statistical tests. SPSS has all of the most widely used statistical tests built-in to the software. Therefore, you won't have to do any mathematical equations by hand. Once you run a statistical test, all associated outputs are displayed in the data output file. You can also transform your data by performing advanced statistical transformations. This is especially useful for data that is not normally distributed.