

IBM Connect 2015

Seize the Moment

09/06/15

IBM SPSS Gebruikersmiddag



Agenda

- **13.30** **Welkom en opening**

- **13.35** **Introductie IBM SPSS Statistics 23.0**
Laila Fettah, Sales Engineer Advanced Analytics, IBM

- **14.05** **Informatiegestuurd handhaven bij bijstandsfraude met SPSS Statistics en SPSS Modeler**
Drs. Ad de Jong, Informatie Analist bij Gemeente Tilburg

- **14.40** **Pauze**

- **15.00** **Tips en tricks**
Edwin van der Wiel van DASC

- **15.45** **Borrel en 'Customer Experience' tour**

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What's new in IBM SPSS Statistics 23



IBM SPSS Statistics 23 themes



**new algorithms
purpose-built
for analysis at
massive scale**

**Extend the Value of
Big Data**



**integrate, explore and
model location and time
data; capitalize on new
data sources to solve new
business problems**

Geo-Spatial Analytics



**Next generation of web
reports, improved R
integration and
“predictive analytics
everywhere”**

**Embed Analytics
Deeper Into the
Enterprise**

Extend the value of big data



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Geo-Spatial Analytics



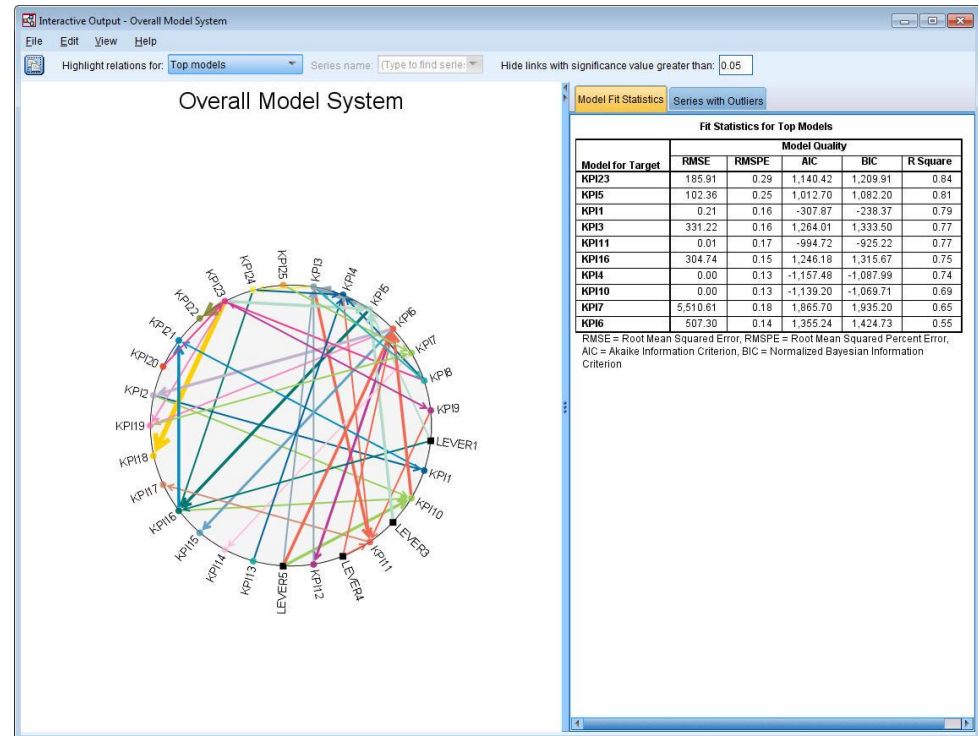
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Extending the value of Big Data – Temporal Causal Modeling

Temporal Causal Modeling engine for large scale time series forecasting

- What does that mean?
 - Scales to handle thousands of series
 - Allows for discovery of causal relationships among large numbers of series
- Why is this important?
 - Goes beyond forecasting one event at a time
- Supports What If and Root Cause analysis



Geo-spatial analytics



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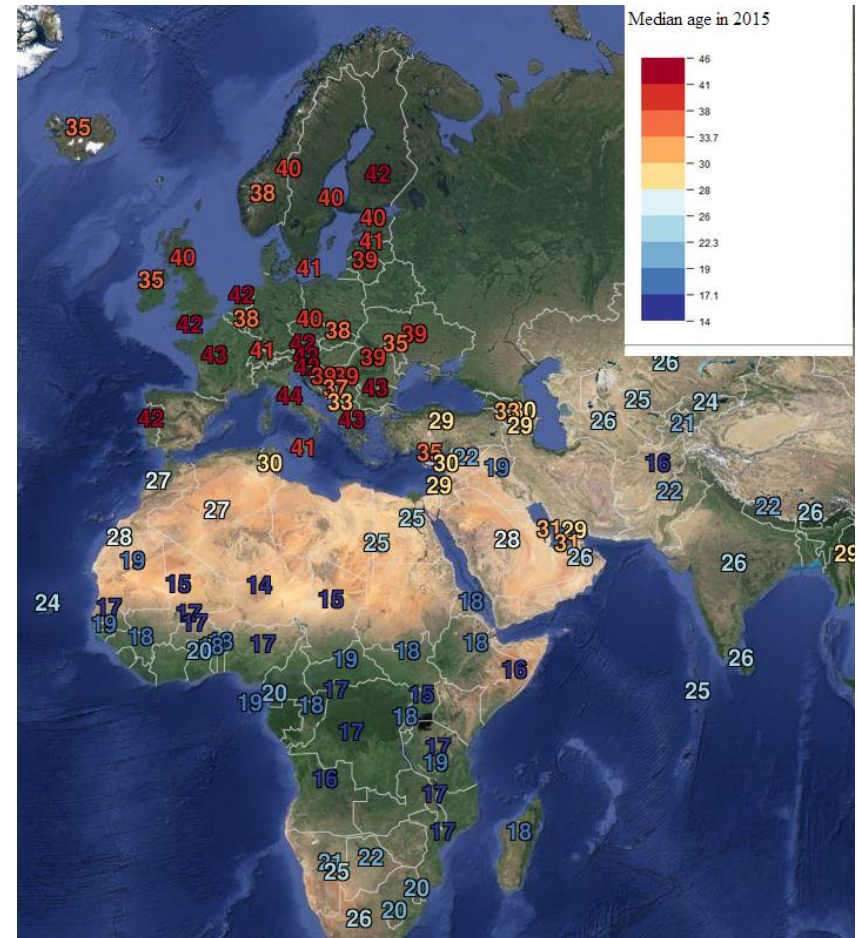


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What is Geo-spatial Analytics?

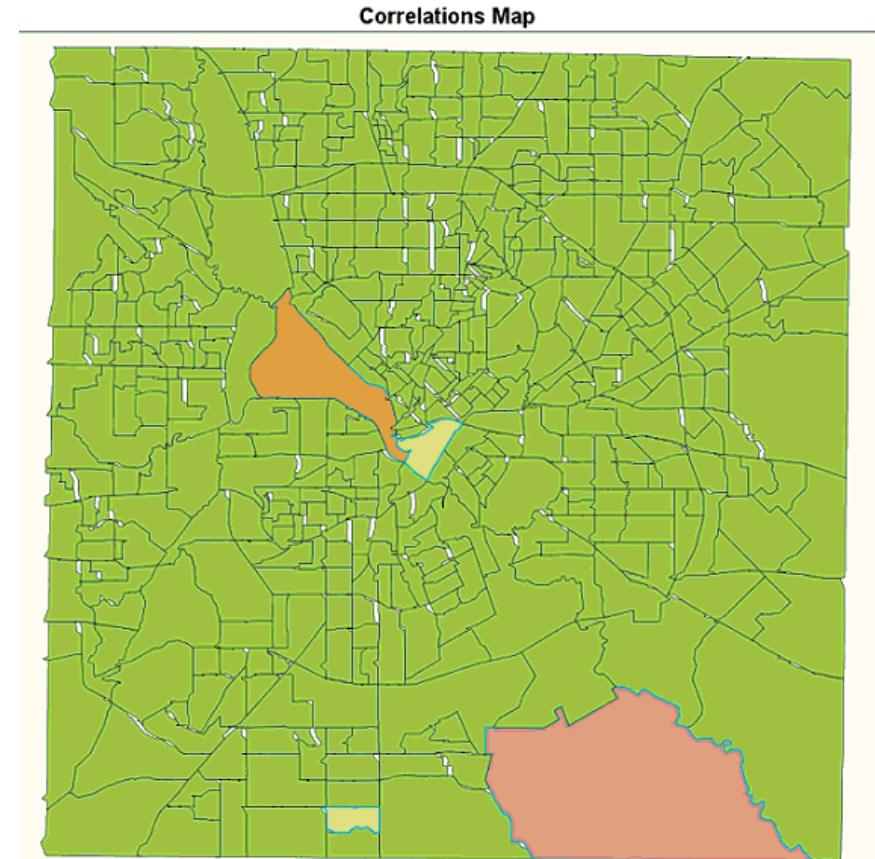
- Approach to apply statistical and other informational techniques to data which has a geospatial aspect.
- Gain new insights into your data by including time and location
- Understand your business like never before



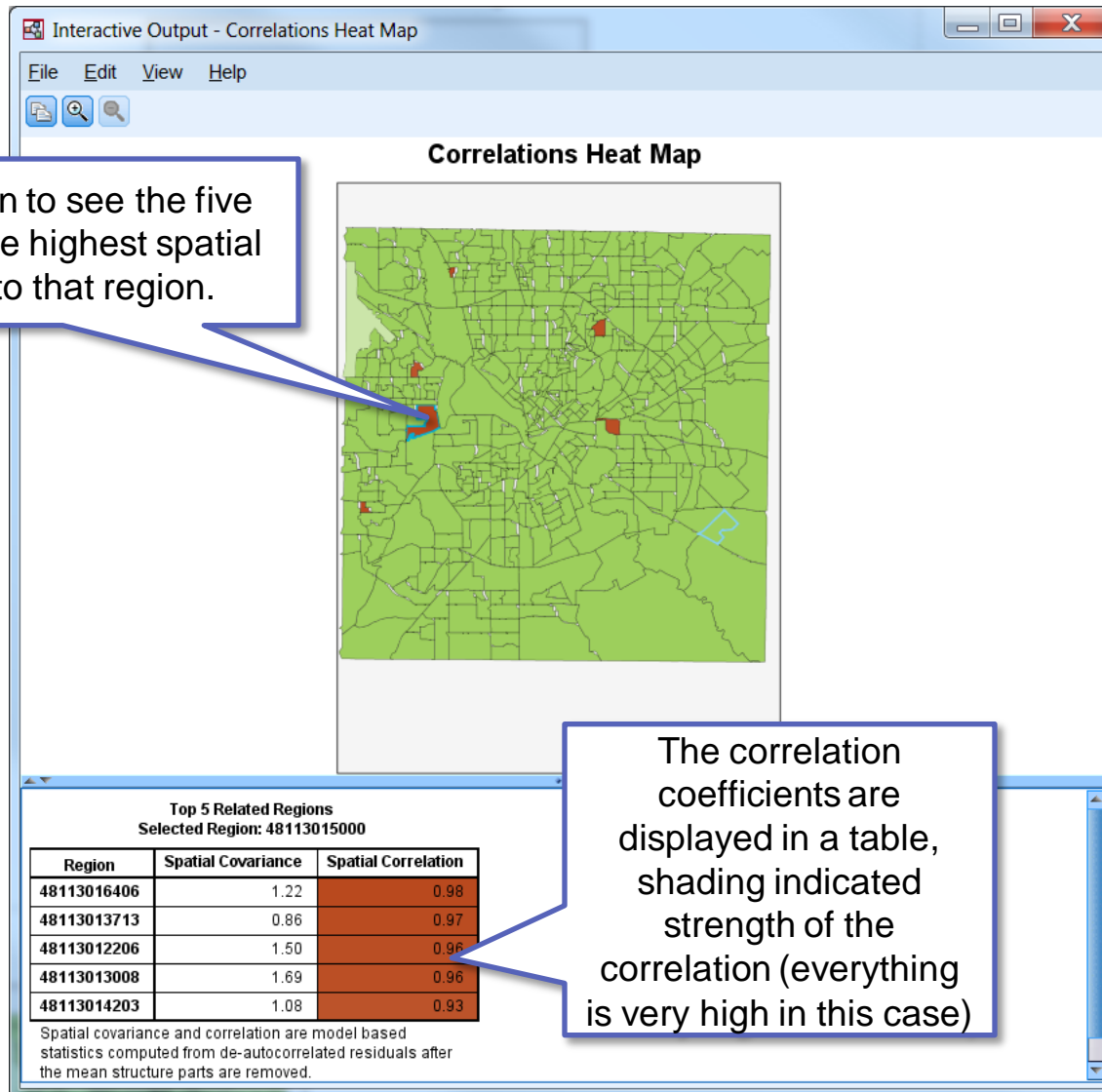
Geo-Spatial Analytics – Spatio Temporal Prediction

Spatio-temporal prediction (STP)

- What does that mean?
 - Applies to situations with both a time and space element (e.g. disease outbreak, weather phenomena)
- Why is this important?
 - Enables organizations to predict “hot” areas and how those areas will change over time
- Fits linear model for measurements taken over time at locations
- Business applications include disease outbreak management, weather events, crime analysis, buildings management, branch performance analysis, etc.



Spatio Temporal Prediction - Heatmap



Spatio Temporal Prediction – Correlations Map

The screenshot displays the 'Interactive Output - Correlations Map' application. It features a main window with a 'Correlations Map' and a 'Target Time Series Plot'. A callout box points to the map with the text: "Select up to 5 regions to see how they are related to each other." Another callout box points to the 'Time Series' tab with the text: "Other tabs display other information, such as the time series plot for the target value." A third callout box points to the 'Spatial Correlation Matrix' table with the text: "The color coded regions are added to the matrix below the map".

Spatial Correlation Matrix

Region	48113010000	48113000300	48113003902	48113020200	48113016903
48113010000	1.00	0.83	0.83	-0.43	-0.62
48113000300	0.83	1.00	1.00	-0.37	-0.79
48113003902	0.83	1.00	1.00	-0.37	-0.79
48113020200	-0.43	-0.37	-0.37	1.00	-0.18
48113016903	-0.62	-0.79	-0.79	-0.18	1.00

Spatial covariance and correlation are model based statistics computed from the residuals after the mean structure parts are removed.

Target Time Series Plot

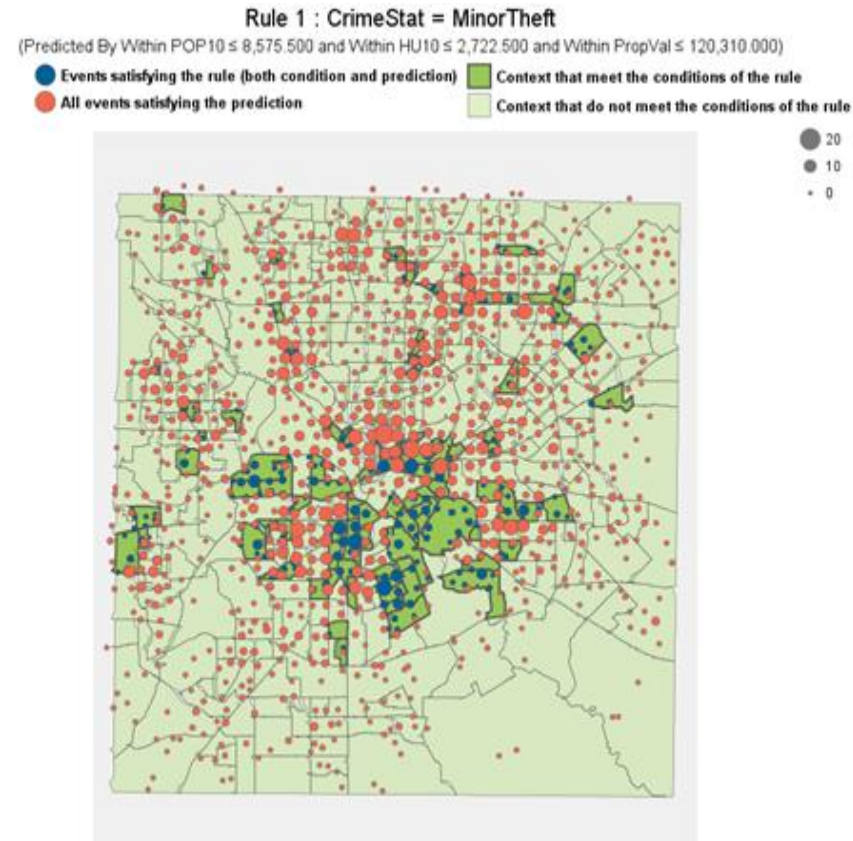
The plot shows the target time series for five regions from 2013-08-01 to 2014-06-01. The legend indicates the following regions:

- 48113003902 (Blue line)
- 48113020200 (Green line)
- 48113016903 (Yellow line)
- 48113000300 (Orange line)
- 48113010000 (Red line)

Geo-Spatial Analytics – Generalized Spatial Association Rule

Generalized spatial association rule (GSAR)

- What does that mean?
 - Discover association rules among spatial and non-spatial attributes of reference objects and task-relevant objects
- Why is this important?
 - Enables organizations to find patterns/association rules to describe the occurrences of events given historical data which contains location, the type of event and the time the event occurred
- Business applications include crime pattern analysis, epidemic surveillance, etc.



Deployment of analytics



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Geo-Spatial Analytics



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**Embed Analytics
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Embedding Analytics Deeper into the Enterprise – Next generation of web reports

Make decisions anytime, anywhere

- View interactive IBM SPSS Statistics output on your smart devices
- Enables the decision maker to make data-driven decisions on the fly
- SPSS Statistics web reports have been completely redesigned, with more interactivity and functionality with web server support.

IBM SPSS Web Report - My Example Report

Regression
Default

Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.
		B	Std. Error	Beta			
1	(Constant)	9.164	.794			11.540	.000
	Current Salary	5.051E-5	.000	.299		4.061	.000
	Beginning Salary	.000	.000	.381		5.192	.000
	Months since Hire	.011	.009	.038		1.123	.262
	Previous Experience (months)	-.007	.001	-.240		-7.012	.000

Final Report

Sample 1 - Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.
51238-35702	84.125	66.653	1.262	.207	1.000
51238-50097	124.271	65.454	1.899	.058	1.000
51238-07057	130.184	70.773	1.839	.066	1.000
51238-14659	160.578	62.946	2.551	.011	.301
51238-50777	188.456	58.379	3.228	.001	.035
51238-43437	479.651	62.098	7.724	.000	.000
51238-99305	-530.221	71.224	-7.444	.000	.000
35702-50097	-40.146	70.632	-.568	.570	1.000
35702-07057	46.059	75.588	.609	.542	1.000
35702-14659	76.453	68.314	1.119	.263	1.000
35702-50777	-104.331	64.131	-1.627	.104	1.000

Embedding Analytics Deeper into the Enterprise – Programmability enhancements

Programmability enhancements for R

R in external mode

- Makes it easy for users to develop R programs for use with IBM SPSS Statistics because it provides access to an R Integrated Development Environment

Submit API for R

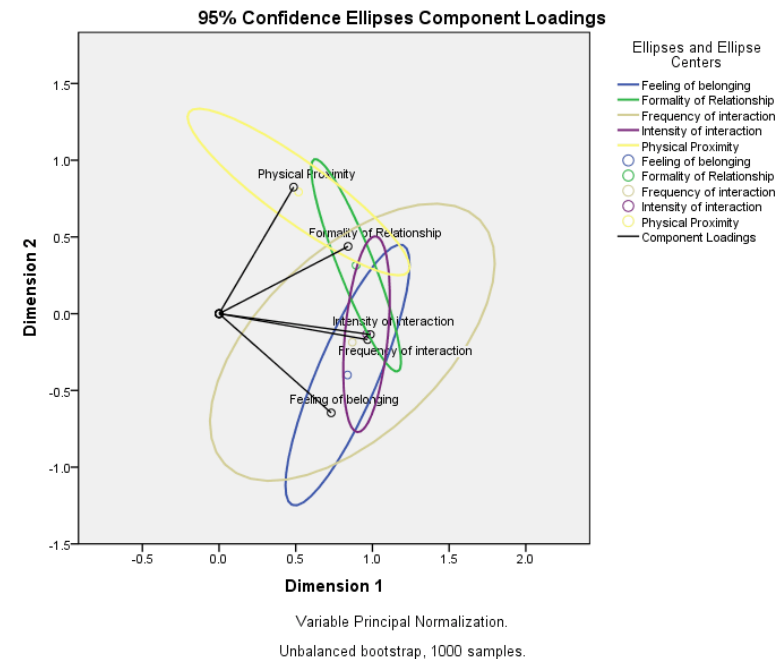
- Users can also write R functions that use Statistics functionality, from within R, but return results to R



Other features

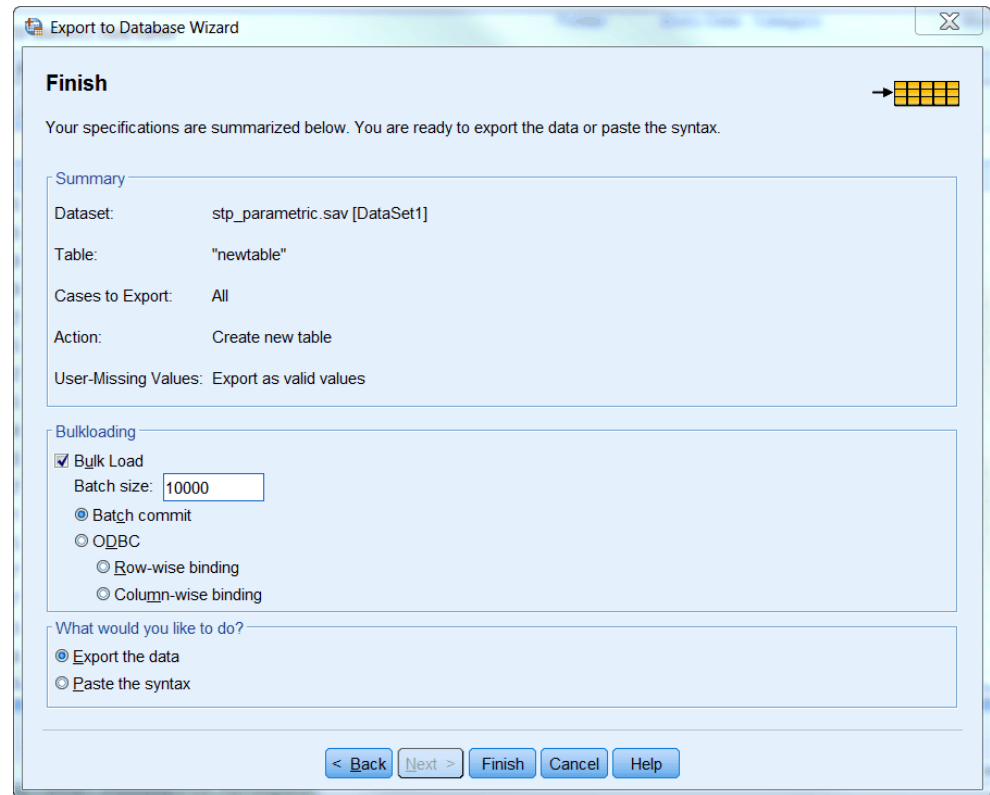
Improvements to Categorical Principal Components Analysis (CATPCA)

- Non-parametric bootstrapping for more stable estimates
- Clustering of case (in addition to variables)
- New rotation options for better convergence
- Easy way to use continuous variables



Other features

- Import newer version of Stata files
- Bulk export/insert to database
- Support badge reader security authentication



SPSS Statistics Editions

IBM SPSS Statistics Standard

Essential statistical procedures to help ensure accuracy and reliability of data analyses as well as table features to better understand data and easily report results

Capabilities include:

- Base
- Regression
- Advanced Statistics
- Custom tables

IBM SPSS Statistics Professional

Comprehensive set of features to address data quality and complexity issues, including automation and forecasting capabilities to name a few

Capabilities include **everything in Statistics Standard plus:**

- Data preparation
- Missing values
- Decision trees
- Forecasting
- Categories

IBM SPSS Statistics Premium

Most sophisticated advanced analytics procedures such as structural equation modeling, in-depth sampling assessment and testing, as well as procedures specifically geared for direct marketing.

Capabilities include everything in Statistics Professional plus:

- Conjoint
- Structural equation modeling
- Bootstrapping
- Exact tests
- Direct marketing
- Complex samples
- Neural networks
- Sample power
- High-end charts and graphics

IBM SPSS Statistics Server



THANK YOU