statgraphics 18®

Whats' new in Version 18?

DATA MANAGEMENT

1. **Big Data** – new file format for managing data with many millions of rows.
2. **Censored numeric data type** – for representing left, right and interval-censored data.
3. **Create data and code columns** – for consolidating multiple data columns.
4. **Currency data type** – for representing currency in dollars, Euros, pounds or yen.
5. **New operators** – 17 new operators for use in Statgraphics expressions.
6. **Replace censored values** – specification of replacement values for censored data.

GRAPHICS

1. **Contour plots** – new option to label each contour line.
2. **Demographic maps** – now supports SHP boundary files.
3. **Diamond plot** – dot plot with diamond displaying confidence interval for the mean.
4. **Donut chart** – alternative to piechart.
5. **Heat map** – shows the distribution of a quantitative factor by 2 categorical factors.
6. **Hexagon plot** – automatic replacement of scatterplots with hexagons for Big Data.
7. **Likert plot** – displays survey data recorded on a Likert scale.
8. **Regression models** – shading of area between confidence and prediction limits.
9. **Ribbon plot** – new type of plot for displaying response surfaces.
10. **Time series baseline plot** – for plotting data with upper and lower warning limits.
11. **Tornado and butterfly plots** – for comparing 2 samples of attribute data.

SYSTEM OPERATION

1. **Installation** – new option to deactivate program and move to new computer.
2. **Network installation** – new option to check out individual seats.
3. **R interface** – improved configuration of interface to the R language.
4. **Repeat analysis by** – replication of statistical procedures for multiple data columns.

DESIGN OF EXPERIMENTS & STATISTICAL PROCESS CONTROL

1. **Attribute capability analysis Statlet** – classical and Bayesian estimation.
2. **Capability control charts** – for Cp, Cpk, rate & proportion of nonconforming items.
3. **Capability control chart design** – determination of adequate sample size.
4. **Definitive screening designs** – new designs for fitting models with quadratic terms.
5. **Multivariate capability analysis** – new bootstrap confidence intervals.
6. **Multivariate tolerance limits** – using elliptical regions or Bonferroni approach.
7. **X-bar and R chart** – now available for subgroups with more than 100 observations.

NEW STATLETS

1. **Demographic map visualizer** – dynamic visualization of changes by location.
2. **Population pyramid** – dynamic visualization of comparative population changes.
3. **Sunflower plot** – displays Big Data with sunflowers replacing overlapping points.
4. **Trivariate density** – for displaying multivariate distribution of 3 variables.
5. **Violin plot** – combines box-and-whisker plot with nonparametric density estimate.
6. **Wind rose** – dynamic visualizer of changes in wind speed and direction over time.

OTHER NEW STATISTICAL PROCEDURES

1. **Classification and regression trees** – new machine learning algorithms.
2. **Distribution fitting (arbitrarily censored data)** – left, right and interval censoring.
3. **Equivalence & noninferiority tests** – for comparing two independent samples, two paired samples, one mean against a target, or a 2x2 crossover study.
4. **Multidimensional scaling** – displays multivariate data in a low dimensional space.
5. **Multivariate normal random numbers** – generates data with specified correlations.
6. **Multivariate normality test** – tests if data come from a multivariate normal distribution.
7. **Orthogonal regression** – fits models with errors in both Y and X.
8. **Text mining** – document scanning and construction of word clouds.
9. **X-13ARIMA-SEATS Seasonal Adjustment** – for time series data.

CHANGES TO EXISTING PROCEDURES

1. **Automatic forecasting** – Ljung-Box test for testing residual autocorrelations.
2. **Bivariate density plot** – overlays points on bivariate density contours.
3. **Box-and-whisker plots** – optional diamond to display confidence interval for mean.
4. **Capability analysis for variables** – new option to fit Johnson curves.
5. **Chi-square tests** – specification of minimum frequency before combining classes.
6. **Monte Carlo general simulation models** – new *Sensitivity Tornado Plot*.
7. **Monte Carlo simulation of ARIMA models** – option to specify starting values.
8. **Subset analysis** – new percentile plot and table of percentiles by group.