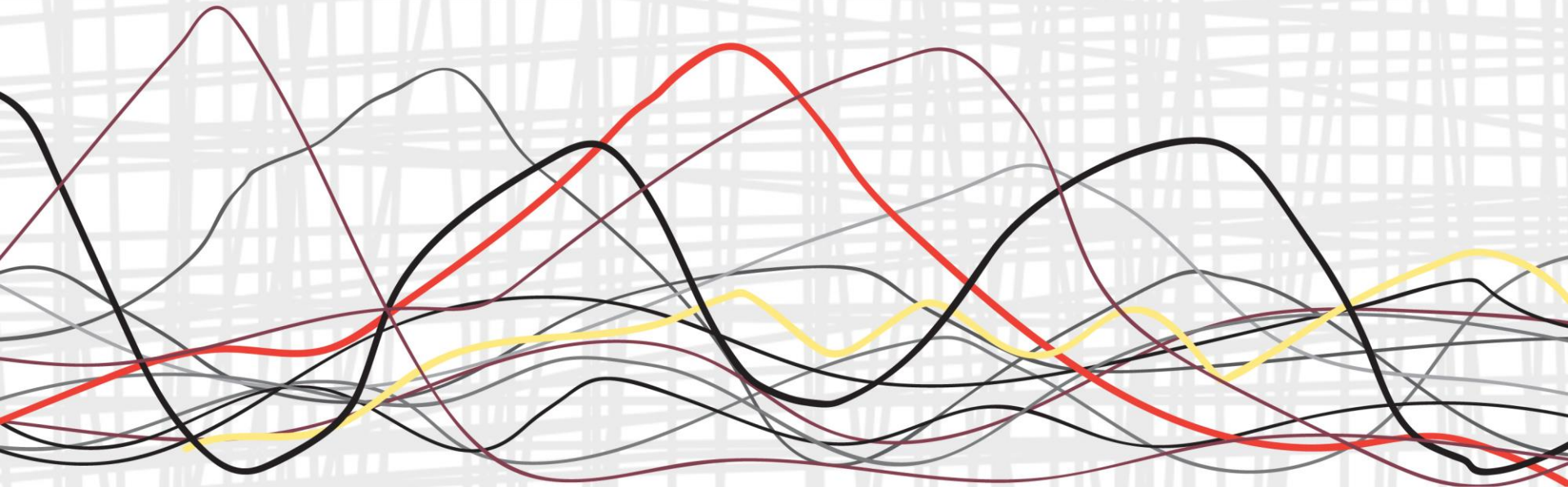


The logo for Statgraphics 19, featuring a stylized grid pattern of dark red squares and a yellow diamond shape.

statgraphics 19[®]

Python Interface



Features of Statgraphics/Python Interface

- Exchange data easily between Statgraphics and Python.
- Run saved Python scripts on data stored in a Statgraphics StatFolio.
- Retrieve output from Python and work with it in Statgraphics.
- Access Python libraries from within Statgraphics procedures.

Interfaces Menu

The screenshot displays the STATGRAPHICS 19 software interface. The main menu bar includes File, Home, Edit, Plot, Describe, Compare, Relate, Time Series, Multivariate, SPC, DOF, SnapStats, Statlets, Tools, and Interfaces. The 'Interfaces' menu is open, showing options for R and Python. The R section includes Installation and Configuration, Exchange Data, Execute Script, Machine Learning, Distribution Fitting, Regression Analysis, Multidimensional Scaling, Text Mining, and X-13ARIMA-SEATS Seasonal Adjustment. The Python section includes Installation and Configuration, Exchange Data, Execute Script, K-Means Clustering, and Support Vector Machines. A sidebar on the left contains icons for DataBook, StatAdvisor, StatGallery, StatReporter, StatFolio Comments, StatLog, and Dashboard. A central window titled '<untitled>' shows a data table with 14 rows and 8 columns. The first row is a header with columns labeled Col_1 through Col_8. The second row indicates the data type for each column as 'Numeric'. The first cell of the first data row (row 1, column 1) is currently empty and selected.

	Col_1	Col_2	Col_3	Col_4	Col_5	Col_6	Col_7	Col_8
	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								

Click on a menu item with the right mouse button to display documentation. CAP NUM REC

Installation and Configuration

Python - Installation and Configuration ✕

1. To install Python, click one of the 'Download' links on the Python website:

2. After installing Python, enter the path to python.exe in the field below:

3. Set the maximum time to wait for Python to execute a set of commands:
 seconds

4. Install the Python modules for the procedures you want to use by clicking the buttons below.

<input type="button" value="List installed modules"/>	
<input type="button" value="Install IPython,Jupyter,Numpy,Pandas,Scipy"/>	Required by all procedures.
<input type="button" value="Install Matplotlib"/>	Required for creating graphs
<input type="button" value="Install Scikit-learn"/>	For machine learning algorithms

Exchange Data: Export

Export Data to Python

Step 1: Specify Python DataFrame to be created:

Name:

Save strings as categorical variables

Step 2: Select columns to transfer (if not all).

Step 3: Export data to a CSV file:

Step 4: Enter the following command in the Python window:

```
import pandas
import numpy
data = pandas.read_csv(r'C:\Users\NEIL~1.STA\AppData\Local\Temp\statgraphics_data.csv')
data=data.replace(-32768,numpy.NaN)
```

Step 5: To display the data, enter the following command in the Python window:

Exchange Data: Import

```
C:\Users\neil.STATPOINT\AppData\Local\Programs\Python\Python37\python.exe
>>> import pandas as pd
>>> from sklearn.datasets import load_boston
>>> data=load_boston()
>>> results = pd.DataFrame(data.data, columns=data.feature_names)
>>> results.head()
   CRIM    ZN  INDUS  CHAS    NOX     RM   AGE     DIS  RAD    TAX  PTRATIO      B  LSTAT
0  0.00632  18.0   2.31   0.0  0.538  6.575  65.2  4.0900  1.0  296.0    15.3  396.90  4.98
1  0.02731   0.0   7.07   0.0  0.469  6.421  78.9  4.9671  2.0  242.0    17.8  396.90  9.14
2  0.02729   0.0   7.07   0.0  0.469  7.185  61.1  4.9671  2.0  242.0    17.8  392.83  4.03
3  0.03237   0.0   2.18   0.0  0.458  6.998  45.8  6.0622  3.0  222.0    18.7  394.63  2.94
4  0.06905   0.0   2.18   0.0  0.458  7.147  54.2  6.0622  3.0  222.0    18.7  396.90  5.33
>>> _
```

Import Data from Python

Step 1: Specify Python DataFrame to be imported:

Name:

Step 2: Specify temporary file to be created:

Filename:

Step 3: Enter the following command in the Python window:

Step 4: Import data to a Statgraphics datasheet:

Sheet: A B C D E F G H I J K L M

N O P Q R S T U V W X Y Z Delete existing data

Running Python Scripts

Interface to Python - Execute Script Options

Path to Python:
C:\Users\neil.STATPOINT\AppData\Local\Programs\Python\Python37\python.exe

Exported data
Python DataFrame to be created:
data Save strings as categorical variables Remove unselected rows

Python script
Graph width: 5.0 inches Graph height: 5.0 inches Timeout: 60.0 seconds

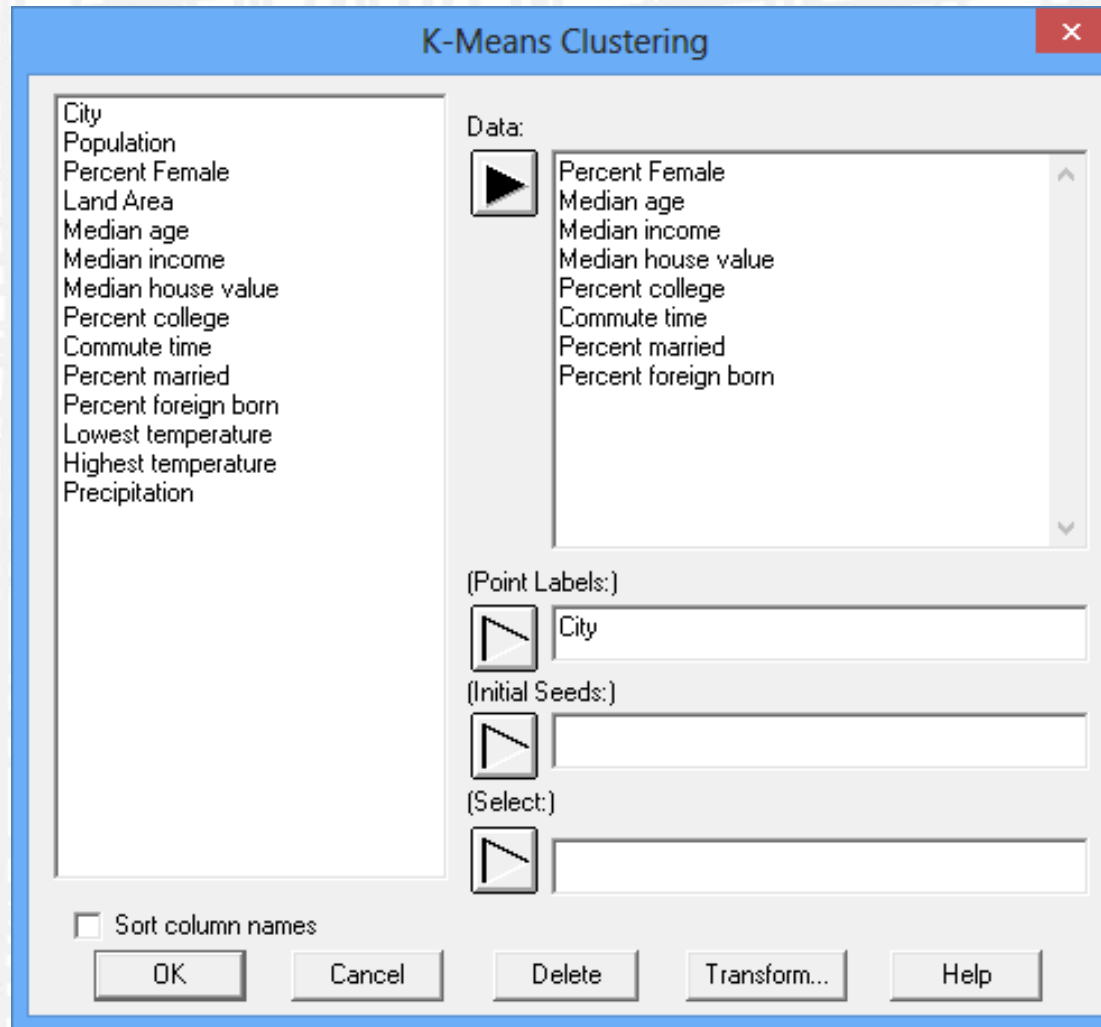
```
import pandas as pd
from sklearn.datasets import load_boston
data=load_boston()
results=pd.DataFrame(data.data,columns=data.feature_names)
results.to_csv(r'C:\data\Python_results.csv',index=False)
```

Imported data
CSV file to be imported (if any):
C:\data\Python_results.csv

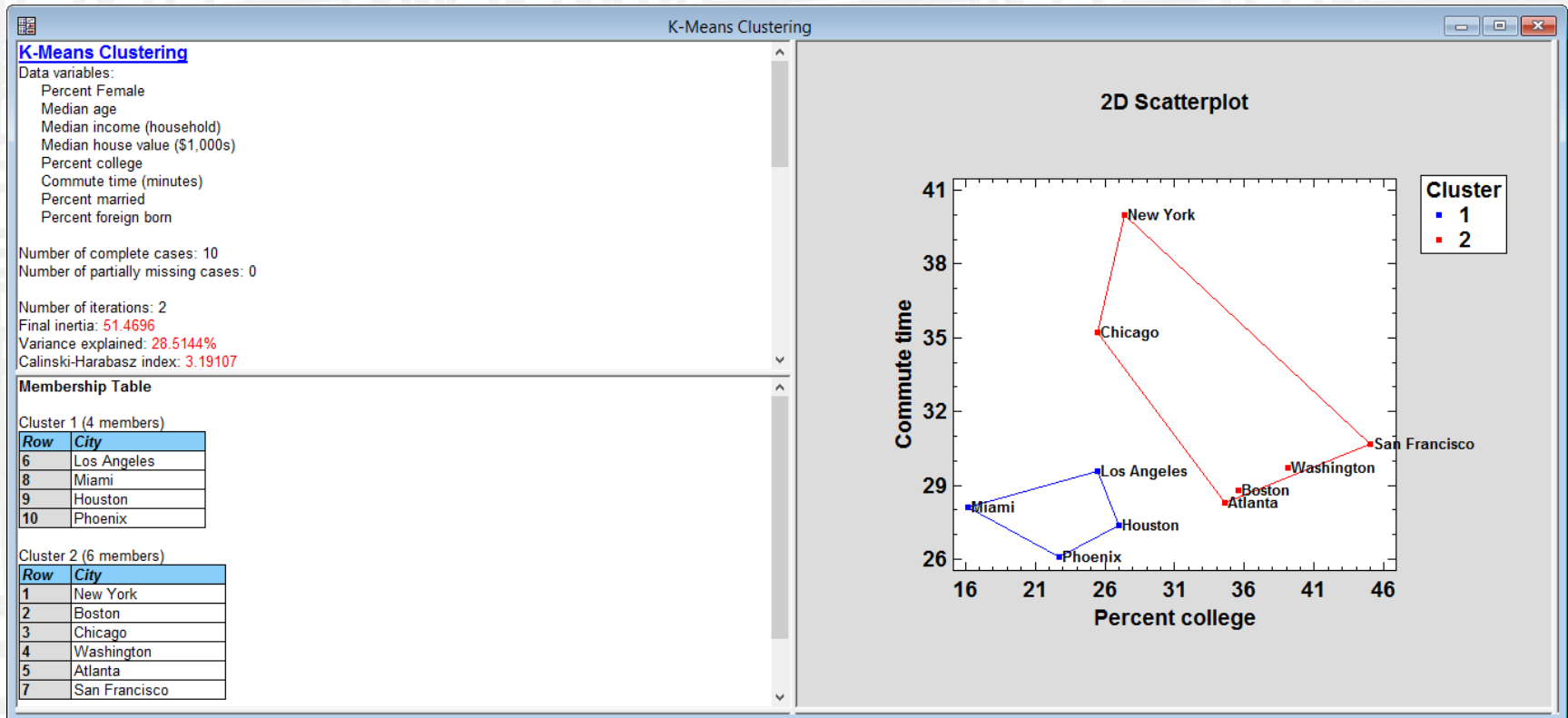
Datasheet: A B C D E F G H I J K L M Delete existing data
 N O P Q R S T U V W X Y Z

OK Cancel Help

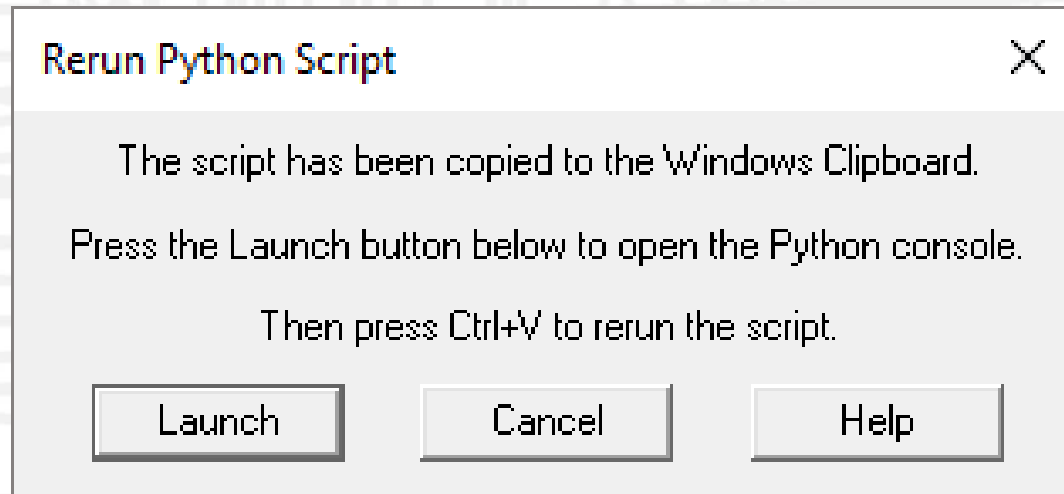
Accessing Python Libraries



Accessing Python Libraries



Rerunning Script



References

These notes and the recorded webinar will be posted at:

www.Statgraphics.com/webinars