R and Python Visuals in PowerBI Guide

This guide explains how to create Python and R visuals in PowerBI.

Requirements

This feature is enabled by the installation of R and Python and the subsequent linking to PowerBI explained in the previous lesson.

Packages

Functions and code are collected into packages. Visualisations in both programs are enabled by these packages meaning that relevant packages must be installed in order to access visualisations.

Basic Steps

Step 1. Choose visual. Use R and Python Galleries to identify which visual you wish to use in Power BI. Links to galleries below.

1. R Gallery - https://www.r-graph-gallery.com/index.html
2. Python Gallery - https://python-graph-gallery.com/

Step 2. Install and relevant packages. Identify which package required to then install using the instructions provided below.

Step 3. Set up python or R visual in Power BI. Select R of python visualisation and select the fields that you want to include in your visualisation. PowerBI will create a data frame which includes all these fields call ‘dataset’.

Step 4. Create relevant code. Copy base code from Python or R gallery. Make sure that you have imported the relevant library and insert the dataset into the relevant brackets and select Run.

Steps in detail

Step 1. Choose visual

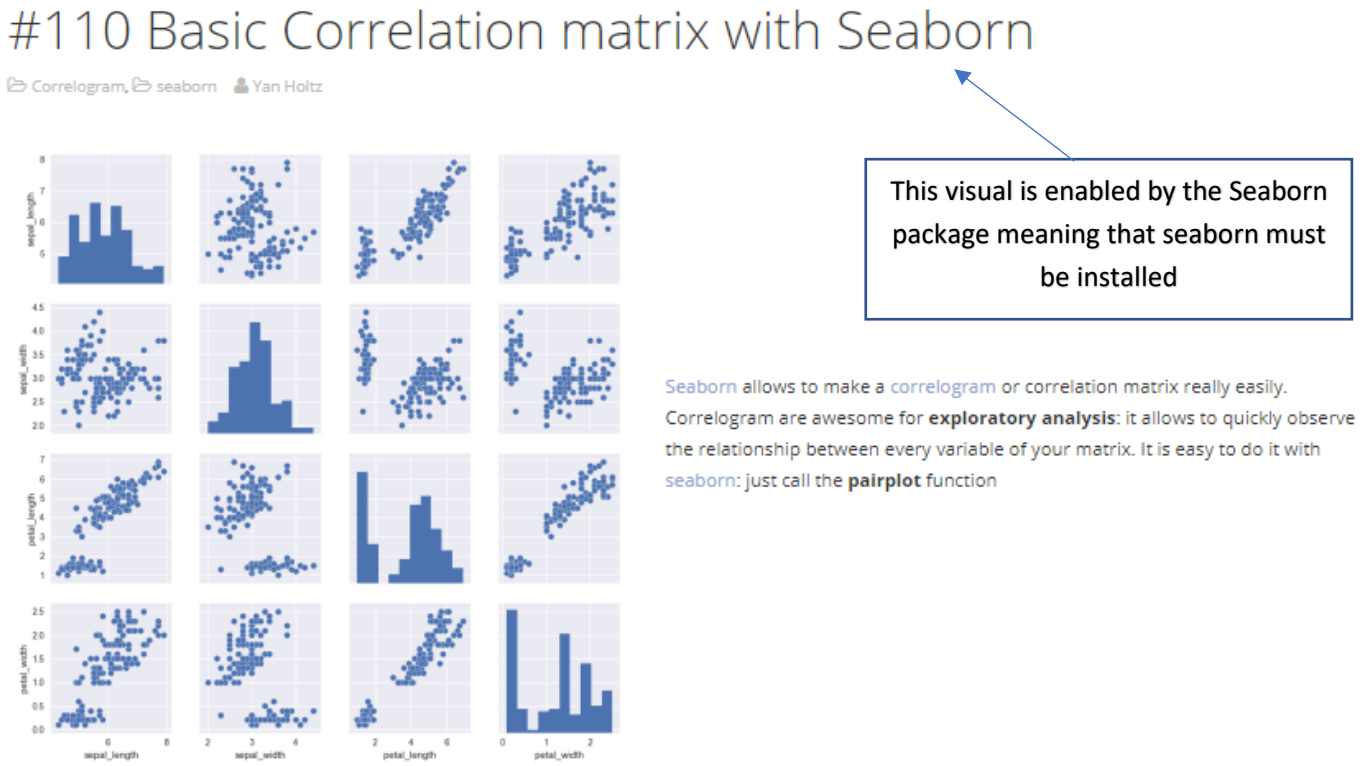
Use R and Python Galleries to identify which visual you wish to use in Power BI. Links to galleries below.

a. R Gallery - https://www.r-graph-gallery.com/index.html
b. Python Gallery - https://python-graph-gallery.com/

Step 2. Install and import relevant package.

Identify which package you are required to install in the relevant gallery.

Screenshot of Python Gallery

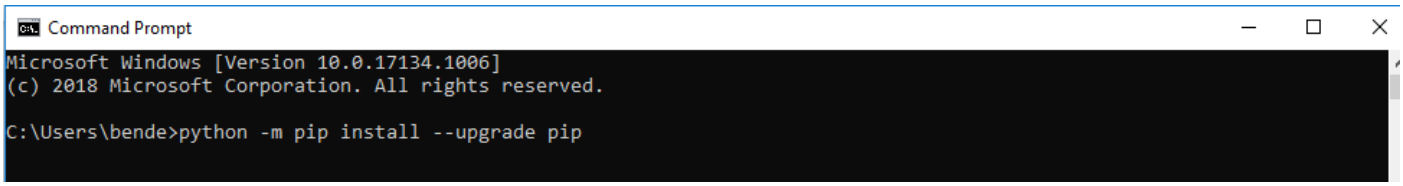



```
# library & dataset
import seaborn as sns
df = sns.load_dataset('iris')
import matplotlib.pyplot as plt

# Basic correlogram
sns.pairplot(df)
sns.plt.show()
```

To install a python package

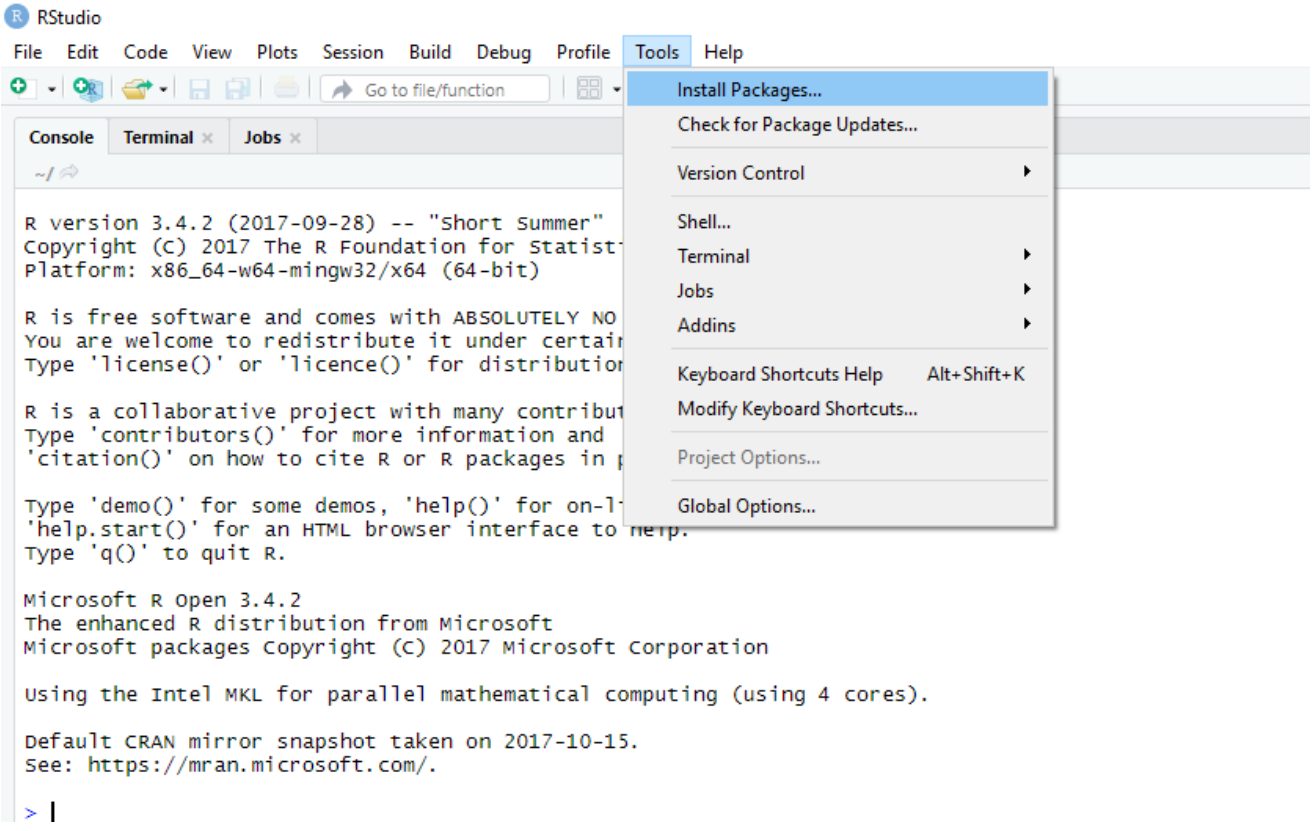
- Open command prompt using Windows + R, typing CMD and then ok or by typing in the search from the start menu
- In Command prompt first make sure that PIP (the package that we will use to install packages is installed and upgraded) by typing in this code - **python -m pip install --upgrade pip**



- Install python packages type **pip install *package name*.** For example **pip install seaborn.** As a starting point make sure to install, seaborn, matplotlib and pandas

To install an R package

- Open R studio
- Navigate to Tools > Install Packages

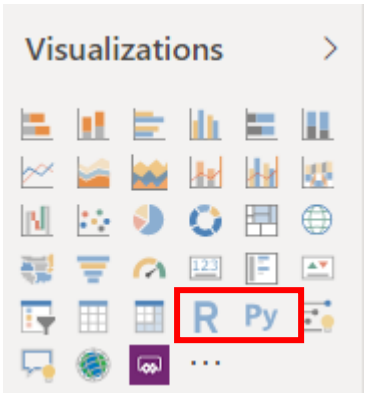


- Type in the name of the package and select install

Packages are only required to be installed once

Step 3. Set up python or R visual in Power BI.

Select R or Python visualisation from the visualisation pane



Select or drag and drop the field which you wish to include.

PowerBI will create a Dataframe called dataset which includes all the fields selected.

Step 4. Create relevant code

Use code provided in the galleries as a template

Example of code provided on Python Gallery

```
# library & dataset
import seaborn as sns
df = sns.load_dataset('iris')
import matplotlib.pyplot as plt

# Basic correlogram
sns.pairplot(df)
sns.plt.show()
```

Use this code as a template for your visualisation

Build your code making sure to include import the package and place the dataset into the brackets after the function

```
# Paste or type your script code here:
import seaborn as sns
import matplotlib.pyplot as plt

sns.pairplot(dataset)
plt.show()
```

Importing packages and giving them a short title using “as”

Inserting the dataset (fields which PowerBI have built into a dataframe) into the function (pairplot)

Conclusion

Creating R and Python visualisation in PowerBI can be a worthwhile and valuable effort. While these instruction provide a basic overview, some R or Python visualisations will require R and Python coding knowledge.