Exercise: Time Series analysis for more than one series *(iNZight Lite version)*

This exercise will enable you to use iNZight to compare several series using Time Series analysis.

The skills addressed are:

- Use iNZight Lite to create a Time Series plot for more than one series.
- Use iNZight Lite to get several Time Series plots for different variables at the same time, to be able to compare them.

INSTRUCTIONS

Start iNZight Lite and import the **AverageVisitorsQuarterly** dataset into iNZight Lite using **File > Dataset Examples** and select Dataset Category: **Future-Learn**. Select **AverageVisitorsQuarterly** and click on **Select Set.**

Comparing several series

In the previous exercise we only looked at the visitors from one country alone. Now we want to see the graphs for more than one, to be able to compare their visitor numbers.

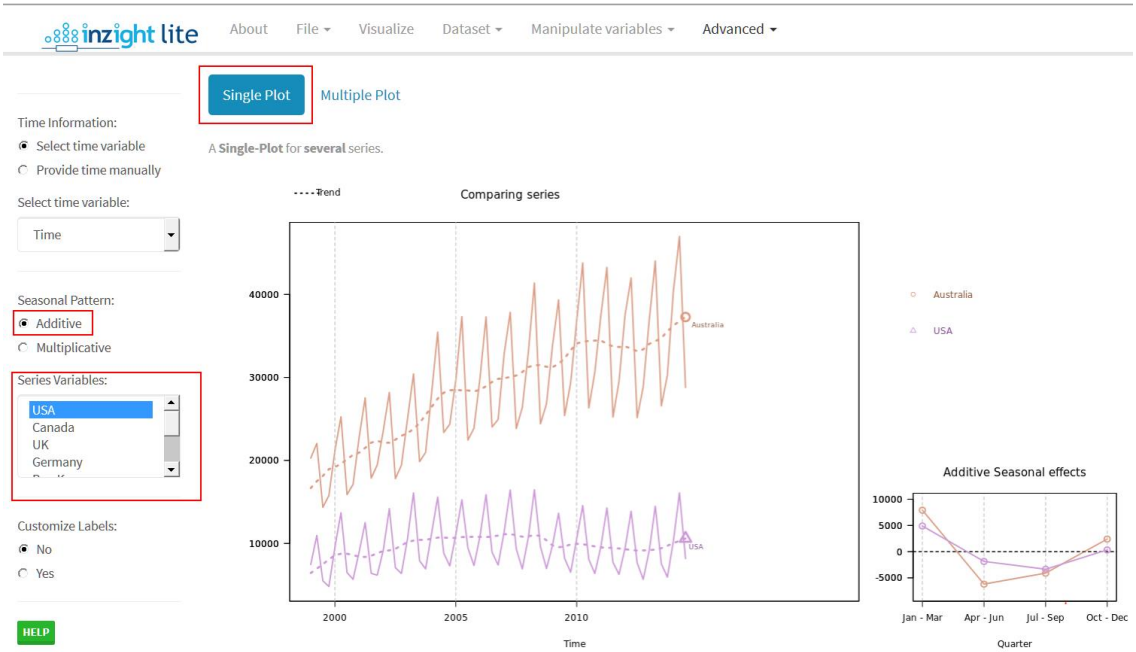
To do this we need the Time Series window again.

- Click **Advanced** in the top menu
- Select **Time Series**.

Staying on the Single Plot tab, first we'll compare visitors from Australia and the USA.

- Select **Australia** and hold the **Ctrl** key on your keyboard while selecting **USA**
- Choose Seasonal Pattern: **Additive** (if not already the default)

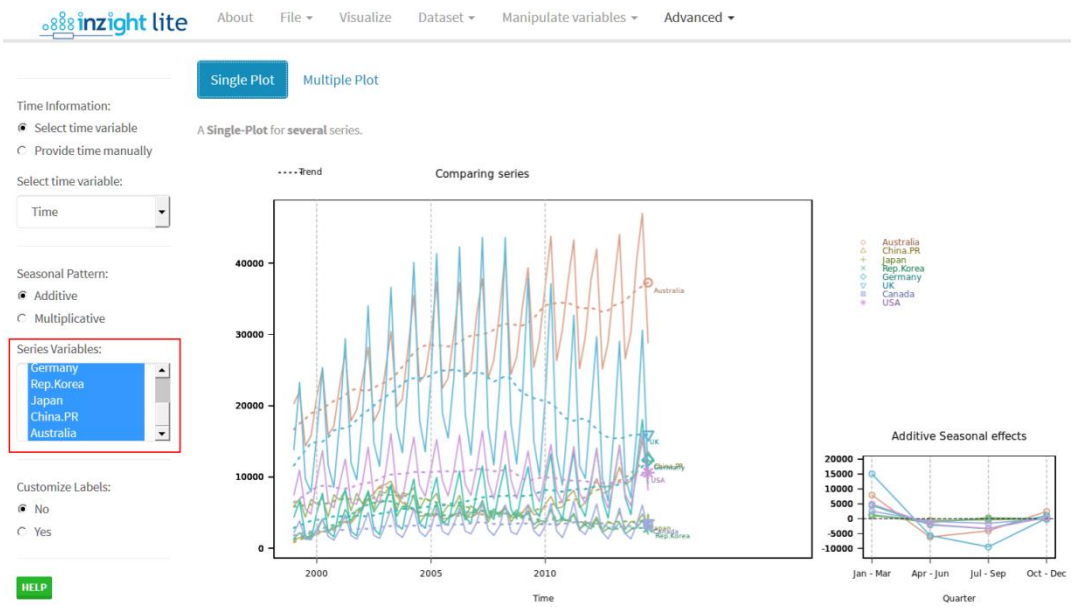
A Time Series plot will appear including the graphs for the USA and for Australia. On the right hand side you find the Additive Seasonal effects for both countries.



Now we want to make a comparison for all the offered countries.

Staying with Additive Seasonal Pattern and a Single Plot:

- Select all countries, hold the **Ctrl** key on your keyboard to do so.



Even though the plot shows the graphs for all countries it is quite hard to make comparisons because the graphs are too close in the bottom part.

When the visitor arrival numbers were plotted in the video, the numbers from Australia were much bigger than those from anywhere else. Here with numbers of visitors currently in the country, the Australian figures are similar to the UK (at least until 2008 when the UK numbers started going down after the Global Financial Crisis).

What do you think might account for these differences (Australian "visitor arrivals" numbers much larger but "average visitor numbers in NZ" similar)?

To see the separate graphs, click the **Multi-Plot tab**.

Here all Time Series plots are separate and the approximation (Trend + Seasonal Swing) is also shown in green. On the right side you have the Additive Seasonal Effect for each year in grey and the average in red.

If you have a problem with seeing the different lines it may help to enlarge the window.

Explore (~5min)

Use the Single-Plot and the Multi-Plot option to compare different countries. What similarities and differences do you see?

Post a comment if you discover anything interesting.