2.13 Exercise: Comparing groups

This exercise will enable you to construct the types of graphs and summaries used in the previous video. The skills addressed are:

1. Get dot plots and summary tables when both a numeric variable and a categorical variable (containing the group labels) are used.
2. Colour by a third variable.

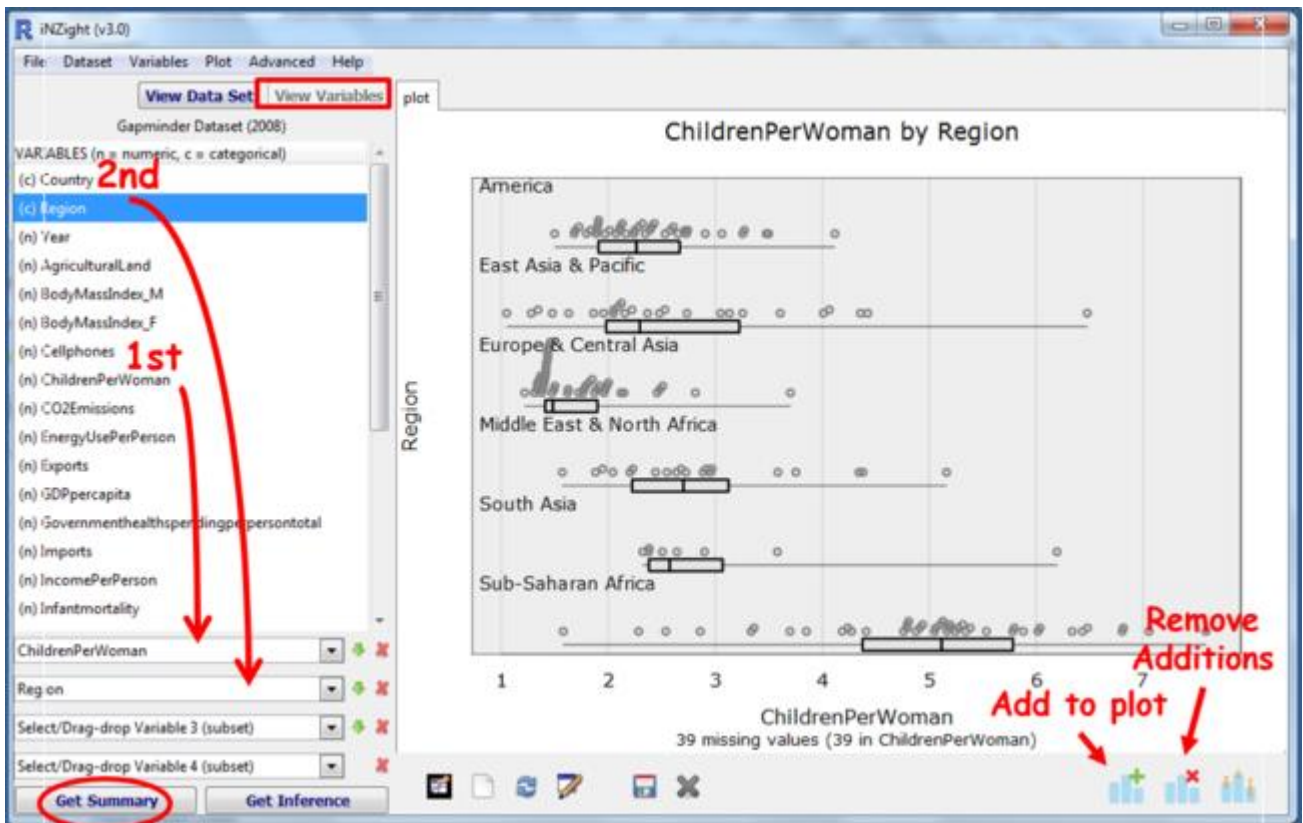[*iNZight Lite version [linked here](#)*]

INSTRUCTIONS

Follow the instructions below to generate the plots. Or you may prefer to [print the instructions](#). If you have a problem doing the exercise, scroll down to **Common questions**.

Watch the first minute of the iNZight instructional video [linked here](#) (the video then goes on to deal with more variable types).

Load the **gapminder_2008** dataset into iNZight using **File > Example data ….** You will find the data set in **Module (package)** *FutureLearn* . Put iNZight into **View Variables** mode.

Make dot plots from one numeric and one categorical variable

Drag the variable name **ChildrenPerWoman** into the **Variable 1** slot and **Region** into the **Variable 2** slot.

[iNZight automatically produces a set of dot plots for comparing groups whenever the name of a **numeric** variable is dragged into the **Variable 1** slot and the name of a **categorical** variable is dragged into the **Variable 2** slot (or the other way around).]

Generate the Summary window

Click **Get Summary** to get the associated summary table.

iNZight Summary

Primary variable of interest: ChildrenPerWoman (numeric)
Secondary variable: Region (factor)

Total number of observations: 225
Number ommitted due to missingness: 39 (39 in ChildrenPerWoman)
Total number of observations used: 186

Summary of ChildrenPerWoman by Region:

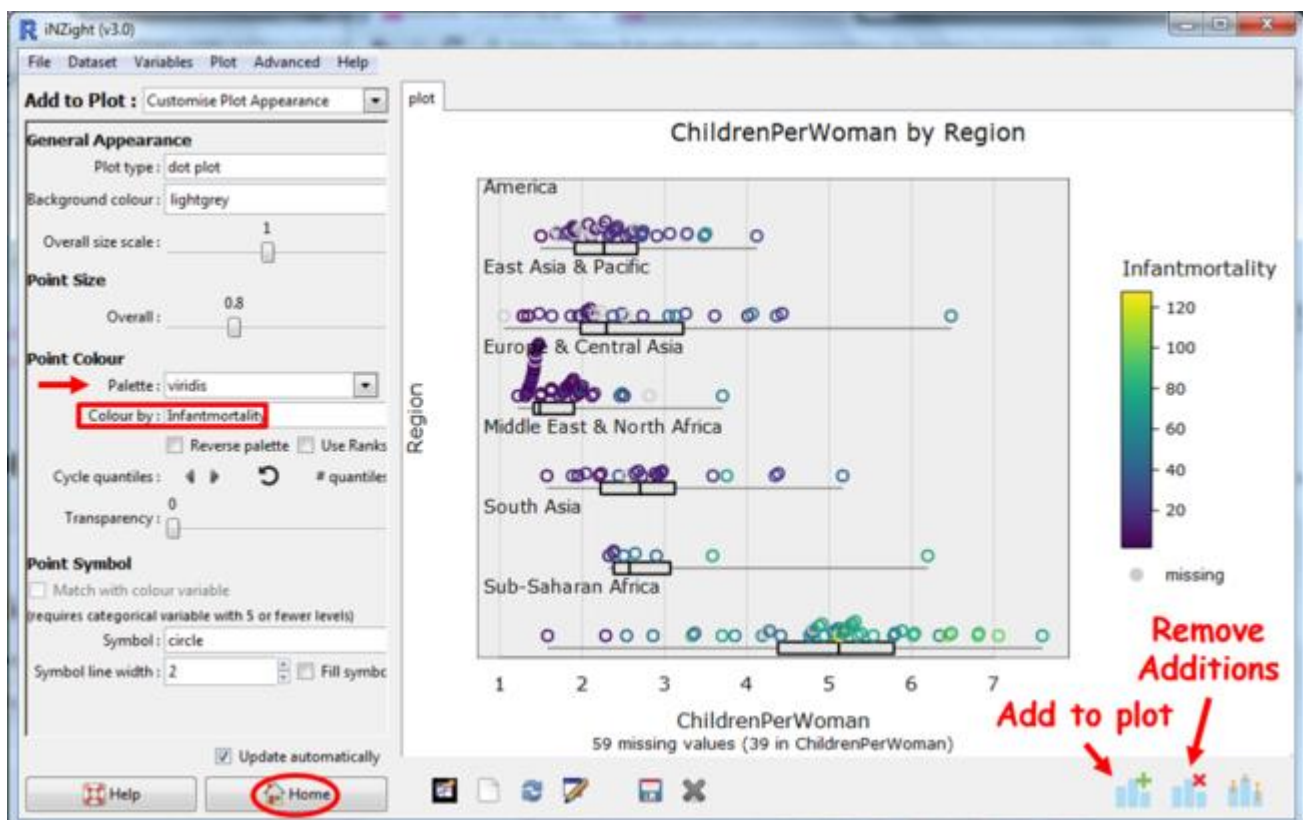|	Min	25%	Median	75%	Max	Mean	SD	Sample Size
America	1.498	1.908	2.264	2.668	4.119	2.377	0.5779	40
East Asia & Pacific	1.050	1.979	2.295	3.226	6.479	2.685	1.2292	26
Europe & Central Asia	1.218	1.410	1.482	1.898	3.703	1.713	0.4700	48
Middle East & North Africa	1.570	2.223	2.703	3.125	5.163	2.893	0.9310	20
South Asia	2.323	2.381	2.574	3.069	6.196	3.113	1.3125	8
Sub-Saharan Africa	1.579	4.377	5.117	5.785	7.588	4.990	1.2674	44

PRACTICE (~5 min)

By changing your Variable 1 choice, look for regional differences in other variables. After you have done this with a couple, try this *speed tip: Click inside the Variable 1 box and use the up and down arrow keys to step through the variables.*

From the **Gapminder-2008** dataset, choose other variables (one numeric variable and one categorical) that are of interest to you. When you drag a different variable into the variable slot it automatically overwrites the previous variable.

Colour by a third variable

Recreate the first graph of **ChildrenPerWoman** and **Region**. Go to **Add to Plot** and Colour by Levels of **InfantMortality**.

Some things to try:

- Change the **Colour-by** variable to something else you think might affect *ChildrenPerWoman* and partly explain regional differences.
- Explore choices of **Palette**.
- See what **Reverse palette** and **Use ranks** do. See what the **Cycle quantiles** buttons do.

- Change **Point Size**.

PRACTICE (~5 min)

Try some other choices for the numeric variable in the **Variable 1** slot and the colour-by variable. You will need to press the **Home** button to return to the Home command panel to plot other variables. You can use **Remove Additions** if you want to turn off colouring.

Optional

Try this new feature (interactive web graphics)

Save your graph as **File Type:** *Interactive HTML* (you will have to supply a name for the file). The file will open up in your default browser. If that is a modern browser like Chrome, Firefox or Safari (but not Internet Explorer) this will then give you an interactive version of the graph that lets you query it in various ways like hovering over the points or clicking them. Click on the box plot and it will display the numerical values.

The save process can be slow if there are a lot of dots to be drawn. You can give such files to others. They do not need to be connected to iNZight to work.

Alternatively when this icon appears and is blue, simply clicking it will fire up an interactive version of the current plot.

Other ways of representing data like this (*iNZight versions from 3.4.6*)

There are several ways of plotting the data like this. Go to **Add to Plot** and look at what is delivered by the various options under **Plot type**. Can you see relationships between the ways the various types of graph represent the information? Play with some of the controls for each plot type.

Common questions

When I resized the window my plot disappeared.
Click the "Redraw plot" button.

The graph isn't showing my changes.
Make sure the **Update automatically** checkbox at the bottom of Add to Plot > Customise Plot Appearance command panel is checked.

Some columns of dots look like they are suspended in mid-air.
iNZight stacks points that are close together but not identical. This problem occurs when the points are discretely spaced but too big to drop down onto the axis. Reduce the **Point size** until they drop down.

How can I add the names of countries as in the video?
Use **Add to Plot** > **Identify points** . For **Text labels**, choose **Country**. If you want the same country labels to appear across subsequent plots, also choose **Country** for **With the same level of**. There are several ways of selecting points to be labelled – <u>see the help page here</u>.

I don't like the plot title or axis labels. How do I change them?
In **Add to Plot** select **Axes and labels**.

How do I save my graph from iNZight for use in another document?
Click on the **Save Plot icon** at the bottom of your graph, or go **Plot > Save Plot**. There several formats available, e.g. pdf, png, …

How do I copy and paste my graph from iNZight into another document?
Copy and paste only works in Windows. (Otherwise you have to use screen shots.) Click on the **New graphics window** icon at the bottom of your graph (*you can hover over the icons to see what they do*), then you will have another copy of your graph in a separate graphics window. Right click on this new window, and **Copy as bitmap**. (Copy as metafile is not working for dot plots.)

Remember, for *how to* instructions for iNZight you should consult iNZight's <u>User Guides</u>. For *technical issues* with running iNZight, you should first consult iNZight's <u>frequently asked questions (FAQ)</u> page and if the answer you need is not there ask at <u>iNZight support</u>.