



3. Numerical variables

Key iNZight skills addressed:

- Visual displays (histograms and boxplots) and summary tables (statistics) for a numerical variable.
- Use of colour to consider association with another variable
- Changing between dotplots and histograms

Relevant StatsTuneUp video to consider:

- 'Random Variables' available at <http://statstuneup.com.au/random-variables/>
- 'Visual Displays: Single Variable' available at <http://statstuneup.com.au/one-variable/>

Side note: Numerical variables

A variable is a measure of interest, e.g., time to download video game (in seconds). Variables may be numerical or categorical.

Numerical variables have responses (observations, or data) that arise from a measuring process which quantifies the outcome numerically, e.g., length (in metres), time (in seconds), weight (in kg), and so forth.

We collect data for each variable and want to describe (summarise) the information visually (through graphs) and quantitatively (through statistics, e.g., mean, median, range, quartiles, standard deviation).

Recommended viewing: please consider the 4-minute animated videos 'Random Variables' and 'Visual Displays: Single Variable' available at <http://statstuneup.com.au/random-variables/> and <http://statstuneup.com.au/one-variable/> (click on 'The Video' tab to view)

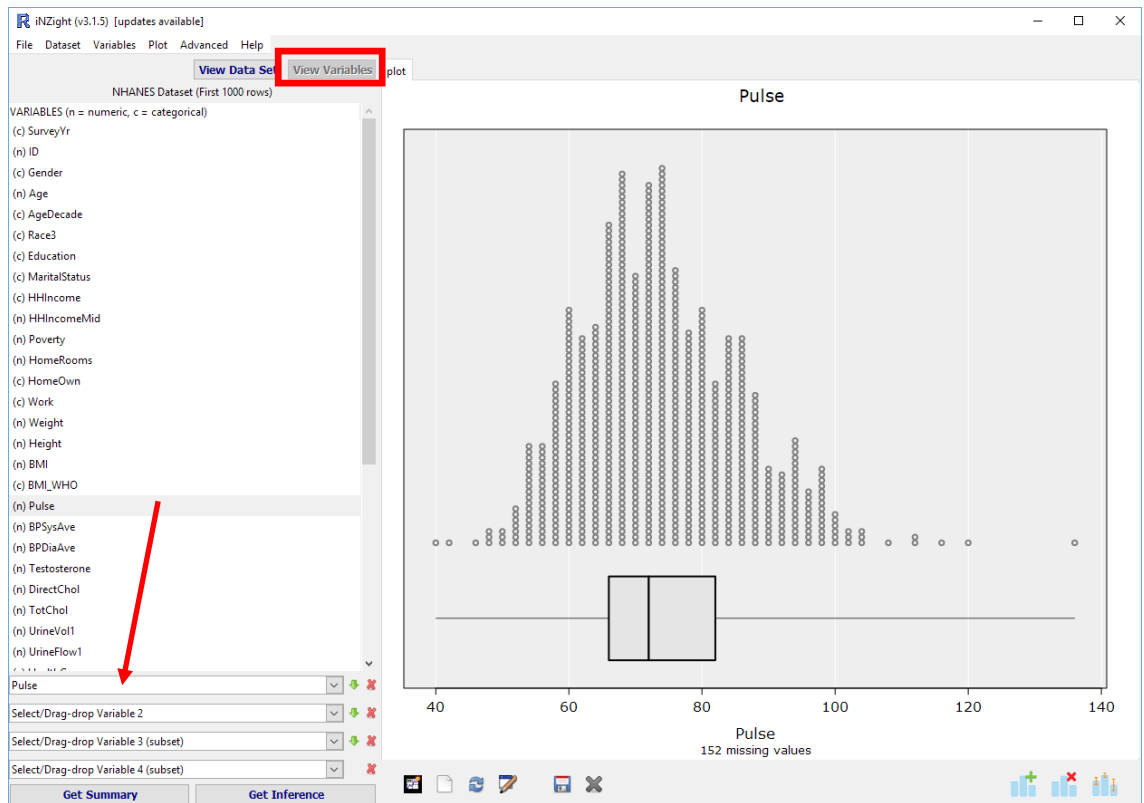
INSTRUCTIONS

Load the **nhanes_1000** dataset into iNZight using **File > Example data ...**. You will find the data set in **Module (package) FutureLearn**. See earlier worksheets if unfamiliar with this step.

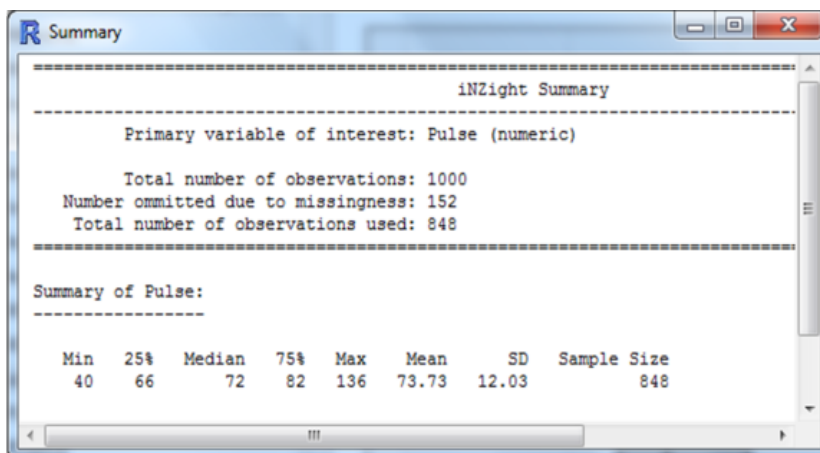
Click **View Variables**.

Make dot plots from your numerical variables

- Drag the variable name **Pulse** into the **Variable 1** slot.



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

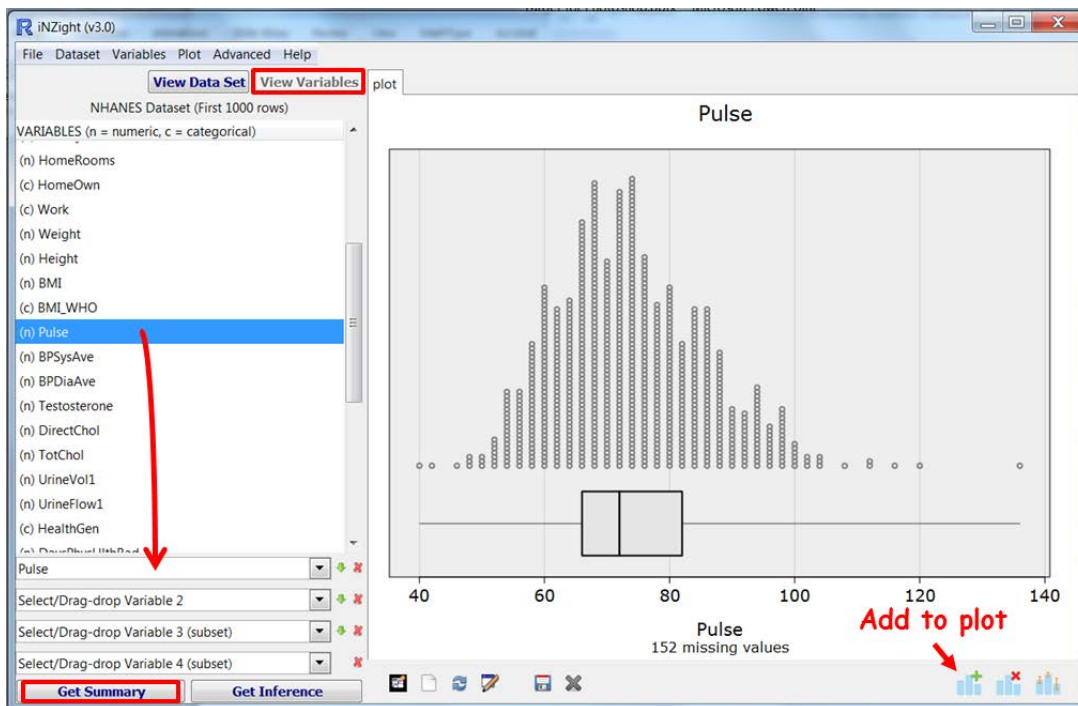


ASIDE: PRACTICE (~2 min)

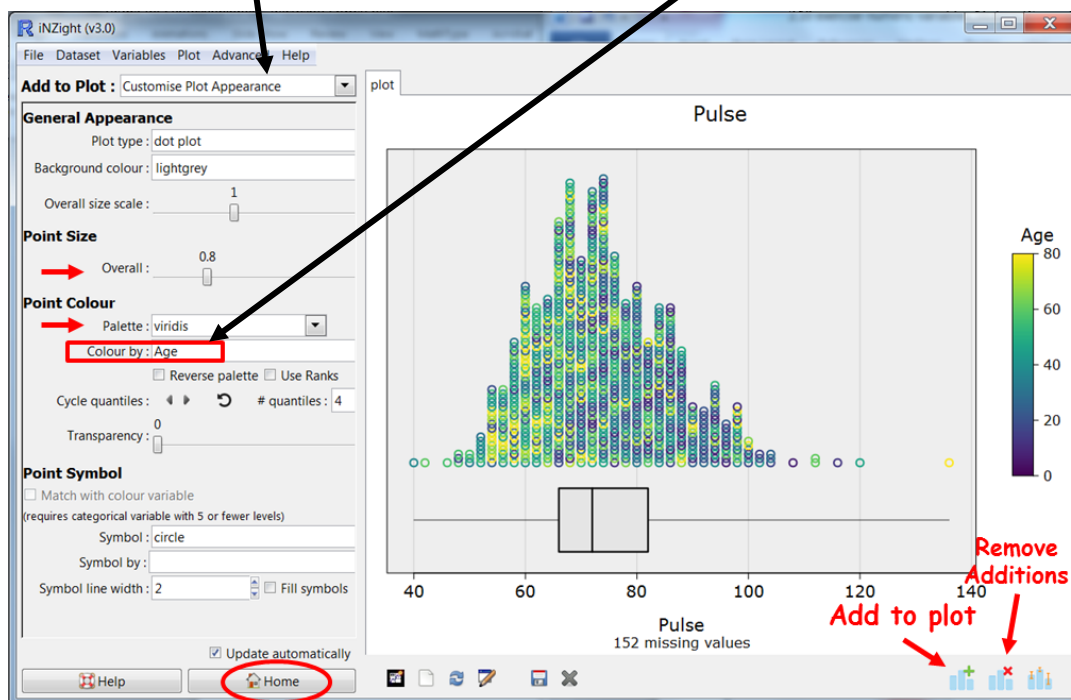
Drag the names of some other numerical variables into the **Variable 1** slot - ensure you can get simple graphs and tables like the above quickly for each variable.

Colour by another variable

- Having 'Pulse' variable in **Variable 1** slot, click on the **Add to Plot** icon at the bottom right – beneath the plot window



- Customise plot appearance is chosen by default. Under **Colour** by choose **Age**.

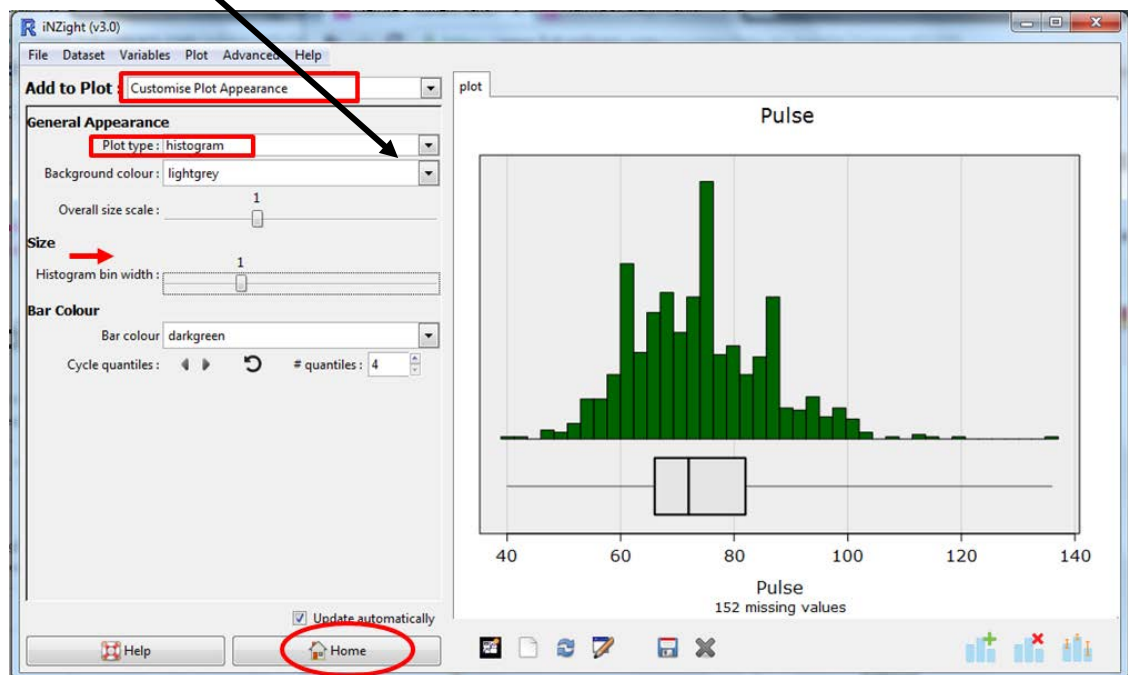


ASIDE: PRACTICE (~2 min)

1. While you have the **Customise Plot Appearance** command window active, experiment with:
 - decreasing and increasing the **Point Size**;
 - changing the **Colour Palette**;
 - changing the **Colour by** variable; and
 - changing each of the other control settings in this window to see what they do.
2. Try some other choices for the numerical variable in the **Variable 1** slot and the colour-by variable.

Change between dot plots and histograms

- Beneath **General Appearance** (beneath **Add to Plot - Customise Plot Appearance**), change **Plot type** from **dot plot** to **histogram**.



Troubleshooting

- ***I resized the window and my plot disappeared.***
 - Click the **Redraw plot** icon (*you can hover over the icons to see what they do*).
- ***I see some columns of dots that 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.
- ***I get gaps in my histogram, why is this happening?***
 - Gaps in a histogram occur in intervals where there is no data. Whether or not you see them depends on bar width which you can adjust using the **Histogram bar width** slider.
- ***How do I change the plot title or axis labels?***
 - 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**. Several formats are 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.)
 - The 'snipping tool' available to Windows users is also useful.

Additional:

- for **how to** instructions for iNZight you should consult iNZight's [User Guides](#).
- for **technical issues** with running iNZight, you should first consult iNZight's [frequently asked questions \(FAQ\)](#) page and if the answer you need is not there ask at [iNZight support](#).