Statgraphics – Getting started

The aim of this exercise is to introduce you to some of the basic features of the Statgraphics software.

Starting Statgraphics

1. Log in to your PC, using the usual procedure – see Computing Services handout
2. Select Start…Programs…Statgraphics 5.0

StatWizard

When you start Statgraphics, you may get a window labelled 'StatWizard'. The StatWizard tries to guide you through the entry and analysis of data but for now, you'll probably find it easier to follow the instructions in the handouts. You can switch the StatWizard off by selecting the Cancel button on the StatWizard window and answering 'Yes' to the question'Do you wish to exit the StatWizard?". To switch it on again at any stage, select Help…StatWizard.

Entering data

The table below gives the widths of a sample of 14 injection moulded photocopier housings.

Width (mm)						
615	612	614	610	614	613	614
617	617	616	613	611	614	615

1. Each column of the spreadsheet is used for a single variable. We've only got one variable – housing width, so we put our 14 values in column 1. Click on the first cell in column 1 – the black border indicates that this is the active cell.

   Type in the first value – 615 – and press Enter. The active cell moves to row 2. Type in the second value – 612 – and press Enter. Continue until you've entered all 14 values. Don't forget to press Enter after the last value.

   If you make a mistake, you can correct it by clicking on the relevant cell (to make it active) and then typing the correct value in place of the wrong one.

2. At the moment, Statgraphics is calling your variable 'Col_1'. It's a good idea to give the variable a more meaningful name, such as 'Housing Width', or simply 'Width'. To do this, click on 'Col_1' to select the column, then press the *right hand* mouse button. Select 'Modify Column'

   Choose a name and type it in – then click on OK. You new name should appear at the top of column 1.

Carrying out a simple analysis

We'll now draw a Box plot of the data.

1. Select Plot…Exploratory plots…Box-and-Whisker Plot. The system displays the Box-and-Whisker plot data input dialog box.

2. On the left, you'll see a list of the variables in your spreadsheet. At the moment, there should be just one variable – the variable containing the widths of the housings.

   To draw a Box plot of the data, you need to put the name of the variable into the 'Data' field. To do this, click on the variable name, then click on the arrow pointing into the 'Data' box. Finally click on OK.

3. The analysis window is split into two parts. Text information appears on the left – in this case, just a simple summary giving the name of your variable, number of values and range of the values. Graphical information appears on the right – in this case, a single pane showing the Box-and-Whisker plot.

4. To enlarge a text or graphics pane so that it fills the Analysis window, you just move the cursor onto the pane and double click. Try doing this with the graphical pane containing the Box plot. To restore the pane back to its original size, double click again.

   The ability to expand and contract output panes is particularly useful with more complicated analyses, where there may be many different text and graphical panes on the screen at once.

Editing Graphical output

When Statgraphics produces a plot, it uses default values for text, axis scaling, colours, etc. This section shows you how to customise a plot by changing the default settings.

Making changes

To make changes, proceed as follows.

1. Click anywhere on the graph and press the *right hand* mouse button
2. Select 'Graphics Options'
3. Select the tab for the part of the graph that you want to change – e.g. Top Title, X Axis, Points, etc
4. Make the required changes

You can make changes to many features of a plot. For example, you can change the title, the range of numbers used on an axis, the axis label, the size of markers and so on. Try making some changes.

Moving text

Sometimes, you may wish to move text, such as the title of a plot, to a different place. To do this, first double-click on the plot to expand it to fill the whole window. Now move the cursor over the text that you want to move, press and hold the left hand mouse button and drag the text to its new location. Try moving the title of your Box plot.

Statistical options

In addition to changing text, axis scaling and so on, you can also change the statistical approach used by Statgraphics in constructing the plot. For example, you may have noticed a '+' sign inside the box – this indicates the position of the Mean. To remove the Mean Marker from the plot, proceed as follows.

1. Click on the window containing the plot and press the *right hand* mouse button
2. Select 'Pane Options'
3. Selected features are indicated by an 'x' in the check box. Click on 'Mean Marker' to deselect this option – then click OK. Notice that the plot is now redrawn without the Mean Marker.

Deleting an analysis

To delete an analysis, proceed as follows.

1. Click on the 'X' in the right hand top corner of the Analysis window
2. Click the 'Yes' button to confirm that you want to delete the analysis

Carrying out calculations

Suppose that the target width for the photocopier housings is 612mm and we want to calculate the deviations from target. We can do this using the Generate Data facility.

1. We'll put the deviations from target into the second column of the spreadsheet. Give this column a suitable name – e.g. 'Deviations'
2. Click on the column heading to select the column
3. Press the *right hand* mouse button and select Generate Data
4. You now need to enter an expression that will calculate the deviations from target. For example, if you've called column 1 'Width', you'll enter 'Width-612'
5. Click OK. The calculated values should appear in column 2.

Using the StatGallery

The StatGallery provides a useful way of saving interesting pieces of output for future reference. We'll illustrate it by using it to help us compare two alternative ways of handling outliers in a Box plot.

1. Add a 'rogue' value, such as 625, to the end of column 1 on your spreadsheet. To do this, click on the cell in row 15 of column 1, type in the required value and press Enter. Notice that the value 625 is much larger than any of the 14 widths that you entered earlier.
2. Ask Statgraphics to draw a Box-and-Whisker plot of the data
3. Notice that Statgraphics has used the approach in which outliers are highlighted as separate points.

4. We'll now save this plot in the Statgallery. Double click on the StatGallery icon at the bottom of the Statgrahics window. By default, each page of the StatGallery is divided into 4 panes. We can change this by pressing the RH mouse button and selecting 'Arrange panes'. Do this and change the arrangement to 'Left and Right'.
5. Click on the output window containing your Box plot, press the right hand mouse button and select 'Copy Pane to Gallery'. Then click on the left hand pane in the StatGallery, press the right hand mouse button and select 'Paste', Your Box plot should appear in the StatGallery.
6. Return to the output window, press the RH mouse button and select 'Pane Options'. Deselect 'Outlier Symbols'. Notice that the plot is now drawn with the whiskers extending to the highest and lowest observations. Use the same approach as above to copy this output pane to the RH window in the StatGallery.
7. It's now easy to compare the two approaches. The simple form of Box plot on the right is rather deceptive, since it is not at all clear that only one of the photocopier housings has a length anywhere near 625mm.

Leaving Statgraphics

To leave Statgraphics, select File…Exit Statgraphics

Logging off

Always finish your session by logging off from your PC. This ensures that other users cannot use your username.

Getting help with Statgraphics

You can obtain help in several different ways.

General help

General help can be obtained via the Help menu

Help for dialog boxes

To obtain help for a dialog box, press the 'Help' button on the box

Help for panes in an Analysis window

To obtain help on an Analysis window, use the help button (a question mark) on the System toolbar

Statgraphics – Reference

Operation	*How to do it*
Open new Data File	Select 'File…Close…Close Data File'.
Name a variable	Click on column heading to select the column, then press the RIGHT hand mouse button. Select 'Modify Column' and enter a name.
Put a variable name into a field on an input dialog box	Click on variable name to select it. Then click on arrow pointing into required field.
Enlarge or reduce a pane on a Statgraphics Analysis window	Move cursor onto pane and double click
Modify a graphical plot	Click on plot, press RH mouse button and select 'Graphics Options'.
Print one or more panes of an Analysis window	Select 'File…Print'. Then choose whether you want to print all panes, graphics panes only, etc. Be careful here. The default is 'All Panes', which can use up a lot of printer credits.
Delete an analysis	Click on 'X' in top RH of the Analysis window. Select 'Yes'.
Save a data file	Select ‘File... Save As... Save Data File As’. Set drive to u: and give a file name.
Leave Statgraphics	Select ‘File... Exit STATGRAPHICS’