MA181 INTRODUCTION TO STATISTICAL MODELLING
Splus: GETTING STARTED

Log on to a networked PC workstation and load the statistical package Splus. Splus gives th P-values in all the tests. Using the P-values we have a rule:

Reject H_0 if P-value is less than α.

1. **Plots and tests:** From the Data menu on top (after File, Edit, View, Insert) go for Select Data. Then select New Data and type in a name, for example *January8*. Type in the following numbers (vertically in one column):

$$18.6, 8.7, 9.1, 11.2, 16.2, 14.7, 8.2, 12.4, 11.6, 9.8$$

   - **Summary stats:** From your created data sheet go to:
     Statistics⇐ Data Summaries⇐Summary Statistics
     and then select <All> on variable click ok on the dialog. You get all kinds of summaries in the Report 1 window.

   - **Histogram** Click on the icon just before it says Linear underneath the Help button. It should say "2D Plots". You are now ready to experiment with the graphics. Highlight you column of data (just one click) and then click on the histogram icon (row 6, column 4). It should give you a histogram.

   - **Boxplot** Highlight you column of data on the data sheet. Then on the 2Dplot panel click on the B icon (last but one row, last but one column). You should then see a boxplot for your data.

   - **t-test:** From your created data sheet go to:
     statistics⇐Compare Samples⇐One Sample⇐ t Test
     and then select V1 on the drop-down variable box. Change null hypothesis mean to 10 and then click ok. It does a t test for $H_0 :$ $\mu = 10$ and gives you a confidence interval as well. By changing the confidence level (which defaults to 95%) you can obtain different confidence intervals with different confidence coefficients.

2. **Commands window** is for doing arithmetic

   - Type 3+2 and hit enter. What do you get?
   - Type $pnorm(1.96)$.

- Type $qnorm(0.975)$.

- Type $?qnorm$.

- Type $x < -c(3.27, 3.17, 3.24, 2.92, 2.99)$.

- Type $sum(x)$, $mean(x)$, var (X), $sum(y^2)$.

- Type $qt(0.975, 4)$, see the last example on confidence intervals in handed out notes.

3. You can quit at any time by doing File⇐Exit pr typing q() on the commands window.

4. **Exercises** Now you are ready to do lots of things. For example, you can solve problem numbers 34 and 35 from Exercise sheet 9.

5. **Exporting output to Microsoft word:** Simply highlight the Report 1 window and then do Edit⇐Copy and finally paste it into your word window. Once you are in word then you can edit the document you want.

6. **Where to go from here?**

   You can:

   - See the visual demo from the Help button.

   - Get help from Help.

   - Edit the graphics window, as you have seen it in its visual demo.

   - Double click on V1 in your data set, and then type 'x' to rename the column to x.

   - Try to import data from Excel or other places.