**6. Hypothesis testing**

• We hypothesis that MAXWT is different between male vs females. Assuming normality and homoscedasticity, can you test this hypothesis using statistical hypothesis framework

First, we need to understand our hypothesis to choose the right test for it.

We have two groups’ males and female and we want to see if there is a difference in MAXWT between them.

to choose the test we will ask some questions to choose test.

How many samples? 2

Normality can be assumed? Yes

Homoscedasticity can be assumed? Yes

We will use two-sample t-test

Note that, unpaired two-samples t-test can be used only under certain conditions:

when the two groups of samples (A and B), being compared, are normally distributed. This can be checked using Shapiro-Wilk test.

and when the variances of the two groups are equal. This can be checked using F-test.

• Assess whether the previous test assumptions have been meet for the test.

• We hypothesis that MAXWT is “lower” in the group receiving Ld72 > 40 compared to the control Ld72 =< 40. Can you test this hypothesis assuming heteroscedasiticy

• Assess the previous test assumption

• We hypothesis that MAXWT is different between the different Lead types with the different genders (i.e. 4 groups male\_leadtype1, male\_leadtype2, female\_leadtype1, female\_leadtype2). Can you perform comparison between the different groups, after assessing the assumptions and performing post-hoc testing (assuming normality and homoscedasticity).