INTRODUCTION TO R PROGRAMMING DAY 1 EXERCISE:

A time-tested strategy to tackle what may appear to be a complex programming task is to begin by "getting working" the very simplest prototype version of just *one element* of the function, test it, and then incrementally add the additional features that are required.

1) Write a function **T.test()** that performs a two sample t-test, similar to the R function **t.test()**. The formula for the statistic is:

$$t = \frac{\bar{y}_1 - \bar{y}_2}{s\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Where **n1** and **n2** are the two sample sizes, **y-bar1** and **y-bar2** are the two sample means, and **s** is the square root of the pooled estimate of the variance (**s-squared**), given by:

$$s^2 = \frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{(n_1 - 1) + (n_2 - 1)}$$

We can use the following header for the function:

```
> T.test <- function(y1,y2) { ...
+ }
```

In the body of the function:

a) First find **n1** and **n2**
b) Then calculate the numerator of **t**

c) Then calculate the pooled variance and hence s

d) Finally, calculate the value of t and return that as the value of the function

Please give this a try…we will likely build on this in future days…..