LAB 3: ANALYSIS

1) A)
   i) The parameter of interest is the total study done by the students.
   ii) The population of interest is students who work, have a major and use a spaced strategy.

   B) T confidence interval for a population mean

2) A) T confidence interval for a population mean

   B) For t-test there are 3 conditions, the first one being: the data has to be collected using a simple random sample method. This condition is valid in our argument. We know that our sample was chosen using an SRS method because SRS is when the sample is a subset of individuals chosen from a large population. Secondly, each observation must be independent of the other. This argument is not valid, since the time of studying has a conflict with time spent at work. Finally, the sampling distribution must be normal. This condition is valid, since our sample is greater than 30 and with that sample size, we can assume that it is normal.

3) A) T confidence interval for a population mean

   B) t.test(body$totalstudy[body$strategy=="spaced"& body$employed!= "no"],conf=0.93) so we narrowed down our variable to what is required. We made sure that the strategy variable only includes the response “spaced”. When it came to the employed variable, since there are 3 responses and we don’t care about whether it’s full or part time job, we just didn’t include the response “no”.

   c) With a 93 confidence, we have an interval of 22.53952 to 27.73191, t-statistic is 17.819, the sample estimate mean is 25.13571 and finally, the p-value is less than 2.2e-16, which is equal to 0.00000332075. The alternative hypothesis is true.

4) A) T confidence interval for a population mean

   B) To increase the precision of the confidence interval estimate we can increase sample size. When we use a bigger sample, we narrow down the interval around the sample statistic which means that collecting more data to obtain a more precise estimate of a population parameter is necessary.

   C) One main consequence of increasing the sample size is the financial cost that will come with it. Also, it would take a lot more time to collect more data and finding suitable samples.