One Sample T tests

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- Just have a single sample here
- **t =** $\frac{\bar{x} - \mu_0}{s/\sqrt{n}}$, mean = $\bar{x}$, standard deviation as s, samples as n
- Now we wish to test if the population with mean μ, that this sample comes from, is significantly different from a population whose mean is μ_0

Null and Alternate Hypothesis

- Null Hypothesis would be: $\mu = \mu_0$
- Alternate Hypothesis can be:
  - $\mu > \mu_0$
  - $\mu < \mu_0$
  - $\mu <> \mu_0$

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Steps to do the T tests

- Define the Null an Alternate Hypothesis
- Compute the T statistic
- Get the T critical values from the tables
- If the t statistic computed is more than the t critical value in a positive case, or if the negative t computed is less than the t critical value, we will reject the Null hypothesis

Evolution has been there for millions and millions of years. The mean length of an insect in earlier times was 6.07cms. Now we wish to figure out if the lengths now are significantly different from earlier lengths. Let's say we have 500 samples. Sample mean being 6.47 and the sample standard deviation being 0.4.

P Value