**How to Find the T Critical Value in Python**

**Source: https://www.statology.org/how-to-find-the-t-critical-value-in-python/**

Whenever you conduct a t-test, you will get a test statistic as a result. To determine if the results of the t-test are statistically significant, you can compare the test statistic to a**T critical value**. If the absolute value of the test statistic is greater than the T critical value, then the results of the test are statistically significant.

The T critical value can be found by using a [t distribution table](https://www.statology.org/t-distribution-table/) or by using statistical software.

To find the T critical value, you need to specify:

* A significance level (common choices are 0.01, 0.05, and 0.10)
* The degrees of freedom

Using these two values, you can determine the T critical value to be compared with the test statistic.

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To find the T critical value in Python, you can use the [scipy.stats.t.ppf() function](https://docs.scipy.org/doc/scipy/reference/generated/scipy.stats.t.html" \t "_blank), which uses the following syntax:

**scipy.stats.t.ppf(q, df)**

where:

* **q:**The significance level to use
* **df**: The degrees of freedom

The following examples illustrate how to find the T critical value for a left-tailed test, right-tailed test, and a two-tailed test.

**Left-tailed test**

Suppose we want to find the T critical value for a left-tailed test with a significance level of .05 and degrees of freedom = 22:

**import scipy.stats**

**#find T critical value**

**scipy.stats.t.ppf(q=.05,df=22)**

**-1.7171**

The T critical value is **-1.7171**. Thus, if the test statistic is less than this value, the results of the test are statistically significant.

**Right-tailed test**

Suppose we want to find the T critical value for a right-tailed test with a significance level of .05 and degrees of freedom = 22:

**import scipy.stats**

**#find T critical value**

**scipy.stats.t.ppf(q=1-.05,df=22)**

**1.7171**

The T critical value is **1.7171**. Thus, if the test statistic is greater than this value, the results of the test are statistically significant.

**Two-tailed test**

Suppose we want to find the T critical value for a two-tailed test with a significance level of .05 and degrees of freedom = 22:

**import scipy.stats**

**#find T critical value**

**scipy.stats.t.ppf(q=1-.05/2,df=22)**

**2.0739**

Whenever you perform a two-tailed test, there will be two critical values. In this case, the T critical values are **2.0739**and **-2.0739**. Thus, if the test statistic is less than -2.0739 or greater than 2.0739, the results of the test are statistically significant.