Findings from inference stats

Objective: To find which among the depression drugs namely Sertraline and Bupropion has better reception over the other based upon user ratings and find 95% CI.

As such we perform a hypothesis test where:

- H0: Both drugs have equal reception i.e. the difference in mean ratings of both drugs are equal.
- H1: Reception of Bupropion is greater than Sertraline.

Steps:

- The observed difference on means of between the drugs is calculated.
- We hold alpha as 0.05 i.e. 95% confidence.
- Bootstrap technique is applied with 10000 iterations of 500 samples each.
- Differences of the mean is calculated resulting 10000 values.
- Fraction (p-value) is calculated with reference to the observed mean.
- 95 % CI intervals are calculated from the bootstrapped values and plotted using Seaborn library.
- We confirm this via an independent t-test by using scipy library.

Observations:

- The resultant p-value from the bootstrapped difference of means is 0.498 which is well over the alpha level that is chosen. This leads us to accept the null hypothesis which essentially means that both the drugs are received equally.

- The 95% CI with lower interval -0.0190 and upper interval of 0.511 is obtained.

- The p-value from the t-test 0.118 also confirms the same with t value of 1.56.

Distribution of mean differences