**Question 2**

My function is being tested with Access Points CISATV and CISACL at frequency 2412.

H0: CISATV and CISACL output the same signal strength at the same time/fingerprint

HA: CISATV and CISACL output different signal strengths with the same time/fingerprint

The R code for this test can be found starting on line 42 of my .R file.

A t test with the alternative hypothesis of the true mean of the data not being zero (i.e. having different signal strengths between access points) provided a p-value of 0.2542 and a 95 percent confidence interval of -0.1954 to 0.05251. Using a moderate significance level of 0.05 allows us to reject the alternative hypothesis, since 0.2542 is much higher than 0.05. Even using the most generous significance level of 0.10, the result is the same. Therefore, it can be concluded that there is not enough evidence to surmise that HA is true and that CISATV and CISACL output different signal strengths with the same time/fingerprint.

**Question 3**

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| --- | --- | --- | --- |
| vs | **CISATV** | **GUGuest** | **GUWireless** |
| **CISACL** | f2412 = 0.2714286  f5240 = 0.6 | f2412 = 0.2285714  f5240 = 0.5142857 | f2412 = 0.2571429  f5240 = 0.5571429 |
| **CISATV** |  | f2412 = 0.2428571  f5240 =0.4857143 | f2412 = 0.1857143  f5240 = 0.5571429 |
| **GUGuest** |  |  | f2412 = 0.2  f5240 = 0.5 |

**Challenge Question**

The “id” column in the data frame is unique for each entry. Instead of referring to the signal strengths by their FP and Timestamp, they could instead by referred to by simply id. Adding seconds or milliseconds to the time would also individualize these entries, since they will be more specific and can then be used as a primary key along with fingerprint. I cannot implement the seconds or milliseconds solution into my function since I do not have access to the original data. I also cannot implement the id as primary key solution in my specific function since it matches the fingerprints and times and refers to the individual signal strengths by the superkey of fingerprints and time instead of by the id.