1. A F&B manager wants to determine whether there is any significant difference in the diameter of the cutlet between two units. A randomly selected sample of cutlets was collected from both units and measured? Analyze the data and draw inferences at 5% significance level. Please state the assumptions and tests that you carried out to check validity of the assumptions.

Sol: As by question,

H0 = Unit 1 = Unit 2

H1 = Unit 1 ≠ Unit 2

Here, we have to compare mean b/w 2 samples so 2 tails will be used.

By python the T test value is 0.72 & p value is 0.472

And this p-valus is more than the given significance value which is 0.05 so we will accept the Null Hypothesis.

1. A hospital wants to determine whether there is any difference in the average Turn Around Time (TAT) of reports of the laboratories on their preferred list. They collected a random sample and recorded TAT for reports of 4 laboratories. TAT is defined as sample collected to report dispatch.

Analyze the data and determine whether there is any difference in average TAT among the different laboratories at 5% significance level.

Sol: As by question,

H0 = m1 = m2 = m3 = m4

Here, we have to compare the mean b/w all the samples.

By python the f -stats value is 118.70 and p-value is 2.1156708949992414 x 10-57 which is almost equal to 0.

So, we will reject the Null Hypothesis.

1. Sales of products in four different regions is tabulated for males and females. Find if male-female buyer rations are similar across regions.
2. Check p-value
3. If p-Value < alpha, we reject Null Hypothesis

Buyer Ratio.mtw

Sol: Here, 2 categorical variables are given so we will go for chi2

So, H0 = All proportions are equal

H1 = All proportions are not equal

As per the python, the chi2 value is 1.595 & degree of freedom is 3

p-value is 0.66 which is more than the alpha value then we will accept the null hypothesis.

1. TeleCall uses 4 centers around the globe to process customer order forms. They audit a certain % of the customer order forms. Any error in order form renders it defective and has to be reworked before processing. The manager wants to check whether the defective % varies by centre. Please analyze the data at *5%* significance level and help the manager draw appropriate inferences

Sol: Here, input is 4 discrete variables

So, H0 = % of varies are equal for each country

H1 = % of varies are not equal to anyone of the country

As per the python, the chi2 value is 3.85 & degree of freedom is 3

p-value is 0.277 which is more than the alpha value then we will accept the null hypothesis.