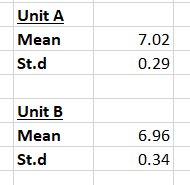
**HYPOTHESIS TESTING**

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.

**ANS:**

* H0 – null hypothesis: there is no significant difference in the diameter of the cutlet between two units.
* H1 – alternate hypothesis: There is a significant difference in the diameter of the cutlet between two units



Z =

Z = -0.21

P value from the z distribution table = 0.4168

since P value is greater than 0.05 significance level, null hypothesis is true

* therefore, there is no significant difference in the diameter of the cutlet between two units.

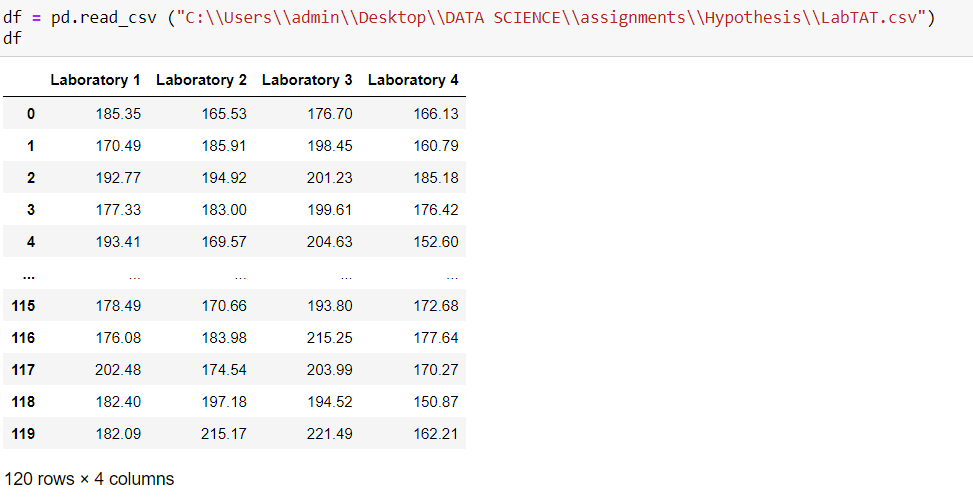
1. A hospital wants to determine whether there is any difference in the average Turn Around Time (TAT) of reports of the laboratories on their preferred list. They collected a random sample and recorded TAT for reports of 4 laboratories. TAT is defined as sample collected to report dispatch.

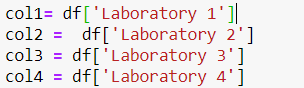
Analyze the data and determine whether there is any difference in average TAT among the different laboratories at 5% significance level.

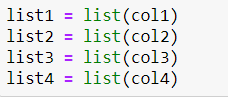
**ANS:**

* **Null hypothesis H0**: there is no significance difference in average TAT among the different laboratories
* **Alternate hypothesis HA**: there is a difference in average TAT among the different laboratories

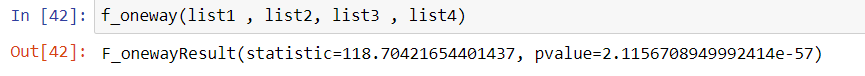












Since P value very much less than 0.05 significance level, Null hypothesis is rejected

Alternative hypothesis is true,: there is a difference in average TAT among the different laboratories

1. Sales of products in four different regions is tabulated for males and females. Find if male-female buyer rations are similar across regions.

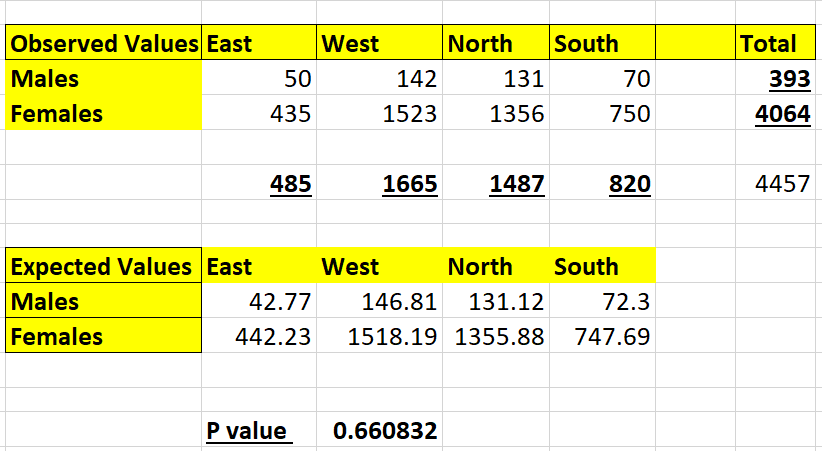
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **East** | **West** | **North** | **South** |
| Males | 50 | 142 | 131 | 70 |
| Females | 550 | 351 | 480 | 350 |

Buyer Ratio.mtw

**ANS:**

**Null hypothesis H0**: male-female buyer rations are similar across regions.

**Alternate hypothesis HA**: there is a difference in male-female buyer rations across regions.



Using CHITEST function in EXCEL, P value is 0.66

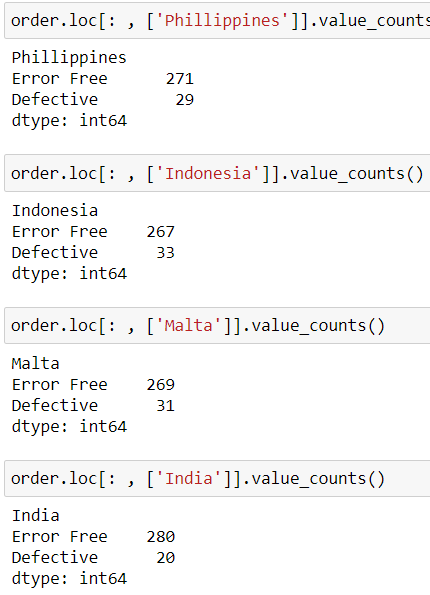
Since P value is 0.66, which is greater than 0.05, Null hypothesis is true

Thus, male-female buyer rations are similar across regions.

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 must be reworked before processing. The manager wants to check whether the defective % varies by center. Please analyze the data at *5%* significance level and help the manager draw appropriate inferences

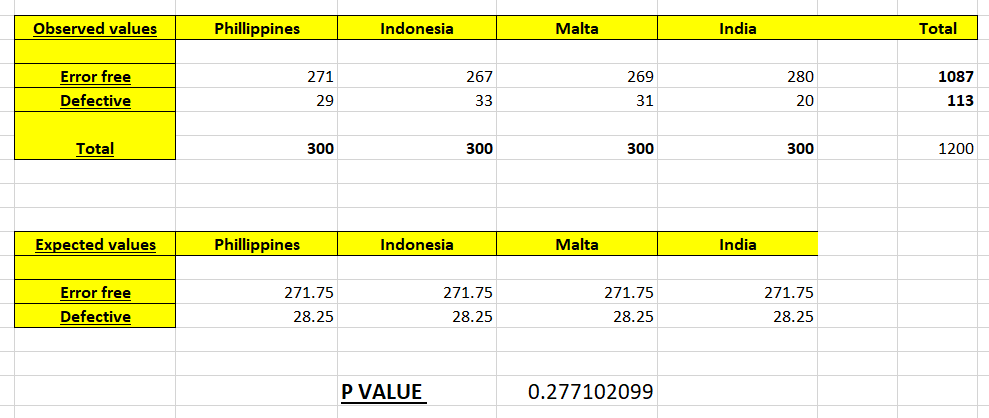
Minitab File: **CustomerOrderForm.mtw**

**ANS:**



**Null hypothesis H0**: The defective % does not vary by center

**Alternate hypothesis HA**: there is a difference in the defective % observed in each center



Using CHITEST function in EXCEL, P value is 0.28

Since P value is 0.27, which is greater than 0.05, Null hypothesis is true

Thus, The defective % does not vary by center.