**Hypothesis Testing Exercise**

**Q 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.

**Solution-**

**To solve this problem we will use 2 sample test**

Ho=µ1=µ2= no difference

H1= µ1≠µ2= some difference

**As pvalue is greater than 0.05 there is no difference**

**Attached file hypothesis testing assignment (1).ipynb**

**Q 2)** 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.

**Solution-**

**To solve this problem we will use ANOVA test**

H0= µ1=µ2=µ3= no difference

H1= Atleast 1 laboratory has different TAT

**As pvalue is less than 0.05 we accept H1**

**Attached file hypothesis testing assignment (1).ipynb**

**Q 3)** 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 |

**Solution-**

**To solve this problem we are going to use chi square test**

H0= µ1=µ2= male-female buyers are similar across region

H1= µ1≠µ2= male-female buyers are different

**as pvalue is greater than 0.05 we accept null hypothesis(H0) male-female buyers are similar across the region**

**Attached file hypothesis testing assignment (1).ipynb**

**Q 4)** 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

**Solution-**

H0= defective % doesn’t varies by centre

H1= defective % varies by centre

**As the pvalue is greater than 0.05 we accept H0 defective % doesn’t varies by centre**

**Attached file hypothesis testing assignment (1).ipynb**