Q2.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.  
  
Step1: Business Problem Two check whether there is any difference in average TAT

Step2: y and x So here is 4 labs are input TAT(Turn around time) is output x is more than 2 discrete and y is continuous.

Step3 Here we will use ANOVA-One way Find difference between 4 laboratories with respect to time X -> 4 laboratory y -> TAT(Turn around time) Step4 Find normality of this data  
  
Normality Test Normality test for Laboratory 1  
  
null hypothesis(h0):Data are normal alternate hypothesis(ha):data are not normal if p-value is > 0.05 => Accept null hypothesis if p-value is < 0.05 =>Reject null hypothesis alternate hypothesis is used when we take action or p-value is less than 0.05  
  
As p-value is 0.532 > 0.05 P high Ho fly => Accept Ho, hence accept null hypothesis(H0) means data are normal  
  
Normality test for Laboratory 2  
  
As p-value is 0.733 > 0.05 P high Ho fly => Accept Ho, hence accept null hypothesis(H0) means data are normal 6)Normality test for Laboratory 3  
  
As p-value is 0.577 > 0.05 P high Ho fly => Accept Ho, hence accept null hypothesis(H0) means data are normal  
  
7)Normality test for Laboratory 4  
  
As p-value is 0.419 > 0.05 P high Ho fly => Accept Ho, hence accept null hypothesis(H0) means data are normal  
  
Variance Test H0: All variance are equal Ha: At least one variance is different  
  
p-value is 0.070 > 0.05=>P high Ho fly => Accept Ho, hence we prove variance of all laboratory are same  
  
Anova Test-One way H0:Average of all laboratory are same Ha: Average of at least 1 laboratory are different  
  
P-value is 0.00 < 0.05= Accept Ha, hence Average of at least 1 laboratory are different As per results we can say that these are not equal i.e. Average of at least 1 laboratory are different