ASSIGNMENT 3

Q1:

1. As the data claims about medians from two different sample from two populations and the number of observations is greater than 10, we will use **Mann-Whitney U Test.**
2. H0: No difference exists between Business and Non-business graduates duration of employment

H1: A significant difference exists between Business and Non-business graduates duration of employment.

1. The Test stat is -2.56 and p value comes out to be .0106 which is smaller than .05, Hence we reject our null hypothesis and accept out alternate hypothesis, that is there is a significant difference that exists between business and non-business graduates duration of employment.

Q2:

1. As we are finding claims about median of single population and total number of observations =25.

**Sign Test**

1. H0: European car is not perceived to be more comfortable than north American car.

H1: European car is perceived to be more comfortable than north American car.

C) As the test stat is 2.29 and p value is 0.0110 which is less than 0.5 we will reject the null hypothesis and accept the alternate hypothesis.

Conclusion-European car is perceived as more comfortable than north American car

Q3:

1. As the data given is normally distributed we will use a parametric test for better result and as the claim is to find out about the variance of a sample we will use:

**One sample variance test**

1. H0: The variance of the fills is 1 cubic centimeter.

H1: The variance of the fills is less than 1 cubic centimeter.

1. The test statistic is 15.20 and the p value is 0.0852 which is greater than 0.05 and thus we fail to reject our null hypothesis.

Q4:

1. we will use: t-test
2. H0: The mean of the population is 2 pounds.

H1: The mean of the population is greater than 2 pounds.

1. The test statistic is 2.23 and the p value is 0.0134 which less than 0.05 and thus we reject our null hypothesis and accept the alternate hypothesis.

Q5:

1. We have to compare four populations and the samples are independent and the claim is about the variance of the samples, the statistical method we will use is:

One way anova

1. H0: There is no difference between any of the bumpers reactions to low speed collisions.

H1: The is difference between some of the bumpers reactions to low speed collisions.

1. The statistic is 4.06 and the p value is 0.0139 which is less then 0.05, hence we reject our null hypothesis and accept the alternate hypothesis.

Q6:

1. we will use is: z estimate test
2. H0: Households are not watch deal or no deal .

H1: House holds are watching deal or no deal.

1. The statistic is 1.96 and the p value is 0.1949 which is more then 0.05, hence we fail to reject our null hypothesis

.