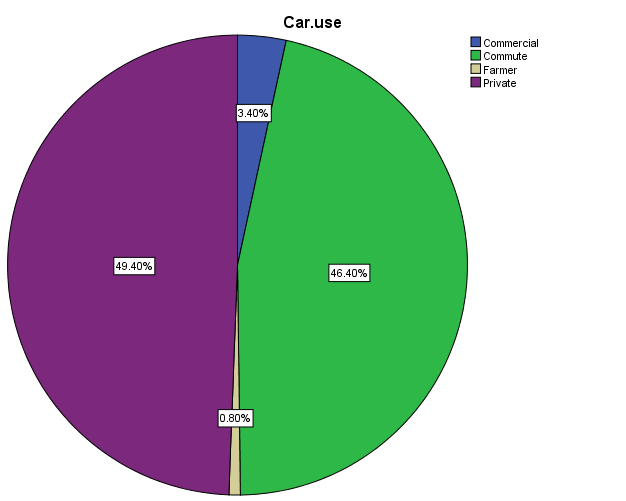
**Question no. 1:**

Part a:

|  |  |  |
| --- | --- | --- |
| **Statistics** | | |
| Car.use | | |
| N | Valid | 500 |
| Missing | 0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Car.use** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Commercial | 17 | 3.4 | 3.4 | 3.4 |
| Commute | 232 | 46.4 | 46.4 | 49.8 |
| Farmer | 4 | .8 | .8 | 50.6 |
| Private | 247 | 49.4 | 49.4 | 100.0 |
| Total | 500 | 100.0 | 100.0 |  |



**Part b:**

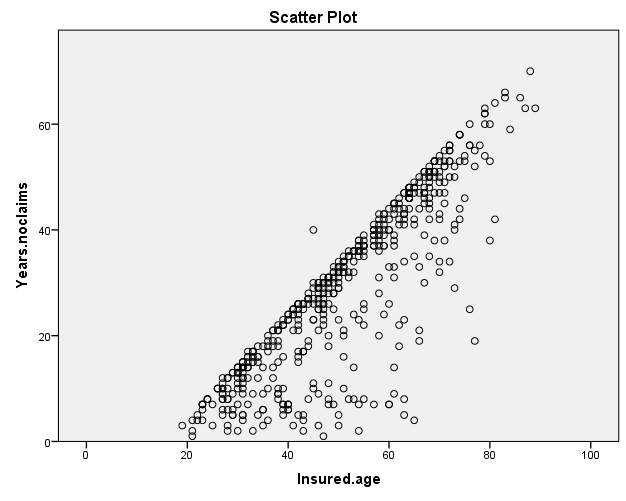
The most popular type of car used is private car, as it has the highest percentage among the four categories, which is 49.4%.

**Part c:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Car.use \* Insured.sex Crosstabulation** | | | | |
| Count | | | | |
|  | | Insured.sex | | Total |
| Female | Male |
| Car.use | Commercial | 7 | 10 | 17 |
| Commute | 107 | 125 | 232 |
| Farmer | 2 | 2 | 4 |
| Private | 116 | 131 | 247 |
| Total | | 232 | 268 | 500 |

Most frequent use of the car was by male gender as there seems to be total 268 of them.

**Part d:**



Both the variables have a positive linear relationship.

**Question no. 2:**

**Part a:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Statistics** | | | |
|  | | Insured.age | Credit.score |
| N | Valid | 500 | 500 |
| Missing | 0 | 0 |
| Mean | | 51.15 | 799.51 |
| Median | | 51.00 | 825.00 |

**Part b:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Descriptives** | | | | |
|  | | | Statistic | Std. Error |
| Insured.age | Mean | | 51.15 | .694 |
| 95% Confidence Interval for Mean | Lower Bound | 49.78 |  |
| Upper Bound | 52.51 |  |
| 5% Trimmed Mean | | 51.02 |  |
| Median | | 51.00 |  |
| Variance | | 240.772 |  |
| Std. Deviation | | 15.517 |  |
| Minimum | | 19 |  |
| Maximum | | 89 |  |
| Range | | 70 |  |
| Interquartile Range | | 25 |  |
| Skewness | | .039 | .109 |
| Kurtosis | | -.890 | .218 |
| Credit.score | Mean | | 799.51 | 3.605 |
| 95% Confidence Interval for Mean | Lower Bound | 792.43 |  |
| Upper Bound | 806.60 |  |
| 5% Trimmed Mean | | 806.12 |  |
| Median | | 825.00 |  |
| Variance | | 6498.683 |  |
| Std. Deviation | | 80.614 |  |
| Minimum | | 482 |  |
| Maximum | | 900 |  |
| Range | | 418 |  |
| Interquartile Range | | 95 |  |
| Skewness | | -1.223 | .109 |
| Kurtosis | | 1.234 | .218 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Descriptives** | | | | |
|  | | | Statistic | Std. Error |
| Insured.age | Mean | | 51.15 | .694 |
| 95% Confidence Interval for Mean | Lower Bound | 49.78 |  |
| Upper Bound | 52.51 |  |
| 5% Trimmed Mean | | 51.02 |  |
| Median | | 51.00 |  |
| Variance | | 240.772 |  |
| Std. Deviation | | 15.517 |  |
| Minimum | | 19 |  |
| Maximum | | 89 |  |
| Range | | 70 |  |
| Interquartile Range | | 25 |  |
| Skewness | | .039 | .109 |
| Kurtosis | | -.890 | .218 |
| Credit.score | Mean | | 799.51 | 3.605 |
| 95% Confidence Interval for Mean | Lower Bound | 792.43 |  |
| Upper Bound | 806.60 |  |
| 5% Trimmed Mean | | 806.12 |  |
| Median | | 825.00 |  |
| Variance | | 6498.683 |  |
| Std. Deviation | | 80.614 |  |
| Minimum | | 482 |  |
| Maximum | | 900 |  |
| Range | | 418 |  |
| Interquartile Range | | 95 |  |
| Skewness | | -1.223 | .109 |
| Kurtosis | | 1.234 | .218 |

**Question no. 3:**

**Part a:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Descriptives** | | | | | |
|  | Insured.sex | | | Statistic | Std. Error |
| Annual.miles.drive | Female | Mean | | 9039.341056 | 238.2413890 |
| 96% Confidence Interval for Mean | Lower Bound | 8547.274731 |  |
| Upper Bound | 9531.407381 |  |
| 5% Trimmed Mean | | 8740.261624 |  |
| Median | | 6213.710000 |  |
| Variance | | 13168078.590 |  |
| Std. Deviation | | 3628.7847264 |  |
| Minimum | | 3106.8550 |  |
| Maximum | | 21747.9850 |  |
| Range | | 18641.1300 |  |
| Interquartile Range | | 6213.7100 |  |
| Skewness | | 1.056 | .160 |
| Kurtosis | | .977 | .318 |
| Male | Mean | | 9465.706137 | 231.2085059 |
| 96% Confidence Interval for Mean | Lower Bound | 8988.530889 |  |
| Upper Bound | 9942.881384 |  |
| 5% Trimmed Mean | | 9184.543488 |  |
| Median | | 9320.565000 |  |
| Variance | | 14326576.015 |  |
| Std. Deviation | | 3785.0463689 |  |
| Minimum | | 1864.1130 |  |
| Maximum | | 24854.8400 |  |
| Range | | 22990.7270 |  |
| Interquartile Range | | 6213.7100 |  |
| Skewness | | .954 | .149 |
| Kurtosis | | 1.303 | .297 |

The confidence interval levels at 96% for female is [8547.274731,9531.407381]

The confidence interval levels at 96% for female is [8988.530889,9942.881384]

**Part b:**

The interval levels was 96% which made the assumption of alpha being at 4%. That’s the only assumption that was taken into consideration while calculating the interval levels. The greater the interval levels are, the more accurate and the more data it covers.

**Question no. 4:**

Ho: µ = 780

Ha: µ ≠ 780

α = 0.05

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **One-Sample Statistics** | | | | |
|  | N | Mean | Std. Deviation | Std. Error Mean |
| Credit.score | 500 | 799.51 | 80.614 | 3.605 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **One-Sample Test** | | | | | | |
|  | Test Value = 780 | | | | | |
| t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
| Lower | Upper |
| Credit.score | 5.413 | 499 | .000 | 19.514 | 12.43 | 26.60 |

t(499) = 5.413

The critical value for 95% significance level is 1.9647.

**Conclusion:**

P-value < α so we reject our null hypothesis.

If we look at our calculation through critical level approach the we can conclude that since our t-critical value is less than t-statistic value so we reject our null hypothesis and conclude that the average credit score of a driver in the given population is not 780.

**Question no. 5:**

**Part a:**

Ho: µ1 = µ2

Ha: µ1 > µ2

α = 0.05

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Group Statistics** | | | | | |
|  | Insured.sex | N | Mean | Std. Deviation | Std. Error Mean |
| Years.noclaims | Male | 268 | 30.43 | 16.628 | 1.016 |
| Female | 232 | 26.91 | 16.168 | 1.061 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Independent Samples Test** | | | | | | | | | | |
|  | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
| F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 92% Confidence Interval of the Difference | |
| Lower | Upper |
| Years.noclaims | Equal variances assumed | .007 | .935 | 2.391 | 498 | .017 | 3.520 | 1.472 | .937 | 6.102 |
| Equal variances not assumed |  |  | 2.396 | 491.320 | .017 | 3.520 | 1.469 | .942 | 6.097 |

T critical = 1.7543

P-value: SPSS gave the p-value for two tailed test, so we are dividing it by 2 to convert it for our one tailed test.

p-value = 0.0085

**Conclusion:**

P-value < α so we reject our null hypothesis.

If we look at our calculation through critical level approach the we can conclude that since our t-critical value is less than t-statistic value so we reject our null hypothesis and we can conclude that the average years of no claims of male drivers is significantly more than the average years of no claims of female drivers

**Part b:**

There could be significant difference between genders because of how they’re perceived in our society and because of their driving skills it could vary from one gender to another gender.

**Part c:**

The insurance companies should charge higher premiums to the male gender as they’re more reckless drivers and bound to have more accidents than female, so if they’re going to be taking out insurance money more often, then they should pay more as well.