Hypothesis Testing

**1) Question examined:**

Is the average price of a car is 7000USD?

**Appropriate Statistical test**

The Appropriate statistical test to in this case is one-sample t-test , since we are investigating whether 7000USD is the average price of the cars.

**Stating Hypothesis:**

Null Hypothesis: The average price of the cars is not equal to 7000USD.

Alternative Hypothesis: The average price of the cars is equal to 7000USD.

**Results:**

A one-sample t-test was run to determine whether the price of cars was different to Albert’s claim, which was 7000USD. Mean price of a car (6165.257, 95% CI, 5481.91 to 6848.6) was lower than Albert’s claim of 7000USD, a statistically significant difference, t(73) = -2.4346, p = .0174.

2) **Question examined:**

Is there any significant difference between foreign and domestic car prices?

**Appropriate Statistical test**

The Appropriate statistical test to in this case is independent sample t-test, because one variable is categorical while the other is continuous. In this case we are investigating whether the mean difference of foreign and domestic car prices are of significant difference.

**Stating Hypothesis under investigation:**

Null Hypothesis: there is no statistical mean difference between the foreign car prices and domestic car prices.

Alternative Hypothesis: there is a statistical significant mean difference between the foreign car prices and domestic car prices.

**Results:**

An independent t-test was run on a sample of 74 cars to determine if there were differences in prices based on whether it was purchased domestically or foreign. Domestically purchased cars consisted of 52 cars while foreign purchased cars consisted of 22 cars. The results showed that prices of cars that were foreign (6072.42 ± 429.49 Dollars) had no statistically significant difference at the end of the experiment compared to domestic cars prices (6384.68± 558.99 cigarettes), t(72) = -0.4139, p =0.6802.

1. **Question examined:**

Investigating the association between Car prices and weight.

**Appropriate Statistical test**

Correlation is the suitable statistical test because it is investigation the linear relationship between two continuous variables.

**Hypothesis**

Null Hypothesis: There is no statistically significant linear relationship between the car prices and weight.

Alternative Hypothesis: There is statistically significant linear relationship between the car prices and weight.

**Results:**

There is statistically significant weak linear relationship between the car prices and weight at 95% confidence level. This is because the p value (0.000) is less than the significance level 0.05.