**Case 7:**

1. Female buys more organic products
2. The box plot shows that the younger generation seems to have the same income (or affluence grade) because the box is narrower

The affluence grade box shows the older people are the outliers and they are richer than the youngers.

Overall, the age of 40-60 with medium low affluence tend to buy organic products, while the older and poorer people tend to not buy organics.

4. I performed analysis between Geographic regions and Organic puchases

The graph shows that people from South East region tend to buy organic products more than any other list regions. The percentage is close to 40%.

Excluding the unknown region, South West have the lowest percentage of organics purchases, which is 3%

**Case 6:**

* There are 28442 call drops by Switch maker
* Call drops spike very fast at the 16th hour of the day, it continues to increase but gradually from the 17th to 19th, then drop down suddenly and fast after the 19th hour until the 20th. After the 20th, the data appears to be plateau or tends to decrease very slowly.
* aPhone has the most call drops for aSwitch with Alpha carrier
* Which phone models have the highest percentage of dropped calls? - hPhone, S4 model, bSwitch
* 3G is the cell tech has the most call drop
* The 6th hour and the 18th hour are the times of day call drops spike
* Do results differ by region? Yes, Great Lake and Mid Atlantic and South seem to have most call drops according to the graph

**Case 5:**

The data plot appears to be horizontal pattern with upward trend, but closer inspection shows seasonality with upward trend.

According to the graph, the peaks appear to be at the first quarter of each year. And the value increases year over year. We can conclude that the data has seasonality and trend.

Based on the data plot and observation, I have performed 2 different forecasting models: Model 1: Seasonality only and Model 2: Seasonality and Trend.

To find the most optimal prediction model, mean square error was used. Mean square error is a common forecasting method used in supply chain. The model with the lowest MSE (Mean square error) is the best choice.

MSE 1 (Seasonality) = 2.166667

MSE 2 (Seasonality and Trend) = 0.125

Since MSE 2 < MSE 1, we conclude that Model 2 (Seasonality and Trend) is the optimal forecasting method in this case. Also, the findings and the predicted data graph demonstrated the similarity with the actual data graph (see predicted graph below)