

Stat 515

Ran Ji / Daniel Carr

Saurabh Rao Donthineni

a. Price Questions

a. i. At what prices are the laptops mostly selling? (Hint: box-plot)

Answer : They are being sold between the price range of 345 USD to 625 USD.

Explanation : As can be seen from the graph, all of the laptops lie between the price range of 168 USD (lowest possible price) to 890 USD (highest possible price), indicated by the upper whisker and the lower whisker of the box plot. But the graph also indicates that most of the laptops (deciding by the total number of pieces sold at the particular price point) are sold between 345 USD to 625 USD, indicated by the lower and the upper hinge. The size of the circle indicates the frequency of occurrence of each price point.

a.ii. Does price change with time? (Hint: Make sure that the date column is recognized properly. The software should then enable different temporal aggregation choices, e. g., plotting the data by weekly or monthly aggregates, or even by day of week.)

Answer: Yes, there is a wide variation in price with time.

Explanation: As can be seen from the graph, the sales are the lowest in the first quarter. Sales do pick up slightly in the second quarter, but the increase is very marginal and should therefore should not be considered as an increase that can make a difference. A very big difference is seen

in the change of price in the third quarter of the year 2008, where for the first time, the color transition from red to yellow (indicating an increase in price that is actually worth considering) is visible. When compared to the third quarter, sales are lower in the fourth quarter, but not as bad as the first or second quarter. There can be a multitude of reasons for this major price fluctuation over time, which can be assessed based on real life factor consideration.

a.iii.Are prices consistent across retail outlets?

Answer: Yes, prices do vary across stores.

Explanation: A particular trend that can be observed is that when the prices are low, the difference in prices that can be seen across stores is not a lot. But as the prices increase, a higher variation in price can be seen. A simple explanation for this is that there is more competition to sell lower priced laptops, as customers can be price sensitive. But as the price increase, stores can add more add ons and features for which they can charge higher prices, therefore explaining the price difference for the same configuration.

a.iv. How does price change with configuration? (Hint: show a broad overview, and then dig into each attribute for comparisons)

Answer: With better price, you can get better configurations.

Explanation: The graph , on the y axis , is considering each configuration , and the price that each configuration has based on the different attributes considered on the x axis. On the x axis , the 5 attributes of configuration – HD size, Processor Speeds, Screen Size, battery and RAM are

being considered. In other words, for each configuration, we are plotting the relationship between price and the different attributes of said configuration.

There are some very important trends that can be observed, the chief among which is that as the configuration increases, the price also increases. Another key aspect to note is that the price increase is not uniform when it comes to the Hard Drive space, it is jagged. There is no uniformity in the increase of HD space and price. The other three variables show the same price.

b. Location

Questions

b.i. Where are the stores and customers located? (Hint: Use columns customer X and customer Y as the location coordinates of customers. For example, for the first customer, his/her location is (532041, 180995) on X-Y axis Cartesian coordinate system. Similar for store location.)

The graph is trying to map at what points to the customer (x,y) values intersect with the store (x, y) values. For this to be done, the measures store X , store Y , customer X and customer Y have been given their respective geographical roles (latitude and longitude). If the user wants to see what is the store postcode and the customer postcode for each intersection that can be done by hovering over each intersection, which has been represented as a square. The major insight that can be derived from the analysis is that proximity to a store is a higher priority for customers. As we move from left to right in the graph, we can see that certain type of customers prefer going to a particular store. In other words, if we look at the first half of the graph, the intersections are at the top half of the graph, and in the

second half, the intersections are at the bottom part of the graph. This shows that every customer does not go to every store, despite the price range offered by each store.

b.ii. Which stores are selling the most? Which sells the least?

The store with the store postcode SW1P 3AU is selling the most, while the store with the store postcode S1P 3AU is selling the least. The graph is a simple tree map indicating which store (which is identified by a store postcode) has sold the least and which store has sold the maximum in terms of price.

b.iii. How far would customers travel to buy a laptop?(Hint: calculate the distance between the customer location point and the store location point).

In the first graph in the dashboard, the average distance travelled by each customer to a store along with the name of the store has been mentioned. It is important to note that all the sizes here are same, and have not been differentiated based on any metric. If the user clicks on any store (represented by a circle) , the graph below changes. The graph below is representing the average distance travelled by each customer to that particular store. It is important to note that the size of the shape (a triangle in this case) is symbolic of the distance being travelled by the customer to reach that particular store.

Distance has been calculated by the formula :

$$\text{SQRT}(\text{SQUARE}([\text{store X}]-[\text{customer X}]) + \text{SQUARE}([\text{store Y}]-[\text{customer Y}]))$$

c. Revenue Questions

i. How do the sales volume in each store relate to Acell's revenues?

From the graph, it can be seen that store SW1P3AU has the maximum sales volume generated

and the store S1P3AU has the least sales volume. In the plot, the stores have been arranged in a descending fashion, which makes it easier for the viewer to identify which store is doing well and which one is not.

d. Configuration Questions

i. Do all stores sell all configurations? (Hint: use the measure Count(Distinct).)

As can be seen from the plot, while most of the stores (represented by the store postcode) sell all the configurations (864 total configurations), some stores do not. The size of the circle represents the number of configurations sold by the store.