

Market Basket Analysis Report

Blackwell Electronics

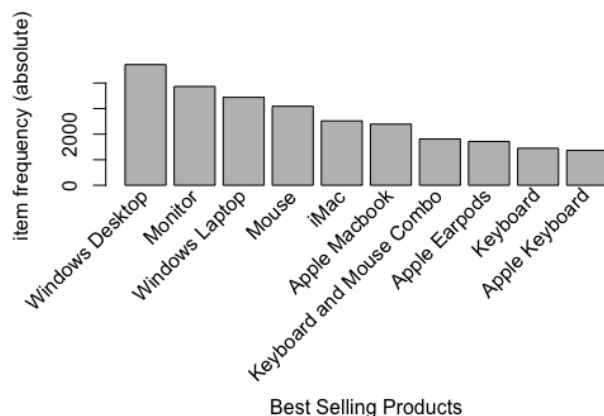
By Samantha Goodman

Background

For this task I was assigned the job of analyzing transaction data from Electronidex, a startup electronics retailer that Blackwell is considering acquiring. The data was limited to the item names that were purchased together. I was able to perform a market basket analysis to find associations between items. This can give insight into which products are often purchased together, which could be valuable to a marketing team or to build a recommender system.

One adjustment I made was that I performed the market basket analysis with the data as given, with each item listed as it's specific retail product (ie. HP Desktop) and then I adjusted the transaction data to replace product names with category names (ie Windows Desktop) and did the analysis again. I did this because I noticed that many associations were repeating across product names and categorizing the products led to stronger associations. I also kept desktops and laptops categorized by operating system - MacOS runs on Apple products and Windows runs on most other laptops and desktops. I did this because I noticed a lot of cross-platform purchases - their customers often purchase both Mac and Windows products at the same time, which is interesting. More on this in the next section.

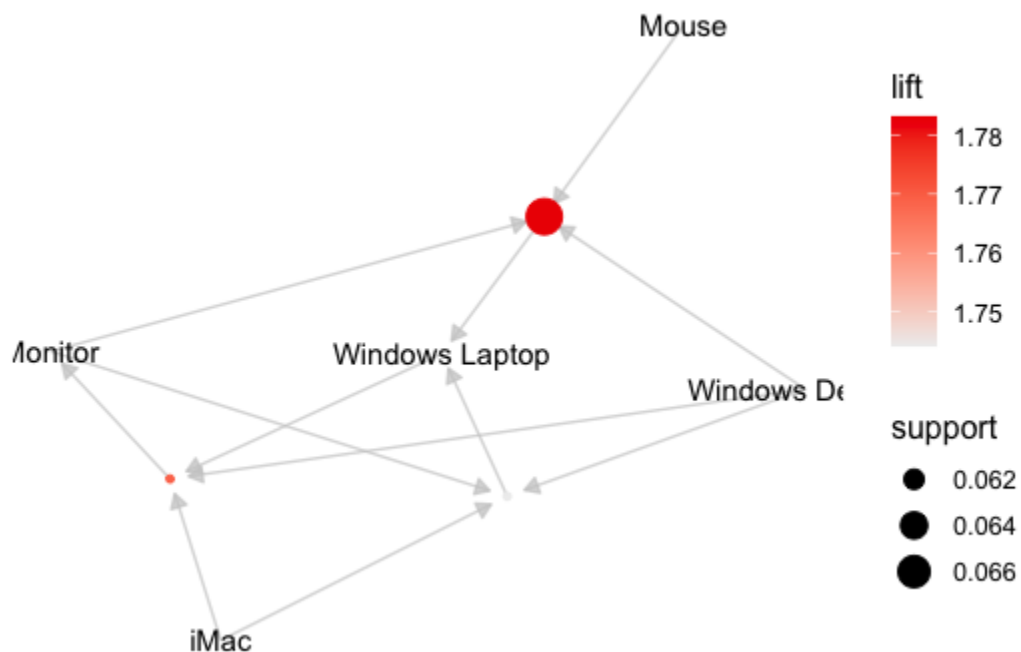
I also focused most of my analysis on computers, monitors and computer accessories (mice and keyboards). The reason for this is those were the most frequently purchased products, as seen in the chart below.



Insights

- Electronidex customers often bought complete sets at the same time, for example a monitor, mouse, Windows desktop, and Windows laptop. Interestingly purchases often included both desktops and laptops. For one person it would make sense to buy a desktop OR a laptop, plus accessories, but not both. This might indicate multi-person shopping, either customers shopping for their business or for multiple family members.
- Many purchases were found to be cross-platform, which is surprising. In the past, households and businesses were more strict about buying only Apple products or PCs. This may be part of a larger trend, or it may be unique to Electronidex customers. Further analysis of Blackwell's customer's purchasing patterns is necessary to find out.

Example of product associations



The larger the circle, the more often the pattern is seen, and the darker red, the more likely a customer is to purchase the last item.

The pattern we see here is that customers who purchase a mouse, monitor, and Windows desktop are very likely to also buy a Windows laptop.

Another is that customers who buy an iMac, Windows desktop, and Windows laptop are likely to also buy a monitor.

Both of these patterns show the bundling of multiple computers with accessories as well as cross-platform purchases, which I mentioned earlier.

Recommendations

Using the market basket analysis, I have the following recommendations, should Blackwell decide to purchase Electronidex:

- Do not segment the customers into “Mac” or “PC” as the buying patterns indicate that many are buying from both categories at the same time. Thus customers who searched for a Windows laptop might be interested in buying an iMac.
- Create ready-made bundles of laptop, desktop, monitor, keyboard and mouse in the most popular combinations. This is a buying pattern that currently exists with Electronidex customers and so making it easier to add all items to a cart at once will increase sales. Bundles could be marketed to different customer groups or purposes such as “Back to School bundle” or “New Home Office Bundle”.

The best selling product categories for Electronidex are desktop, laptop, monitors and mice. In a recent report I predicted sales for several categories of products and found that desktops and laptops were projected to have a lower sales volume than smartphones and netbooks. If Blackwell were to acquire Electronidex perhaps their customers could boost our computer sales.

Conclusion

Based on the data that I have been given, I think it would be a good idea for Blackwell to acquire Electronidex. The customer bases appear to be complimentary as their customers buy a lot of desktop and laptop computers and ours do not.

I found some interesting buying patterns amongst Electronidex customers. Monitors, mice and keyboards are often bought with one or two computers. Laptops and desktops are often bought at the same time and include both Windows machines and Apple products.