**Course 3 Task 4: Discover Associations Between Products – Michelle Giniewicz**

**Relationships within Electronidex’s Transactions**

I began my analysis by reviewing the Electronidex Transactions data of 9,835 transactions with 125 possible items that the company sells. The chart below shows the top 10 items that were purchased in this transaction data. As you can see, the top three items are: iMac (2,519 purchases), HP Laptop (1,909 purchases) and CYBERPOWER Gamer Desktop (1,809 purchases).

Chart, bar chart

Description automatically generated

I then used Market Basket Analysis to discover any interesting relationships between the items that a customer purchased within each transaction. Since there were initially a lot of relationships found, I first filtered to see only those that had a confidence of 1, which means that the relationship is 100% accurate. Next, I removed any redundant relationships since they did not add any value to my analysis. Finally, I then narrowed that subset down to those that were considered the most important relationships. After this deeper analysis, I was able to get to the top 14 relationships within Electronidex’s Transactions.

Below is a table that shows the top 5 relationships (just as a sample). While these are all very interesting relationships, we cannot make assumptions about the causation (ex: we cannot say that because a customer bought the items in the left column, then that is why they also bought the item on the right).

|  |  |
| --- | --- |
| **If a customer buys these items in a single transaction…** | **Then they also bought…** |
| Dell Desktop, iMac, Lenovo Desktop Computer, Mackie CR Speakers | ViewSonic Monitor |
| ASUS Monitor, Intel Desktop, ViewSonic Monitor | Lenovo Desktop Computer |
| Acer Aspire, Koss Home Headphones, ViewSonic Monitor | HP Laptop |
| Dell Desktop, Koss Home Headphones, ViewSonic Monitor | HP Laptop |
| Acer Aspire, ASUS 2 Monitor, Intel Desktop | HP Laptop |

The visualization below also shows all the items in the top 5 relationships and how they are tied together. Note that the “lift” shows how important the relationship is, and the “support” shows the frequency of the relationship within the transaction data.

Radar chart

Description automatically generated with low confidence

**Recommendation – Should Blackwell Acquire Electronidex?**

After analyzing the transaction data, I do think that Blackwell should acquire Electronidex. The multiple relationships between items in transactions shows that many customers purchase multiple items within each transaction, and many customers buy the same items within similar transactions. Also, since Blackwell currently sells comparable electronic items like PCs, laptops, and accessories, I think it would be beneficial for Blackwell to acquire Electronidex and sell their top selling items.

**Recommendations if Blackwell Acquires Electronidex**

If Blackwell does acquire Electronidex, I would recommend that they look at their previous transactions for potential cross-selling. For example, they could look at customers who bought PCs in the past and see if they need to purchase monitors. Additionally, Blackwell could look at bundling items into discounted packages, based on the items that were frequently purchased together at Electronidex. Finally, Blackwell may want to do a deeper analysis of the frequency that items are sold and remove the lowest selling items from their inventory.