**Market Basket Analysis for Electronidex**

### **Objective**

By analyzing one-month online transaction record for Electronidex to discover the insights into their customers’ purchasing pattern, in order to make suggestions to Blackwell Electronics.

### **Observations and Findings**

Total Transaction#: 9,835

Total Product#: 125

Total Product Category#: 17

Average Product Count per transaction: 6 products

### **Top Products**

Best-selling products for Electronidex are computers. As shown below in the top 10 products by their frequency among all transactions, 8 out of 10 are computers.

### **Association Rules**

### Desktops and Laptops

Computers are frequently purchased with monitors and they are frequently purchased together. A high percentage of transactions include multiple computers: desktops, iMacs, and HP Laptop in the same transaction.

Recommendation: No cross-selling items or sales promotions recommendation need to be addressed on the desktops and laptops. As I do not see the strong relationship of cross-selling other items will be more profitable for Electronidex as a whole.

### Monitors

Monitors are frequently purchased with various computer types, including Dell Desktops, iMac, Lenovo Desktop Computer, etc.

Recommendation: I would suggest to cross-sell monitors with some popular computer brands in the Market Basket, which is not limited to desktops, laptops, iMacs, Apple MacBook Pro, etc. Promotions can offer buy one full priced of computer to get a monitor at a discounted price.

### Computer Game, Keyboards, and Accessories:

Below sheet shows the results of Top 10 Market basket and items inclined to purchase together.

|  |  |  |
| --- | --- | --- |
| **Market Basket (Frequently Bought Together)** |  | **Cross-Selling Items** |
| Apple EarPods  Logitech MK360 Wireless Keyboard and Mouse Combo | **→** | Eluktronics Pro Gaming Laptop |
| Apple EarPods  Microsoft Wireless Comfort Keyboard and Mouse | **→** | Slim Wireless Mouse |
| Dell Wired Keyboard,  HDMI Cable 6ft | **→** | AOC Monitor |
| Dell Desktop  HDMI Cable 6ft  HP Monitor | **→** | AOC Monitor |
| Computer Game  iMac  Microsoft Office home and Student 2016  ViewSonic Monitor | **→** | ASUS Monitor |
| Computer Game  Dell Desktop  iMac  Lenovo Desktop Computer | **→** | ASUS Monitor |
| AOC Monitor  Dell Desktop  HP Laptop  Lenovo Desktop Computer | **→** | ASUS Monitor |
| Computer Game  iMac  Intel Desktop | **→** | Apple Magic Keyboard |
| ASUS 2 Monitor  Dell Desktop  Intl Desktop | **→** | Apple Magic Keyboard |
| Apple MacBook Pro  HP Black & Tri-color Ink  HP Laptop  iMac | **→** | Acer Aspire |

I’ve identified two layers of general recommendations here:

1. When customer bought any random item from the Market Basket (the left hand side column in the above table), the system can pop up the **frequently bought together** recommendation and try to sell other items in the same Market Basket, maybe even provide a bundle discount as an incentive.
2. Once a customer adds all or majority of items in a Market Basket to her shopping cart, the system can pop up the **cross selling** recommendation (the right hand side column in the above table), encourage the customer to also buy the cross selling product, something similar to “Do you also need this item?”.

### **Summary**

Electronidex seems to be a good acquisition for Blackwell. It has high frequency of transactions involving all computer types, which will bring in high revenue to Blackwell. Furthermore, the products carried by Electronidex are closely related to Blackwell’s product line, and there is abundant of cross-selling opportunities to increase the sales for both companies.

However, due to the lack of information on Blackwell existing product lines, I do not know if the two companies carry any overlapping products. And if yes, they need to be consolidated after conducting a cost and benefit analysis.

Additionally, we are still missing some crucial financial data from each company before making a final acquisition decision. These missing data include balance sheets, profit and loss statements, cash flow statement, debt and equity ratio, gross margin ratio, and return on asset ratio, etc.