BUSINESS REPORT

Discover Associations Between Products

**TASK**

Perform a market basket analysis to help Blackwell's board of directors to better understand the clientele that Electronidex is currently serving and if Electronidex would be an optimal acquisition.

**GENERAL INSTRUCTIONS**

Using market basket analysis, discover any interesting relationships (or associations) between customer’s transactions and the item(s) they’ve purchased.

DATE SUBMITTED: 11 Nov 2017

**Introduction**

Electronidex is a start-up online retailer which Blackwell Electronics is considering buying. To better understand whether Blackwell Electronics should purchase Electronidex, an analysis was conducted of one months’ worth of Electronidex’s online sales. The dataset examined contains 9,835 transactions containing one or more of 125 different products. Products in the analysis include: Acer Desktop, Apple MacBook Air, Canon Office Printer, HP Laptop, Kindle, Microsoft Office Home and Student 2016, and much more. The quantity of products purchased ranged from 1-30 for all 9,835 transactions. The chart below details how many transactions occurred for the number of items sold:

Over 50% of our transactions included no more than 3 products purchased and very few transactions (<.4%) had 20 or more items purchased.

**Analysis**

In order to better understand the transaction data, some analysis needed to be done to determine how often product were purchased and what products were purchased together. Knowing this information, we will be better able to understand whether or acquiring Electronidex will be beneficial to our business.

Some insightful patterns I picked up were those transactions that included HP Laptops and iMac. Looking at the data below, we can see that these products are purchased with other complementary products.

|  |  |  |  |
| --- | --- | --- | --- |
| When customers bought: | They also bought: | Occurrences | Lift |
| Acer Aspire and ViewSonic Monitor | HP Laptop | 106 | 3.103 |
| Dell Desktop and ViewSonic Monitor | HP Laptop | 150 | 2.961 |
| CYBERPOWER Gamer Desktop and ViewSonic Monitor | HP Laptop | 120 | 2.587 |
| HP Laptop and Microsoft Office Home and Student 2016 | iMac | 127 | 2.156 |
| Apple Magic Keyboard and Dell Desktop | iMac | 100 | 2.283 |
| Apple Magic Keyboard and Lenovo Desktop Computer | iMac | 112 | 2.015 |
| Apple Magic Keyboard and HP Laptop | iMac | 145 | 1.993 |

The last column ‘Lift’ tells us how much more often the item in the second column, HP Laptop or iMac, was to be purchased when the customer bought the items in the first column, than just buying the item in the second column on its own. For example, an HP Laptop was 3.103 more likely to be purchased if the customer was also purchasing an Acer Aspire and a ViewSonic Monitor than it being purchased without these two items.

Blackwell would benefit from selling many of Electronidex’s products. Many of the products that Electronidex sells are of the same type—printers, computers, and software—and of the same brand—HP, Apple, and Acer. Since the products sold at both locations can potentially come from the same supplier with the possibility of added discounts for bulk purchases and with an array of different items purchased in conjunction with HP Laptops and iMacs, I recommended that Blackwell Electronics purchase Electronidex.

Finally, some promotional offerings and product discontinuations which I recommend:

|  |  |
| --- | --- |
| Promotion Type | Products |
| Cross-Sell | ViewSonic Monitor and HP Laptop |
| Cross-Sell | Apple Magic Keyboard and iMac |
| Cross-Sell | Microsoft Office Home and Student 2016 and iMac |
| Coupon | Acer Desktop |
| Coupon | ASUS 2 Monitor |
| Coupon | Apple Magic Keyboard |
| Coupon | CYBERPOWER Gamer Desktop |
| Coupon | Dell Desktop |
| Coupon | HP Laptop |
| Discontinue | 1TB Portable External Hard Drive |
| Discontinue | 2TB Portable External Hard Drive |

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