

Market Basket Analysis Report

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Contents

Executive summary:	1
Introduction:	1
Insights and findings:	1

Executive summary:

Introduction:

To gather all the necessary insights about Electroindex's business activity, we have used their online transactions data and a file containing all the electronics that they currently sell. Due to their lack of funding, Electroindex is only able to pull data on the items that customers purchased per their transactions, meaning that we cannot identify whether the same customer made multiple transactions during this time period.

Insights and findings:

Using insights from previous analysis of Blackwell's products, we can see that products that have the highest volume sold are accessories and displays, which have shown to have a strong association with desktops and laptops in the Electroindex's data set.

Product_Ty...	sum(Volum...
Accessories	25548
Display	2428
Extended W...	9876
Game Console	8720
Laptop	516
Netbook	92
PC	116
Printer	2036
Printer Supp...	44
Smartphone	1808
Software	4268
Tablet	948

We also know that products that have the highest predicted profitability for Blackwell are Tablets and PCs, shown on the ranked table below:

Potential New Product List						
Product_Type	Product_number	Brand_Name	Price_in_dollars	Profit_margin	Sales_Volume	Predicted_Profit
Tablet	186	Apple	629.00	0.1	1193.552289	75074.44
PC	171	Dell	699.00	0.25	426.880776	74597.42
Tablet	187	Amazon	199.00	0.2	1701.870063	67734.43
Netbook	180	Acer	329.00	0.09	1290.167676	38201.86
Game Console	199	Sony	249.99	0.09	1346.160993	30287.41

Using product association insights and the above information, we can conclude that Blackwell can gain profits in the following way if it decides to buy Electroindex:

- 1) Since PCs have the most predicted profit for Blackwell and Electroindex's most sold items are PCs, it should use Electroindex's products such as PCs/Desktops/Laptops as it's product supply and bundle them with already existing Blackwell's accessories.
- 2) Because there is a strong association between accessories and PCs, everytime a customer buys a PC, using targeted marketing Blackwell could offer bundles or suggestions for customers to also buy accessories, which in most cases will provide extra profit.

```
## Number of transactions
```

```
## [1] 9835
```

```
## items
```

```
## [1] Acer Aspire + Belkin Mouse Pad + Brother Printer Toner + VGA Monitor Cable
```

```
## [2] Apple Wireless Keyboard + Dell Desktop + Lenovo Desktop Computer
```

```
## [3] iMac
```

```
## [4] Acer Desktop + Intel Desktop + Lenovo Desktop Computer + XIBERIA Gaming Headset
```

```
## [5] ASUS Desktop + Epson Black Ink + HP Laptop + iMac
```

```
## [6] ASUS Monitor + Gaming Mouse Professional + iMac + Lenovo Desktop Computer + Mackie CR Speakers
```

```
## [7] CYBERPOWER Gamer Desktop
```

```
## [8] Apple MacBook Air + Bose Companion Speakers + CYBERPOWER Gamer Desktop + HP Laptop + Large Mouse
```

```
## [9] Logitech Keyboard
```

```
## [10] Generic Black 3-Button + iMac
```

```
## Number of transactions per item: /n
```

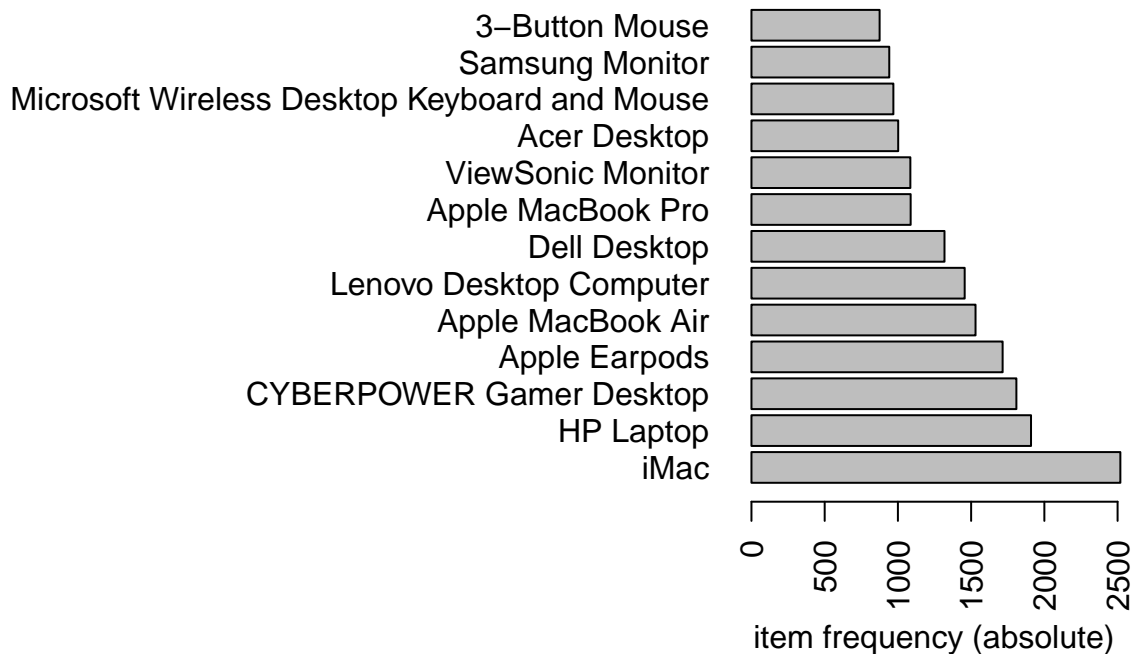
```
## [1] "1 Item --> 2163"
```

```
## [1] "2 Item --> 1647"
```

```
## [1] "3 Item --> 1294"
```

```
## [1] "4 Item --> 1021"
## [1] "5 Item --> 856"
## [1] "6 Item --> 646"
```

While doing market basket analysis, we have discovered some strong associations between Electroindex's products. In particular, a lot of customers who shop at Electroindex will purchase "bundles" of products, mainly as a combination of desktop/laptop and accessories. We have also found out that Electroindex's most sold products are desktops and laptops, which you can see on the graph below:



```
##
## Rules Sorted by lift
##      lhs
## [1] Dell KM117 Wireless Keyboard & Mouse + iPhone Charger Cable
## [2] HP Monitor + iMac + Koss Home Headphones
## [3] 3-Button Mouse + Acer Desktop + ASUS Monitor
## [4] Acer Aspire + Dell Desktop + iMac + ViewSonic Monitor
## [5] Epson Printer + iMac + Lenovo Desktop Computer + ViewSonic Monitor
## [6] Dell Desktop + HP Monitor + Lenovo Desktop Computer + ViewSonic Monitor
## [7] Etekcity Power Extension Cord Cable + iMac + Lenovo Desktop Computer + ViewSonic Monitor
## [8] 3-Button Mouse + Acer Aspire + ViewSonic Monitor
## [9] Apple Magic Keyboard + Epson Printer + iMac + Lenovo Desktop Computer
## [10] Computer Game + Dell Desktop + ViewSonic Monitor
##      rhs      support   confidence lift    count
## [1] => Apple MacBook Air    0.002033554 0.9523810 6.122004 20
## [2] => Lenovo Desktop Computer 0.001525165 0.8823529 5.960124 15
## [3] => HP Laptop              0.001525165 0.9375000 4.829917 15
## [4] => HP Laptop              0.003762074 0.9024390 4.649286 37
```

```
## [5] => HP Laptop 0.001728521 0.8947368 4.609605 17
## [6] => HP Laptop 0.001728521 0.8947368 4.609605 17
## [7] => HP Laptop 0.001626843 0.8888889 4.579477 16
## [8] => HP Laptop 0.001525165 0.8823529 4.545805 15
## [9] => HP Laptop 0.001525165 0.8823529 4.545805 15
## [10] => HP Laptop 0.002643620 0.8666667 4.464990 26
```

```
##
```

```
## Rules Sorted by support
```

```
## lhs
```

```
## [1] Acer Aspire + Dell Desktop + ViewSonic Monitor
## [2] Acer Aspire + Dell Desktop + iMac + ViewSonic Monitor
## [3] Acer Desktop + Dell Desktop + iMac + ViewSonic Monitor
## [4] Dell Desktop + Mackie CR Speakers
## [5] Computer Game + Dell Desktop + ViewSonic Monitor
## [6] Dell Desktop + HP Black & Tri-color Ink
## [7] CYBERPOWER Gamer Desktop + HP Black & Tri-color Ink
## [8] ASUS 2 Monitor + ASUS Monitor + Lenovo Desktop Computer
## [9] ASUS 2 Monitor + Dell Desktop + Microsoft Office Home and Student 2016
## [10] Apple Magic Keyboard + Dell Desktop + Microsoft Office Home and Student 2016
```

```
## rhs support confidence lift count
```

```
## [1] => HP Laptop 0.005287239 0.8125000 4.185928 52
## [2] => HP Laptop 0.003762074 0.9024390 4.649286 37
## [3] => HP Laptop 0.003253686 0.8000000 4.121530 32
## [4] => iMac 0.002643620 0.8666667 3.383750 26
## [5] => HP Laptop 0.002643620 0.8666667 4.464990 26
## [6] => iMac 0.002541942 0.8064516 3.148651 25
## [7] => iMac 0.002440264 0.8000000 3.123462 24
## [8] => iMac 0.002440264 0.8000000 3.123462 24
## [9] => iMac 0.002440264 0.8275862 3.231167 24
## [10] => iMac 0.002440264 0.8275862 3.231167 24
```

```
##
```

```
## Rules Sorted by confidence
```

```
## lhs
```

```
## [1] Apple Magic Keyboard + Rii LED Gaming Keyboard & Mouse Combo + ViewSonic Monitor
## [2] Etekcity Power Extension Cord Cable + HP Laptop + Lenovo Desktop Computer + ViewSonic Monitor
## [3] Dell KM117 Wireless Keyboard & Mouse + iPhone Charger Cable
## [4] Dell Desktop + Lenovo Desktop Computer + Samsung Monitor + ViewSonic Monitor
## [5] ASUS 2 Monitor + Dell Desktop + Lenovo Desktop Computer + Microsoft Office Home and Student 2016
## [6] ASUS Desktop + Dell Desktop + iPad Pro
## [7] 3-Button Mouse + Acer Desktop + ASUS Monitor
## [8] ASUS Monitor + Dell Desktop + Lenovo Desktop Computer + ViewSonic Monitor
## [9] Acer Aspire + Dell Desktop + iMac + ViewSonic Monitor
## [10] Epson Printer + iMac + Lenovo Desktop Computer + ViewSonic Monitor
```

```
## rhs support confidence lift count
```

```
## [1] => iMac 0.001728521 1.0000000 3.904327 17
## [2] => iMac 0.001626843 1.0000000 3.904327 16
## [3] => Apple MacBook Air 0.002033554 0.9523810 6.122004 20
## [4] => iMac 0.001830198 0.9473684 3.698836 18
## [5] => iMac 0.001728521 0.9444444 3.687420 17
## [6] => iMac 0.001525165 0.9375000 3.660307 15
## [7] => HP Laptop 0.001525165 0.9375000 4.829917 15
## [8] => iMac 0.001931876 0.9047619 3.532486 19
## [9] => HP Laptop 0.003762074 0.9024390 4.649286 37
## [10] => HP Laptop 0.001728521 0.8947368 4.609605 17
```