Blackwell Electronics

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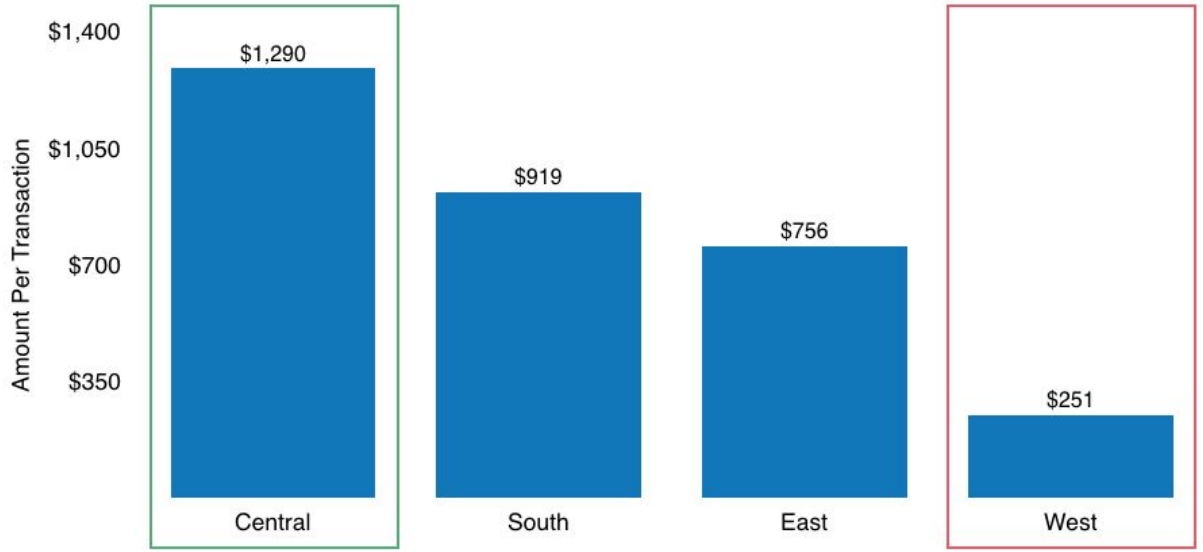
Template Contents

Data Mining helps us explore our operational data and find statistical relationships between products, customer demographics, and other data sources that can inform strategic decision making.

Ex. What can we learn about how our customers shop and how much they spend? How can we shorten our potential products list using sales data on current products?

Influence of Region

Central customers spend the most ($1,290 per transaction) and West customers spend the least ($251)

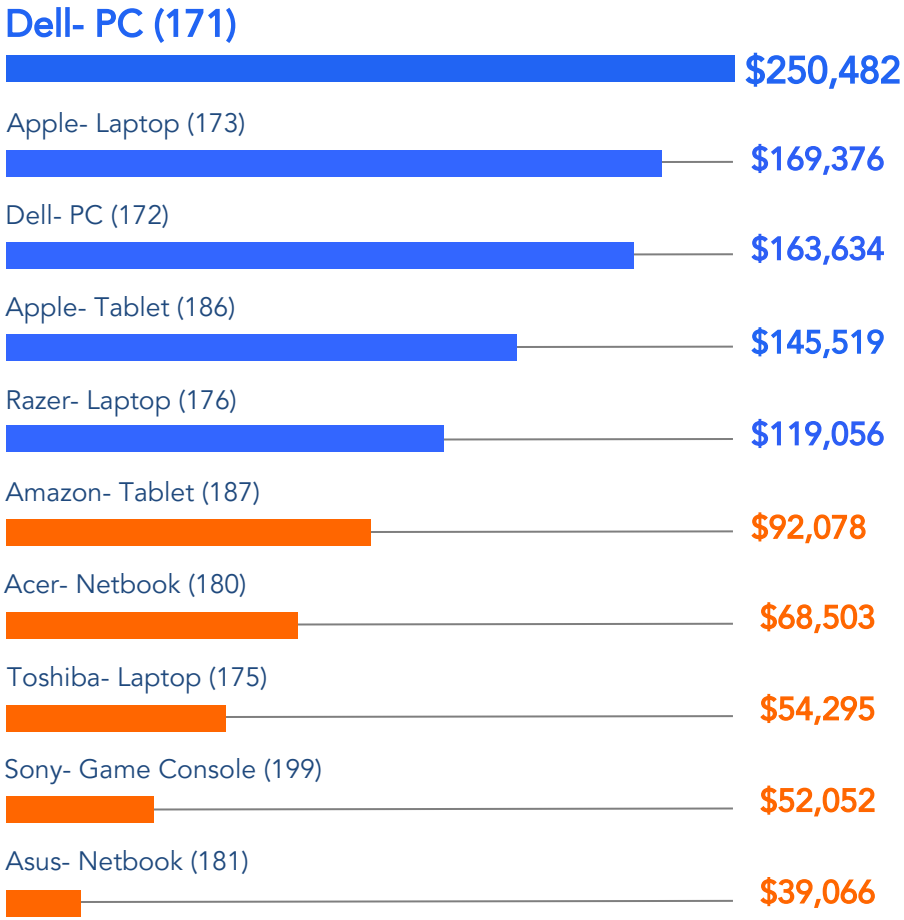


	Central	South	East	West
Total Transactions	3,213	2,207	2,036	2,544
Total Sales	$4.15M	$2.03M	$1.54M	$0.64M

Other Factors Examined

Age by Region	- Central region trends younger with no customers over 68 - Western region largest population of elderly, 31% over 68
Age by Channel	- The majority of those over 68 made purchases in store - Only in Central were there sig. differences in by channel by age
Channel	- Region was most important - West 100% of sales online compared Central (50%) and East (25%)
Spend and Items	- No relationship - Avg. basket size for all four regions between 4 and 5 items

Recommended products by revenue generated



Modeling Methods

K-NN

Plots all observations and makes predictions on an observation by looking at other observations near it.

SVM

Plots all observations and then separates them into like groups.

Decision Trees

Continuously splits observations into groups based on how much information you get from each split. Named for its resulting tree-like structure.

GBT/Random Forest

Blindly runs many different Decision Trees to split observations and uses the one with the best results.

Leveraging Data Mining for e-Business

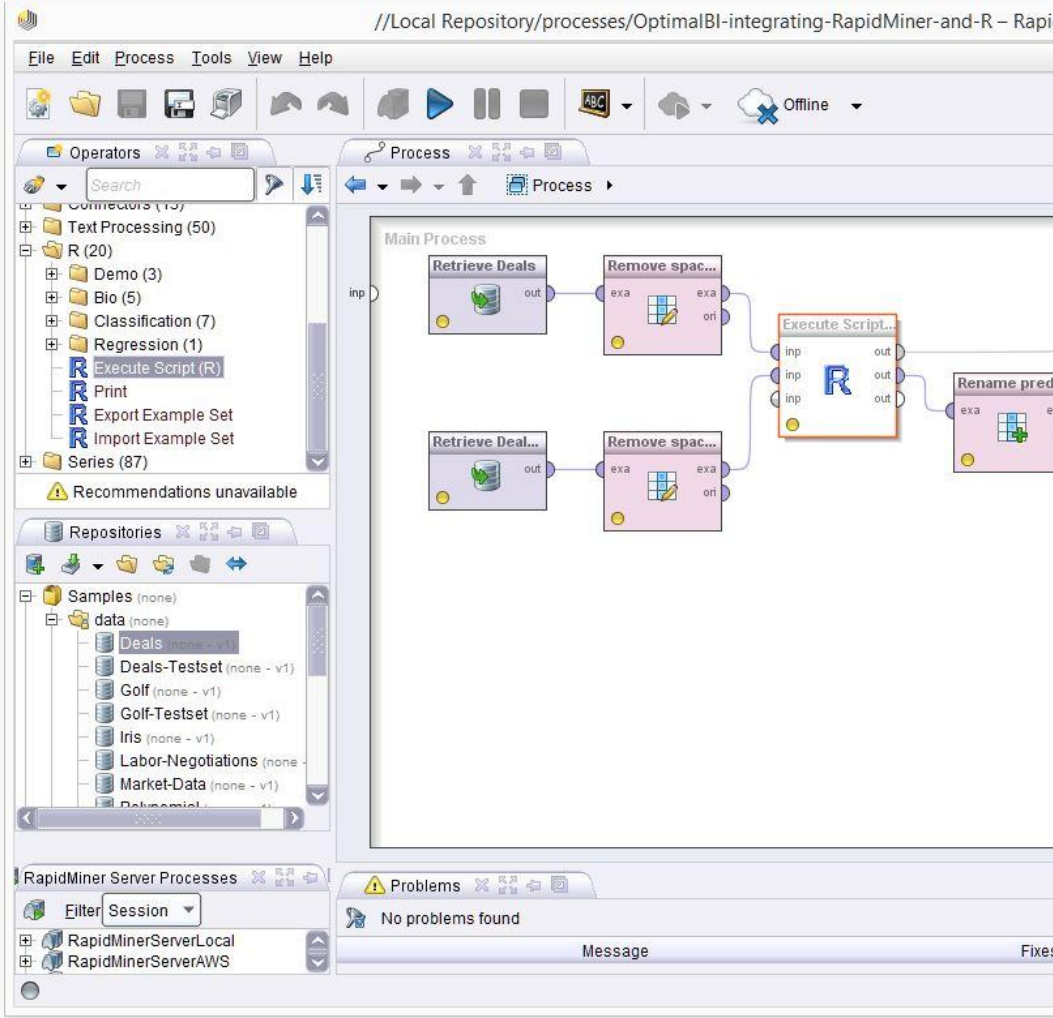
	What?	How?
Understand customer behavior and preferences	How do we offer most appropriate product, product bundle at any given time?	Use recent spending histories and customers profile data effectively pushing the right product at the right time.
Target promotions and recommendations	How customers may respond to promotional offers?	Use consumer research, market and competitive analysis, and detailed economic modelling to identify potential response to a promotions by demographics.
Optimize Inventory	How do we reduce both out-of-stocks and over-stocks?	Predict inventory positions by utilizing demand plans and forecasts, sales history, category trends, economic conditions, local events and so on
Set up dynamic pricing	What the best price to offer to meet or beat competition?	Examine historical sales data to derive insights into pricing and correlate product pricing changes to more detailed segments
Reduce shopping cart abandonment.	How to convert the casual browser to actual customer?	Identify the bottlenecks from product search, to a product page view, and all the way to the purchase event.

Future Analysis

- Combine Sales and Customer analysis we've already conducted to find the best products to promote by eCommerce region
- Continuing to build out new product profitability models as new products launched
- Predicting demand of Blackwell's electronic products over their lifecycle
- Inventory management: Predicting sales with demographic data can help minimize the inventory costs
- Add Supplier data to find the optimum supplier by eCommerce region to optimize costs

Appendix

rapidminer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Offline
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Search
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R (20)
Demo (3)
Bio (5)
Classification (7)
Regression (1)
Execute Script (R)
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Export Example Set
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Series (87)
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Samples (none)
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Deals-Testset (none - v1)
Golf (none - v1)
Golf-Testset (none - v1)
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Market-Data (none - v1)
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RapidMinerServerLocal
RapidMinerServerAWS
Process
Process
Main Process
Retrieve Deals
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Execute Script...
Rename pred
Retrieve Deal...
Remove spac...
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Message

Data Processing Methodology

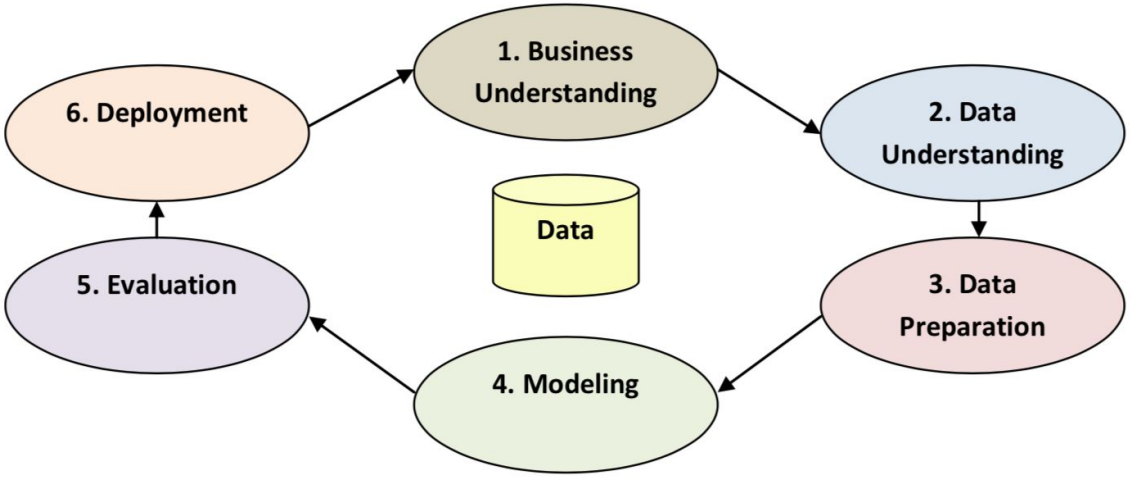

Figure 1-1: CRISP-DM Conceptual Model.