



Intelligent Advertising

Business Analytics using Data Mining

Group 3B

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Business Goal:

To improve the effectiveness of targeted advertisement

Focusing right ads to the right customers

Target returning customers and new customers of available profile

Business Goal

Data Mining Goal

Data Used

Data Mining Method

Evaluation criteria

Recommendations

Data Mining Goal:

To discover the popular purchase trend for customers using past purchase data

- Focusing on past purchase with respect to revenue generated by the store
- Generalize the purchase trends for customer segments
- Achieve this by using specific a supervised process with defined predictors and an output y

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Predictor Variable

Output Variable

Age of Cust	SEX	MARITAL_STATUS	CLEAN_EMAIL_F LAG	Tot_Rev_tillM-1	Hi_Rev_Class_onM-1	Popular purchase
30	F	N	Y	0	NA	BUTTER
45	M	Y	Y	0	NA	BUTTER
47	M	Y	N	90	CHEESE	CHEESE
47	M	Y	N	4455	CHEESE	CHEESE
47	M	Y	N	981	BUTTER	ICECREAMS & GELATO
47	M	Y	N	0	NA	DAHI & YOGURT
48	M	N	N	0	NA	FRESH MILK
48	M	N	N	130.5	DAHI & YOGURT	DAHI & YOGURT
37	M	X	Y	0	NA	ICECREAMS & GELATO
41	M	N	Y	0	NA	ICECREAMS & GELATO

Predictors Variables:

Age of Customer
Sex
Marital status
Total past revenue of the customer
Most popular purchase in the last basket

Output:

Most likely product the customer may purchase

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K- Nearest Methods

- Reasons for choice:

Categorical Output, works well with multi-class classification

-Inputs: Gender, Age, Marital Status, Popular Purchase in Last Basket and Revenue brought to store

- Best K value - 16

Error Report			
Class	# Cases	# Errors	% Error
BUTTER	710	230	32.39
CHEESE	1007	97	9.63
DAHI &	385	137	35.58
FRESH MILK	244	65	26.64
ICECREAMS &	309	142	45.95
OTHER DAIRY	172	96	55.81
PANEER	193	67	34.72
Overall	3020	834	27.62

CART

- Reasons for choice:

Categorical Output, works well with multi-class classification, knowledge of predictors

-Inputs: Popular Purchase in Last Basket and Revenue brought to store

- Levels – 7 (Excel)

Error Report			
Class	# Cases	# Errors	% Error
BUTTER	710	301	42.39
CHEESE	1007	10	0.99
DAHI &	385	137	35.58
FRESH MILK	244	65	26.64
ICECREAMS &	309	142	45.95
OTHER DAIRY	172	96	55.81
PANEER	193	67	34.72
Overall	3020	818	27.09

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Evaluation Criteria

- Naïve method for benchmarking:

Overall error = 66.7%

- Multiple Methods: KNN and CART
- Multiple sets of input

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Recommendations:

- 1. Go ahead with implementation of business goal**
- 2. Collect smarter predictor data to improve accuracy of future prediction**
- 3. Smarter advertisement – coupons, personalized emails**
- 4. New product launches – promotion to the right segment**

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