PREDICTING CUSTOMER CHURN

WHICH CUSTOMER
IS LIKELY TO LEAVE?

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AGENDA

1. Background
2. Why Predicting Customer Churn Matters
3. Data Modeling & Analysis
4. Recommendations
5. Questions and Answers

PREDICTING CUSTOMER CHURN

- **Background**
  - Competition is intense: 0% balance transfers

Aggressive Acquirers	Relationship Managers
Nextcard	American Express
GetSmart	Discover Card

  - High rates of customer defection: 20%-30%
  - Highly profitable
  - Cost $80 to acquire a customer that will generate $120 a year if he/she keeps the card

- **Firm**
  - Major credit card company with travel offices in UK, France, Britain, and Germany

- **Problem**
  - Which Current Customer Is Likely To Leave?

WHY PREDICTING CHURN MATTERS

- **0% offers cost the industry £1bn a year in lost revenue in UK.**
- **20% annual churn rate means half of your customer base will be gone in 4 years!**
- **Costs 7 times to acquire a new customer than to keep an existing customer**
- **Devise strategies for “rate tarts”**
- **Win-back high value customers**

DATA MODELING & ANALYSIS

Data Source: Professor P. Kannan, Harvey Sanders Associate Professor of Marketing. Director, Center for Excellence in Service, UMD.

Explanatory Analysis: Examined data by sorting, pivot tables, scatter plots, correlations, and histograms

Variable Reduction: Started out with 405 observations and 182 predictor variables. Utilized 11 predictors. Narrowed predictors through domain knowledge, elimination of null values, and creation of interaction variables.

Other activities: Logged variables to normalize data, recoded the data into format usable by analysis tool, looked at stepwise through logistic regression to find most relevant variables

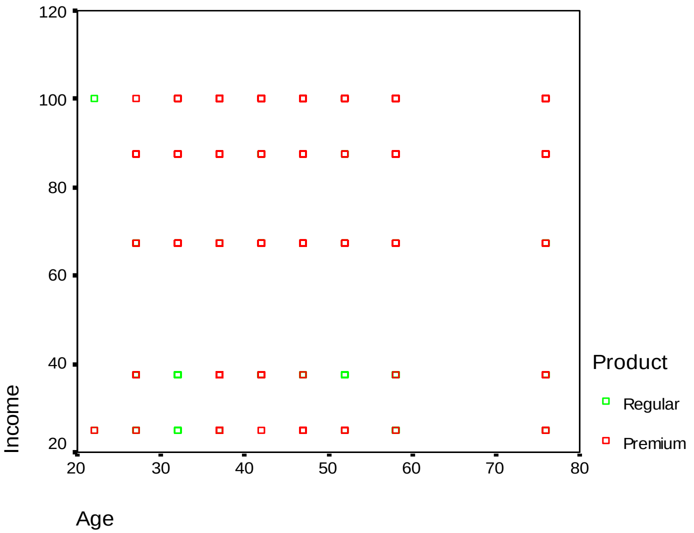
Model/Statistical technique Used: Discriminant Analysis because -

- Insufficient data to run classification trees
- Asymmetrical misclassification cost (7:1)
- Prior probabilities
- 30% more efficient than logistic regression given multivariate normal data

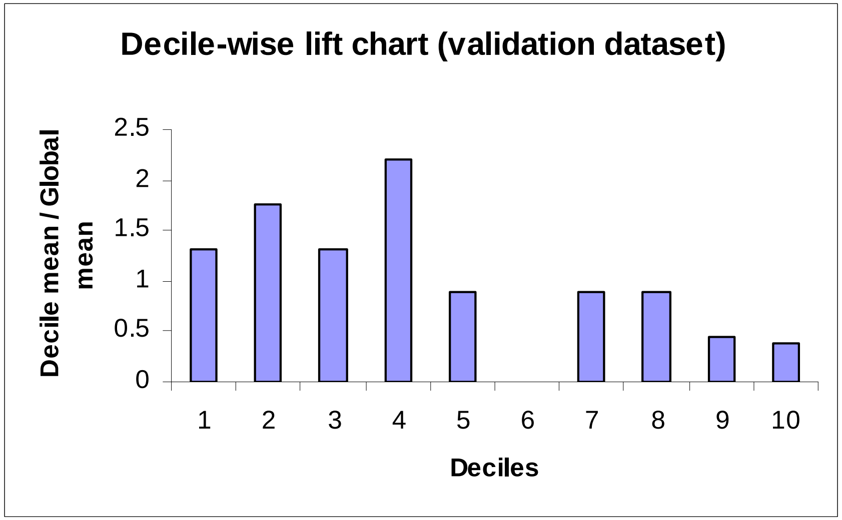
VARIABLES IN OUR MODEL

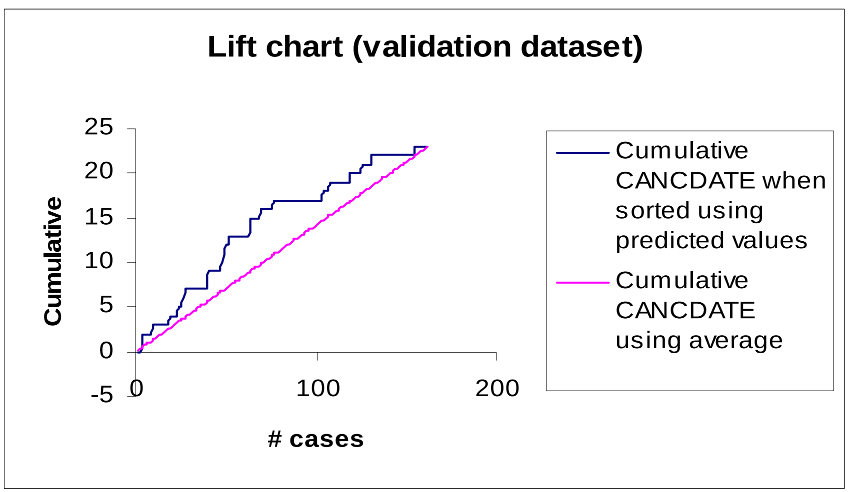
- Income
- Age
- Product
- Amount Spent
- # Transactions
- Marital Status
- Statement Ease
- Marketing Quality
- Anniversary Date
- Loyalty
- Gender

Variables	Classification Function	
	1	0
Constant	-146.1769714	-145.9470673
Log(Age)	56.04314804	55.95493698
MARITAL STATUS	-6.37859583	-6.39721918
Log(INCOME)	21.88240623	21.65524483
PRODUCT	9.39768505	9.12808704
Log (ANNDATE)	-7.50112486	-7.17833376
TOTAL_SPEND24	-0.03029263	-0.02248576



DISCRIMINANT ANALYSIS RESULTS

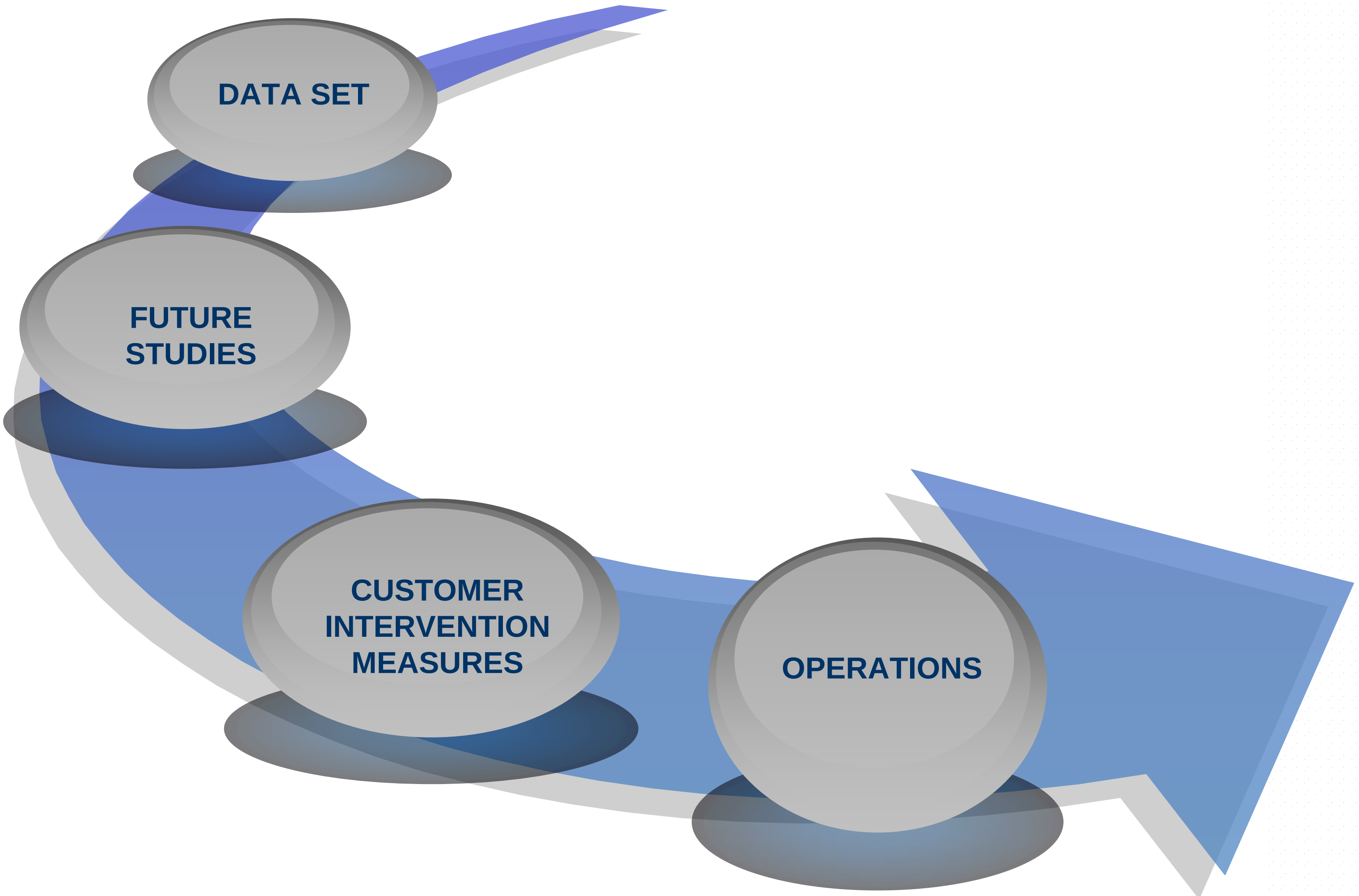




	Predicted Class	
Actual Class	1	0
1	22	1
0	127	12

Error Report			
Class	# Cases	# Errors	% Error
1	23	1	4.35
0	139	127	91.37
Overall	162	128	79.01

RECOMMENDATIONS



WHICH CUSTOMER IS LIKELY TO LEAVE?

- **Age: 40's**
- **Shorter Tenure**
- **Regular Product**
- **Lower Income**
- **Spend Less**
- **Single**

	Stay	Leave
Premium	86.14%	13.86%
Standard	80.30%	19.70%

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RECOMMENDATIONS

- **Data Set –**
  - **Collect more ratio data**
  - **Track carrying balance, payoff trends**
- **Conduct future studies – *Why* are customers leaving?**
- **Operationalize the Model**
- **Intervention Measures**
  - **Incentives**

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Thank You!