



# Analysis of Journal Renewals

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# Agenda

- Project Background and Overview
- Goals and Objectives
- Survey Structure
- Using Domain Expertise
- The Models
- Key Insights
- Conclusion



# Project Background and Overview

- Company - a leading publisher of medical information
  - Journal - a highly successful, bimonthly, 1-year old nursing journal with an explosive growth since its inception in 2003
  - The number of subscribers has grown by 80% in less than 3 months
  - Annual Subscription costs around \$30
  - Data - subscriber responses to a readership survey
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What drives renewals?



# Journal Characteristics

- Based on a highly successful book series for Nursing professionals
- Emphasizes breaking down challenging clinical concepts
- Easy to understand format
- Rich artwork, photographs to aid learning
- Articles are contributed by experienced clinicians
- Hands on, practical advice



# Goals and Objectives

1. **Profiling** - Profile survey respondents and understand what drives renewal rates
2. **Classification** - Classify readers into two groups based on demographic factors
  - Users who are likely to renew
  - Users who are not likely to renew

# Survey Structure

- Sections: General, Issue Specific, Demographic
- Data source: surveys from May/June and September/October issues
- Actual Renewal Data
- Number of Variables: 28
- Sample Size: 796
  - 401 from May/June
  - 395 from Sept/Oct

## SECTION I – GENERAL INFORMATION

1a. Which of the following nursing journals do you read regularly and then which journals do you personally subscribe to?

(check all that apply)	Read regularly	Personally subscribe
Advance for Nurses	<input type="checkbox"/>	<input type="checkbox"/>
Spectrum	<input type="checkbox"/>	<input type="checkbox"/>
Nursing Made Incredibly Easy!	<input type="checkbox"/>	<input type="checkbox"/>
Nursing 2004	<input type="checkbox"/>	<input type="checkbox"/>
RN	<input type="checkbox"/>	<input type="checkbox"/>
AJN	<input type="checkbox"/>	<input type="checkbox"/>
Nurseweek	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please specify):	<input type="checkbox"/>	<input type="checkbox"/>

- 1b. Which ONE of the above nursing journals do you read most often? \_\_\_\_\_
2. Have you replaced another professional journal subscription with the Nursing made Incredibly Easy! journal?  
 No, did not replace another journal  
 Yes → If so, which one?  Advance for Nurses  Nurseweek  RN  Other (specify) \_\_\_\_\_  
 Spectrum  Nursing 2004  AJN
3. Compared with other nursing journals that you read regularly, how different is *Nursing made Incredibly Easy!*?  
 Very different  Somewhat different  Not different at all
4. What was your primary reason for subscribing to *Nursing made Incredibly Easy!*? (please check ONLY one)  
 I need a journal that explains complex material in a simple way  
 I just wanted to try a different publication  
 I received a trial or gift subscription  
 To keep up to date or current  
 For the CE contact hours  
 I am aware of the *Nursing made Incredibly Easy!* books  
 Other (please specify) \_\_\_\_\_

# Data Cleanup

- Identified critical variables by consulting with the marketing department of the company
- Removed responses from subscribers that are not due for renewals for at least three months
- Aggregated rating scores
- Created dummy variables for categorical responses
- Treated 5 point responses as continuous variables
- Eliminated responses with NULL values
  
- Final variables count: 19
- Final record count: 340



# The Profiling Process

- Started with the complete set of important variables
- Eliminated variables based on predictive power (stepwise elimination of variables using Logistic Regression)
- Performed Discriminant Analysis on actual renewals based on final set of variables

# Profiling Model: Renewal Factors

- High correlation between “stated” intention and “actual” renewal
- Factors that drive actual renewal:
  - Price – is it a good value for money
  - Rating – average rating of the journal by the user
  - Journal’s contribution to overall understanding
  - Does the user like the journal approach
  - Number of years employed

# Profiling Model : Technical Summary

## Discriminant Analysis

Variables	Classification Function	
	Y	N
Constant	-51.46264267	-46.84158325
A06_Rate_Avg	18.86481094	18.37122345
A11_1	17.31918335	14.93826962
A12_1	-7.18218803	-7.76114464
A13_1	0.84402764	0.50095451
D03	0.15751253	0.14007443

## Logistic Regression

Input variables	Coefficient	Std. Error	p-value	Odds
Constant term	-17.32598877	508.0690308	0.97279608	*
A06_Rate_Avg	0.48331332	0.26014623	0.06318998	1.62143779
A11_1	15.11286163	508.0679321	0.97626984	3659588.75
A12_1	0.5140509	0.27219602	0.05895456	1.67205083
A13_1	0.32771894	0.25131965	0.1922361	1.38779891
D03	0.01789977	0.01129476	0.11301524	1.01806092

Classification Confusion Matrix		
Actual Class	Predicted Class	
	Y	N
Y	201	13
N	87	39

Error Report			
Class	# Cases	# Errors	% Error
Y	214	13	6.07
N	126	87	69.05
Overall	340	100	29.41

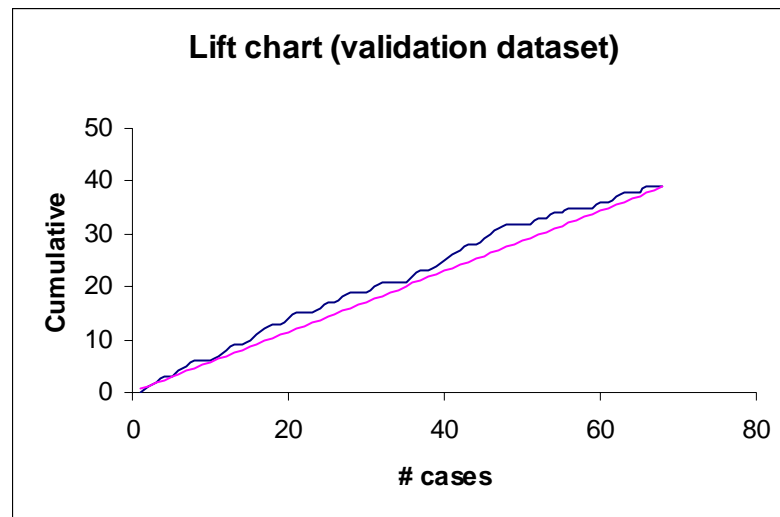


# Classification Goal

- How to predict renewals in the absence of a survey?
- What demographic factors predict renewals?

# Model Evaluation: Classification

- Domain knowledge drives demographic variable selection
- Validation set (20%) highlights model's inability to predict future renewals based on demographics alone!
- Best explanatory variable is Years of Employment
- Discriminant analysis indicates overall error rate of 42.65%.  
No lift!



# Key Findings

- Demographics do not help predicting the renewal decision
- “Perceived value” is a key driver for explaining renewals (in terms of price and how well the journal helped users)
- Years of employment: experienced readers had a higher renewal than less experienced readers
  - For every additional year of employment, the odds that the reader will subscribe increases by a factor of 1.027, everything else being constant
- Stated intention to renew in the survey was highly correlated with actual renewal



# Conclusion

- Maintain competitive pricing
- Quality and format of content – complex technical concepts presented in a refreshing, easy-to-read style
- Target users with longer work history
- Make the survey shorter as many questions do not provide insight



# Questions