

Part 1: Data Mining, Machine Learning and Text Analytics

Exercise 1:

All exercise 1 screenshots support answers are in Appendix.

1. Data Mining and Machine Learning

d.

- 1) Status Category 96NK L level has the highest count.
- 2) Yes, the variable Age contain 26,477 missing values.
- 3) The average of Target Gift Amount is 15.62.

e.

- 1) Responders and non-responders each account for half of the data.
- 2) 28,699 females responded to the campaign.

2. Training a Neural Network Model in SAS Visual Data Mining and Machine Learning

h.

- 1) 64,988 observations are used by algorithm.
- 2) Because many modelling algorithms in SAS Visual Data Mining and Machine Learning operate under complete case analysis, which algorithms use only cases with no missing data. All observations here which are not used have missing data.
- 3) The misclassification rate for the model created with default settings is 0.4751.

i. The updated model produces a validation misclassification rate of 0.4379, which indicates a slight improvement over the previous result.

j.

- 2) The updated model produces a validation misclassification rate of 0.4393.
- 3) The updated model produces a validation misclassification rate of 0.3755. This represents a significant improvement over previous result.
- 4) The top 10% (percentile) of the data has about 1.58 times as many responders as a random ordering of the data, and 0.32 times fewer responders than a perfect ordering of the training data.

Exercise 2:

Comedies:

- The Meaning of Life
- Chasing Amy
- American Reunion

Horrors:

- Monster House
- Case 39
- Scary Movie 2

Movie Exercise - Concepts

Concepts

- Prefixed Concepts (0)
- Custom Concepts (1)
- MOVIE_CONTENT_ANALYSIS

Test Sample Text

Documents: All (2137) | Selected (207 of 2137) | Search

Test Matches

Test Matches	Title
0	Test
0	The Faculty
0	The Prophet in an Apartment with Scott
0	Race to Witch Mountain

Concepts node

Movie Exercise - Text Parsing - Manage Terms

Terms

Term	Rule	Documents	Frequency
the	MOVIE_CONTENT_ANALYSIS	12	12

Test Matches

Test Matches	Title
0	A Nightmare on Elm Street
0	Case 39
0	The Haunting in Connecticut 2: Ghosts of
0	The Amityville Horror

Text parsing node (Horrors)

Movie Exercise - Text Parsing - Manage Terms

Terms

Term	Rule	Documents	Frequency
comedy	MOVIE_CONTENT_ANALYSIS	7	7

Test Matches

Test Matches	Title
0	Test
0	Gold Rush America
0	Brazil
0	Wargames
0	Pretty Woman

Text parsing node (Comedies)

Movie Exercise - Topics

Topics (13)

Topic	Created by	Documents	Term	Relevancy	Role	Documents	Frequency
<input checked="" type="checkbox"/> not, +go, +male, +man, +discover	System	318					
<input type="checkbox"/> +family, +son, +child, +father, +daughter	System	300		0.303	ADV	248	285
<input type="checkbox"/> +world, +planet, earth, +crew, +lead	System	294		0.229	V	164	179
<input type="checkbox"/> +town, +young, +group, +killer, +girl	System	287		0.155	V	205	219
<input type="checkbox"/> +friend, love, +best friend, best, +girl	System	265		0.142	N	240	271

Documents

All (2137) Matched (118 of 2137)

Overview	Sentiment	Relevancy	Title
...losing his job, a middle-aged man reinvents himself by going back to college.	😊	0.211	Larry Crowne
...as close as ever. They decide to get even closer by spending the summer together at a beach house. They decide to hold the biggest party ever to be seen, even if the preparation doesn't always go to plan. Especially when Stiller, Finch and Jim become more close to each other than they ever want to be and when Jim mistakes super glue for lubricant.	😊	0.181	American Pie 2
...time, there's no wedding. No bachelor party. What could go wrong, right? But when the Wolfpack hits the road, all bets are off.	😊	0.175	The Hangover Part III
...it's all it's cracked up to be for self-described "wimpy kid" Greg Heffley, who discovers a frightening new world teeming with boys who are taller, tougher and hairier than he is -- and decides to document it all in his diary.	😊	0.172	Diary of a Wimpy Kid
...couple of high school graduates spend one final night cruising the strip with their buddies before they go off to college.	😊	0.170	American Graffiti
...on credit, one man makes a living by repossessing organs their users can't pay for. What happens when the best repo man in the business can't make payments on his own artificial heart?	😊	0.166	Repo Men

Document 1 of 318

Highlight: Topic matches Search matches

Topic node

Movie Exercise - Categories

Categories (14)

- ☒ All Categories (14)
- ☐ +family, +son, +child, +father, +daughter
- ☐ +friend, love, +best friend, best, +girl
- ☐ +james, +agent, james bond, +bond, bond
- ☐ +man, +woman, +young, +young man, +young wo...
- ☐ +story, true, love, true story, +life
- ☐ Crime
- ☐ Fantasy
- ☒ Horror

Textual Elements (3364)

String	Role	Frequency
<input type="checkbox"/> s	PRO	902
<input type="checkbox"/> + life	N	402
<input type="checkbox"/> + find	V	333
<input type="checkbox"/> + world	N	293
<input type="checkbox"/> not	ADV	285
<input type="checkbox"/> + man	N	271
<input type="checkbox"/> + take	V	235
<input type="checkbox"/> + year	N	226
<input type="checkbox"/> + young	A	224

Documents

All (2137) Matched (80 of 2137)

Overview	Sentim...	Role...	Title
...a 1983 musical comedy film by the Monty Python comedy team. Unlike the two previous films they had made, which had more or less each told single, coherent stories, The Meaning of Life returns to the sketch comedy format of the troupe's original television series, loosely structured as a series of comic skits about the various stages of life.	😊	4.000	The Meaning of Life
...and Barky are comic book artists. Everything is going good for them until they meet Alyssa, also a comic book artist. Holden falls for her, but his hopes are crushed when he finds out she's a lesbian.	😊	2.000	Chasing Amy
...comedy American Reunion, all the American Pie characters we met a little more than a decade ago are returning to East Great Falls for their high-school reunion. In one long-overdue weekend, they will discover what has changed, who hasn't and that time and distance can't break the bonds of friendship. It was summer 1999 when four small-town Michigan boys began a quest to lose their virginity in the years that have passed, Jim and Michelle married while...	😊	2.000	American Reunion
...(The 40-Year-Old Virgin, Funny People) brings audiences This Is 40, an original comedy that expands upon the story of Pete (Paul Rudd) and Debbie (Leslie Mann) from the blockbuster hit Knocked Up as we see first-hand how they are dealing with their current state of life.	😊	2.000	This is 40

Document 1 of 80

Highlight: Category matches Search matches

Category node (Comedies)

Movie Exercise - Categories

Categories

- ☐ +story, true, love, true story, +life
- ☐ Crime
- ☐ Fantasy
- ☒ Horror
- ☐ Horror!
- ☒ Made_Money
- ☐ Yes
- ☐ not, +go, +male, +man, +discover
- ☐ was, world, it, +war, +story

Textual Elements (3364)

String	Role	Frequency
<input type="checkbox"/> s	PRO	902
<input type="checkbox"/> + life	N	402
<input type="checkbox"/> + find	V	333
<input type="checkbox"/> + world	N	293
<input type="checkbox"/> not	ADV	285
<input type="checkbox"/> + man	N	271
<input type="checkbox"/> + take	V	235
<input type="checkbox"/> + year	N	226
<input type="checkbox"/> + young	A	224

Documents

All (2137) Matched (23 of 2137)

Overview	Sentim...	Relov...	Title
...the bed are scary enough, but what happens when an entire house is out to get you? Three teens aim to find out when they go up against a decrepit neighbouring home and unlock its frightening secrets.	😬	1.000	Monster House
...Little, the more horrors she encounters.	😬	1.000	Case 39
...Wayans's sequel to Scary Movie takes comedic aim at haunted house movies. A group of students visit a mansion called "Hell House" and murderous high jinks ensue.	😬	1.000	Scary Movie 2
...instalment of the Scary Movie franchise, news anchorwoman Cindy Campbell has to investigate mysterious crop circles and killing video tapes, and help the President stop an alien invasion in the process.	😬	1.000	Scary Movie 3
...instalment of the SCARY MOVIE franchise includes hilarious, non-stop send ups of some of the biggest recent cinematic hits and pop culture, featuring	😬	1.000	Scary

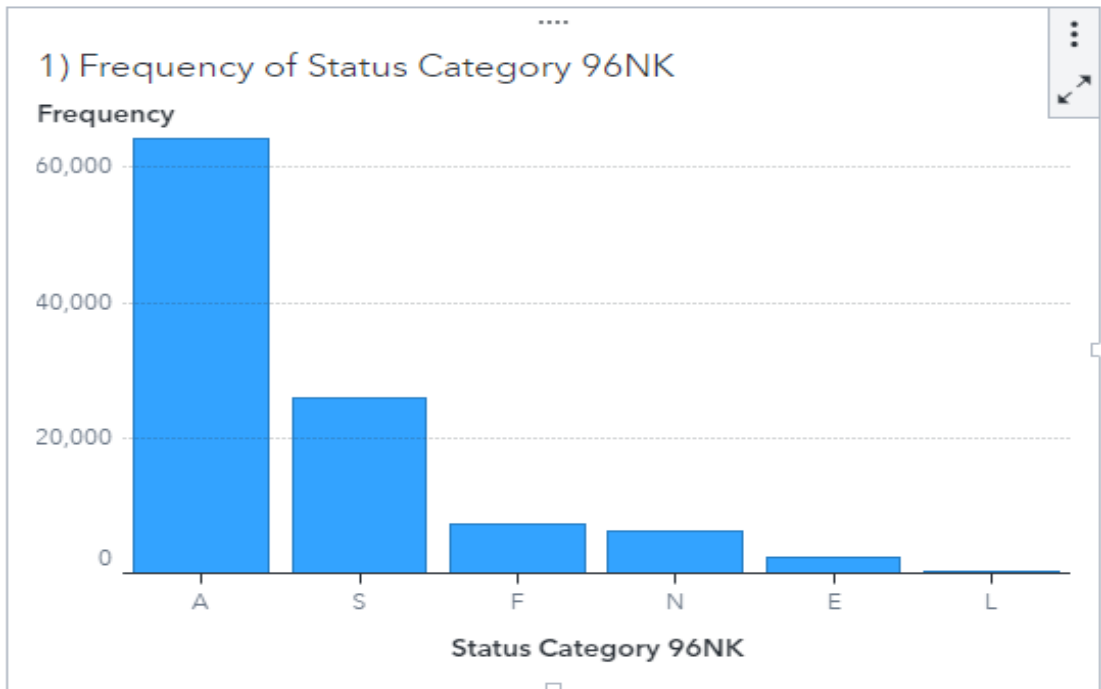
Document 1 of 23

Highlight: Category matches Search matches

Category node (Horrors)

Appendix:

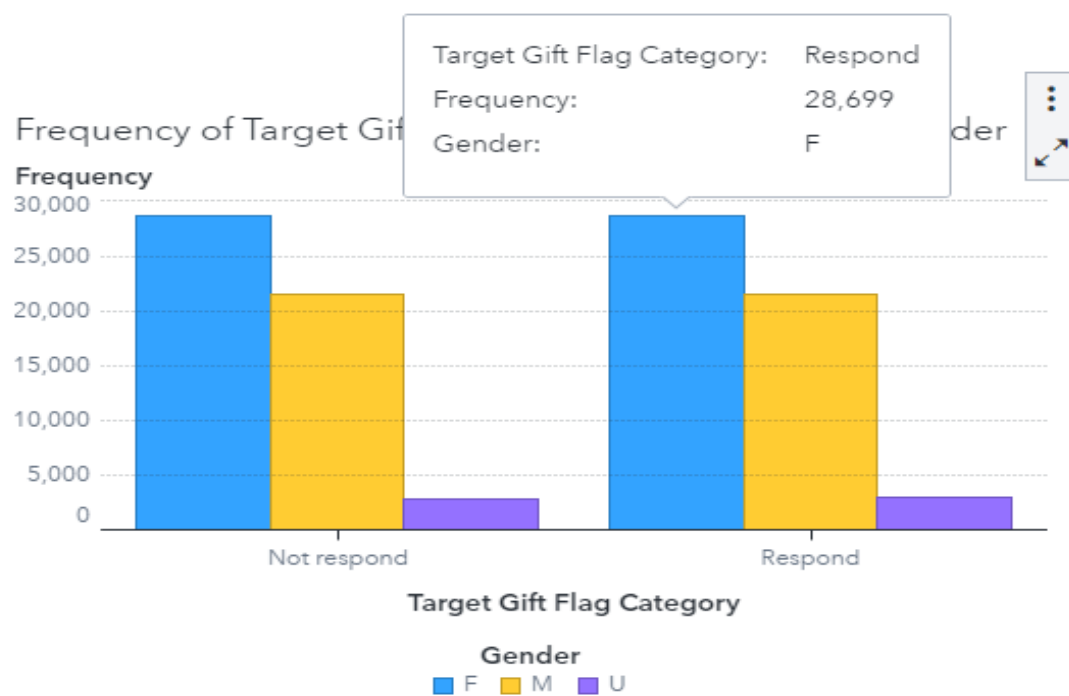
Part 1: Exercise 1



Name	Minimum
Age	0.00
Gift Amount Average 36 Months	0.00
Gift Amount Average All Months	1.50
Gift Amount Average Card 36 Months	1.33
Gift Amount Last	0.00

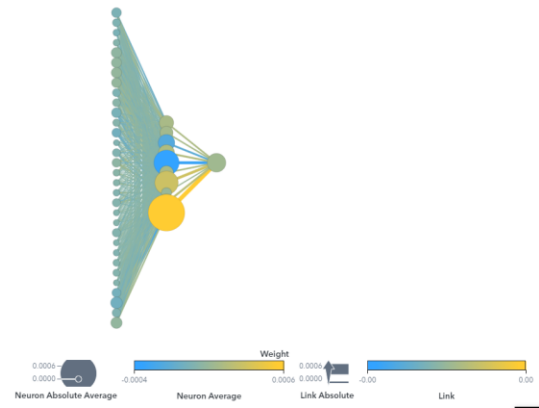
More information	
Standard Deviation:	16.52
Standard Error:	0.06
Variance:	272.76
Distinct Count:	79
Number Missing:	26,477

Name	Minimum	Maximum	Average	Sum
Target Gift Amount	1.00	200.00	15.62	832,355.70

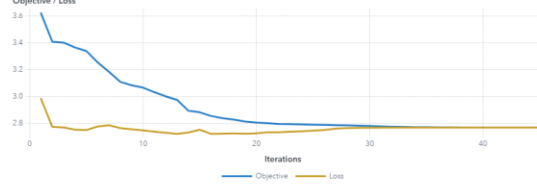


Neural Network Target Gift Flag Category (event=Respond) Misclassification Rate 0.4751 Observations Used 64,988 Unused 41,558 Create Pipeline

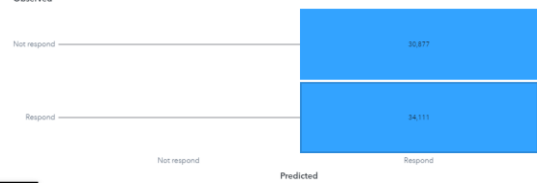
Network



Iteration Plot

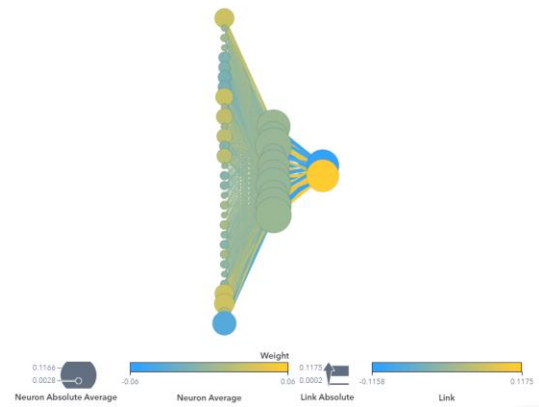


Confusion Matrix

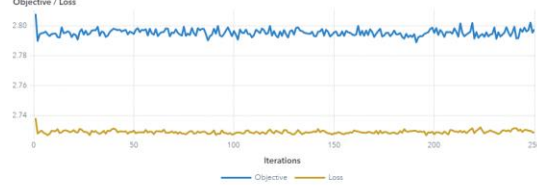


Neural Network Target Gift Flag Category (event=Respond) Misclassification Rate 0.4379 Observations Used 64,988 Unused 41,558 Create Pipeline

Network



Iteration Plot

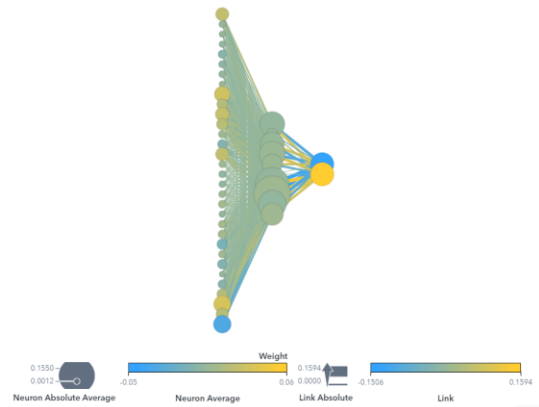


Confusion Matrix

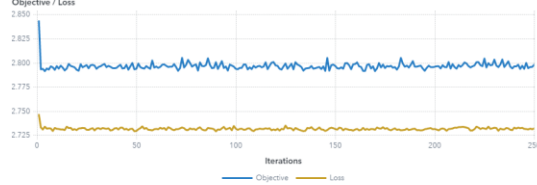


Neural Network Target Gift Flag Category (event=Respond) Validation Misclassification Rate 0.4393 Observations Used 64,988 Unused 41,558 Create Pipeline

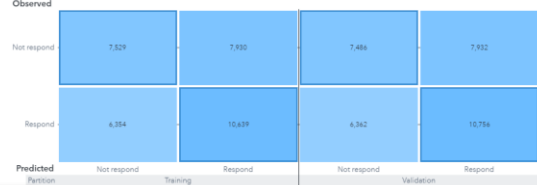
Network

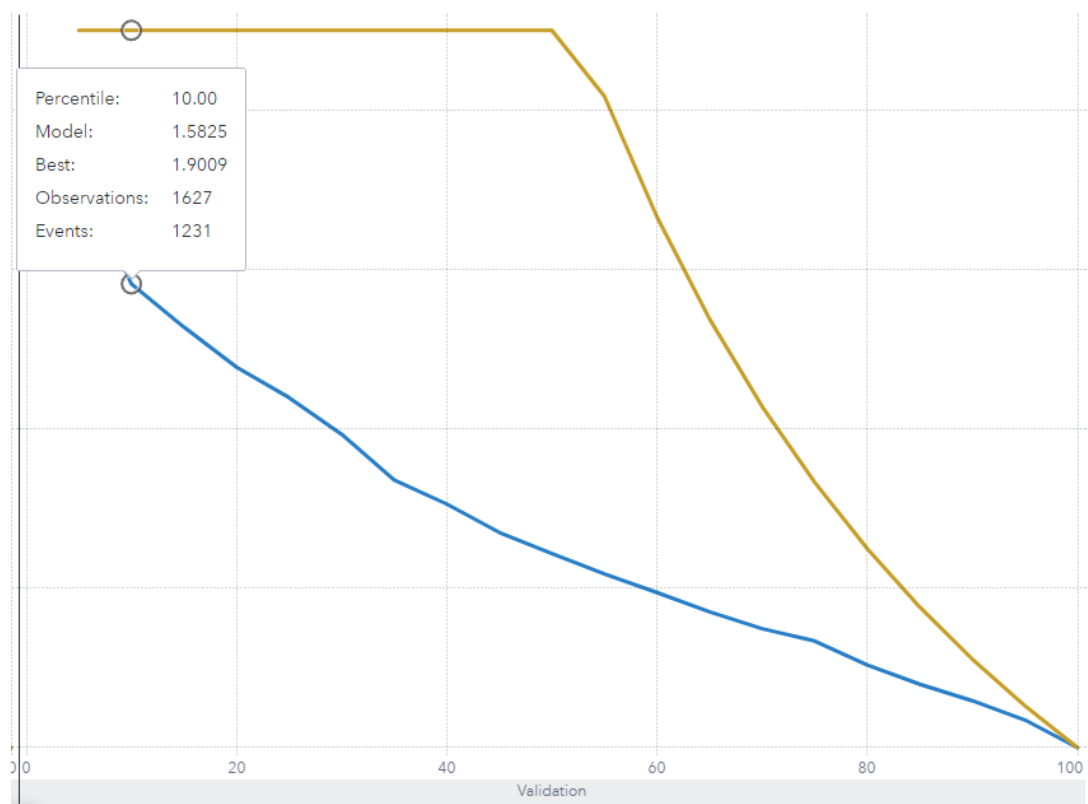
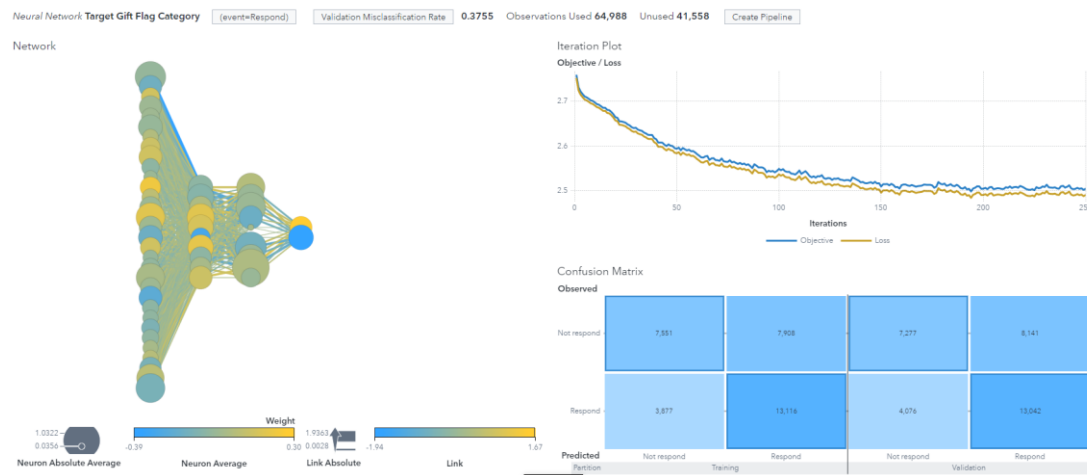


Iteration Plot



Confusion Matrix





Part 2: Exercise 2