Engineering Quiz

Rudra Bhatt, Laura Dobson, Sarah Watts, Johnson Kan

November 30th, 2016

Motivation

- To include Biomedical Engineering

- Improve quiz accuracy

- Change the quiz questions to be less obvious

What type of
ENGINEERING
is right for you?

TAKE OUR QUIZ

Data

- Just under 1000 responses received
  - 99 from Management Engineering

- Made answers required (no missing data)

- Removed responses with happy with program = no

Main Hypothesis

By including more questions relating to future employment and related industries, the chosen model can result in a higher accuracy than the first iteration of the Engineering Quiz

Results – Models

Model (1 Class)	Accuracy	Stratified 5 Fold Validation
Naïve Bayes	61%	54%
Random Forest	55%	50%
Decision Tree	41%	36%
1R	40%	

Results – Naïve Bayes

Model	Accuracy	Stratified 5 Fold Validation
Naive Bayes – predicting 1 class using 19 features	61%	54%
Naive Bayes – predicting 1 class using 9 features	58%	54%
Naive Bayes – predicting 2 classes using 9 features	77%	71%
Naive Bayes – predicting 2 classes using 7 features	61%	57%

Interesting Findings

Data Exploration

- Overall 13% of records indicated they were not happy in their program
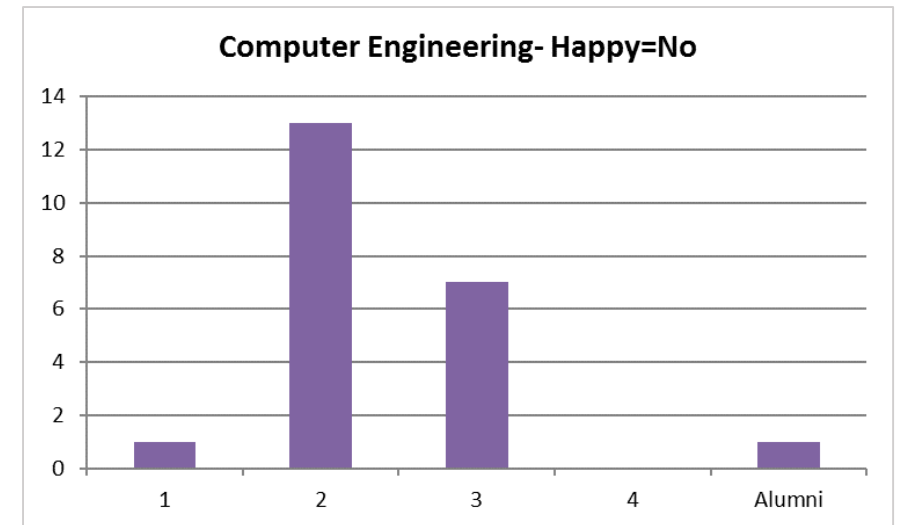
- 33% of Computer Engineers, mostly in 2nd year

Association Rule Mining

Computer Engineering- Happy=No

Rule 1: I Prefer To = 'Talk', I Would Rather Prefer to Work On = 'Multidisciplinary team' ==> Leader of a Team = 'Yes'

Confidence = 91%

Rule 2: Program = 'Software Engineering' ==> Field of Interest = 'Software Development'

Confidence = 97%

Final Quiz Questions

What field interests you the most?
I would like to have been part of the team that was responsible for:
I would rather design something that...
I would rather work as part of a...
When working on a project would you rather
What cause do you care about the most?
You are most likely to eavesdrop in a conversation regarding
In an ideal setting, you are working with:
When you start work, ideally you would want to...

Thank you

WATERLOO | ENGINEERING