DRIVERS OF TEST SCORE SUCCESS

CALEB MILLER

BAS 479: CASE 4

OCTOBER 24, 2022

TEST SCORE DATA

- 1000 observations 6 variables

  - Gender, Ethnicity, Parent Education, Lunch, Prep Course, and Success Score

  - Success Score $= \frac{1}{3} * Math + \frac{1}{3} * Reading + \frac{1}{3} * Writing$

- Average Success Score of 67.771

- Success Rate (x > 80) = 19.4%

- Goal: To determine the best and/or worst drivers of Test Score Success

PREP COURSES INCREASE SUCCESS

- Students who complete these perform much better
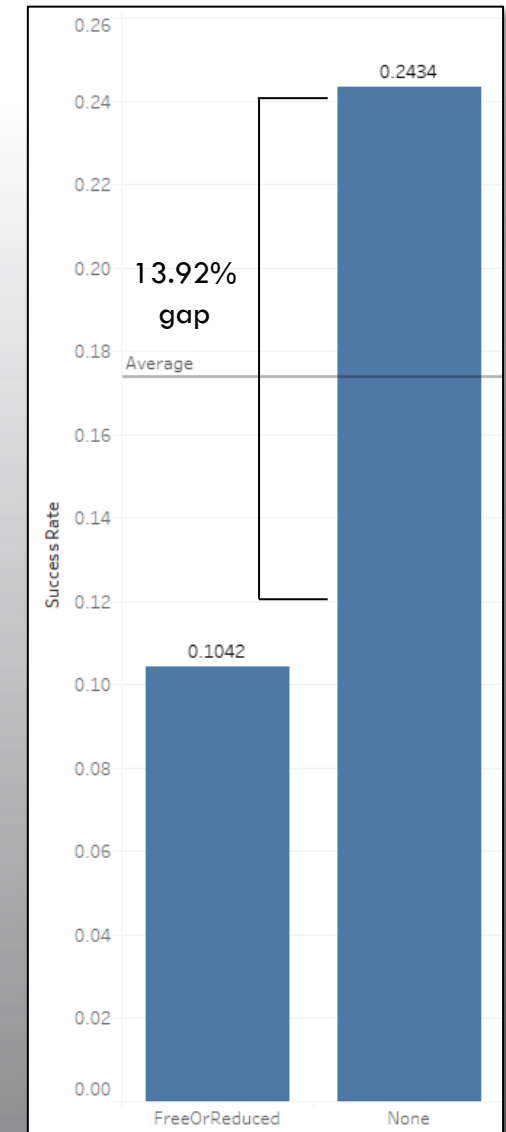
  - Success Rate increases 211%

Prep Course	Probability of Success
Completed	29.330%
None	13.863%
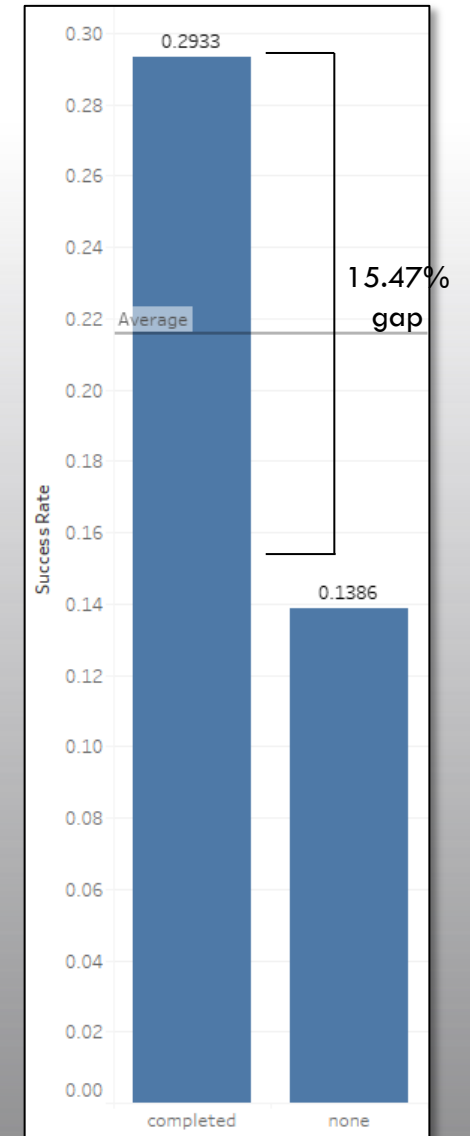
LUNCH PROGRAMS HURT SUCCESS

- These students perform ONLY 42.821%
  as well

- Families receiving these benefits
  financially tight

  - Less money towards education?

 - Financially tight = work more = home less

| Lunch	Probability of Success
None	24.341%
Free / Reduced	10.423%

PARENT EDUCATION MATTERS

- College graduate parents = Better Test Scores?
  - Statistically significant difference

Parent Education	Probability of Success
Masters	33.898%
Bachelor	26.271%
Associate	22.973%
Partial College	19.469%
Partial High School	16.760%
High School	9.184%

Success increases with level of parent's education
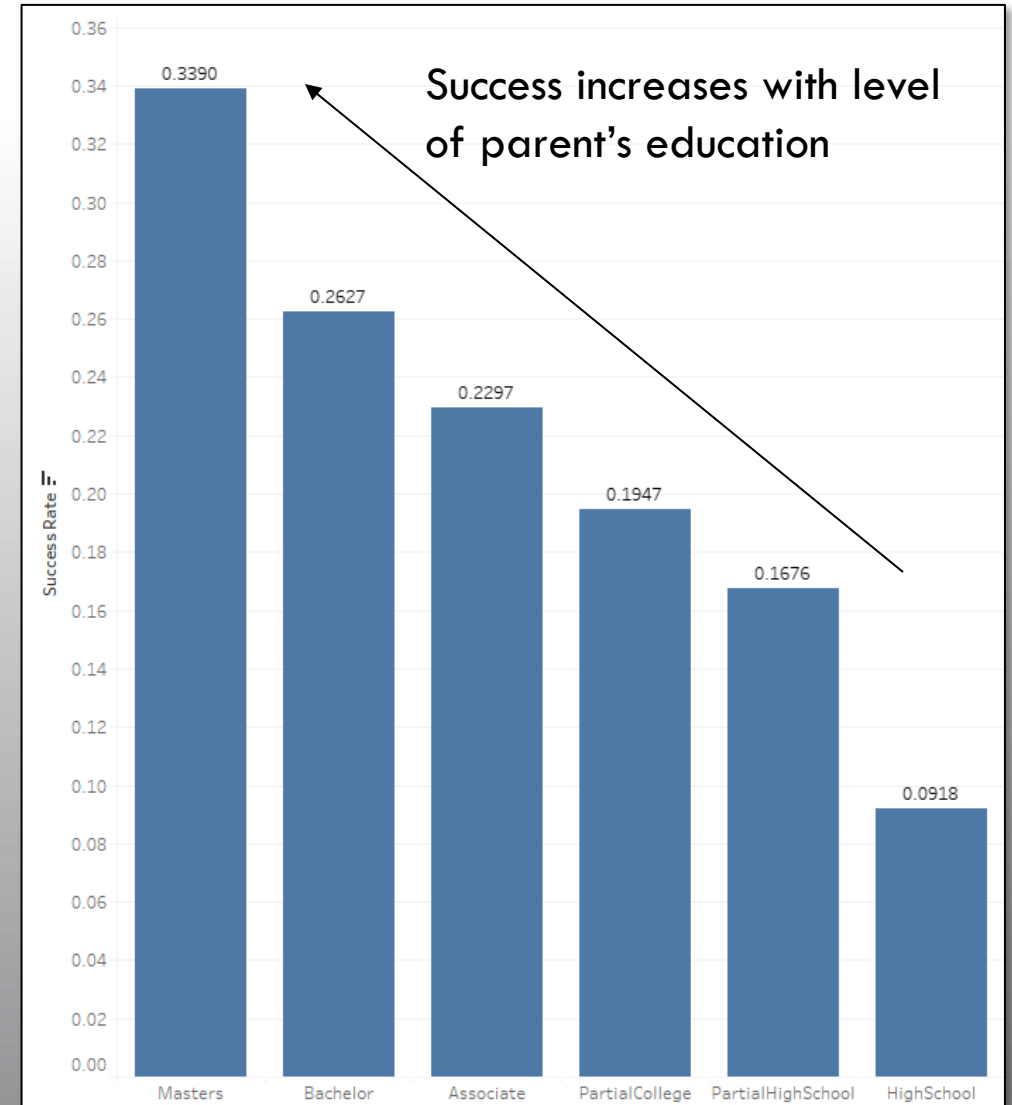
DECISION TREE
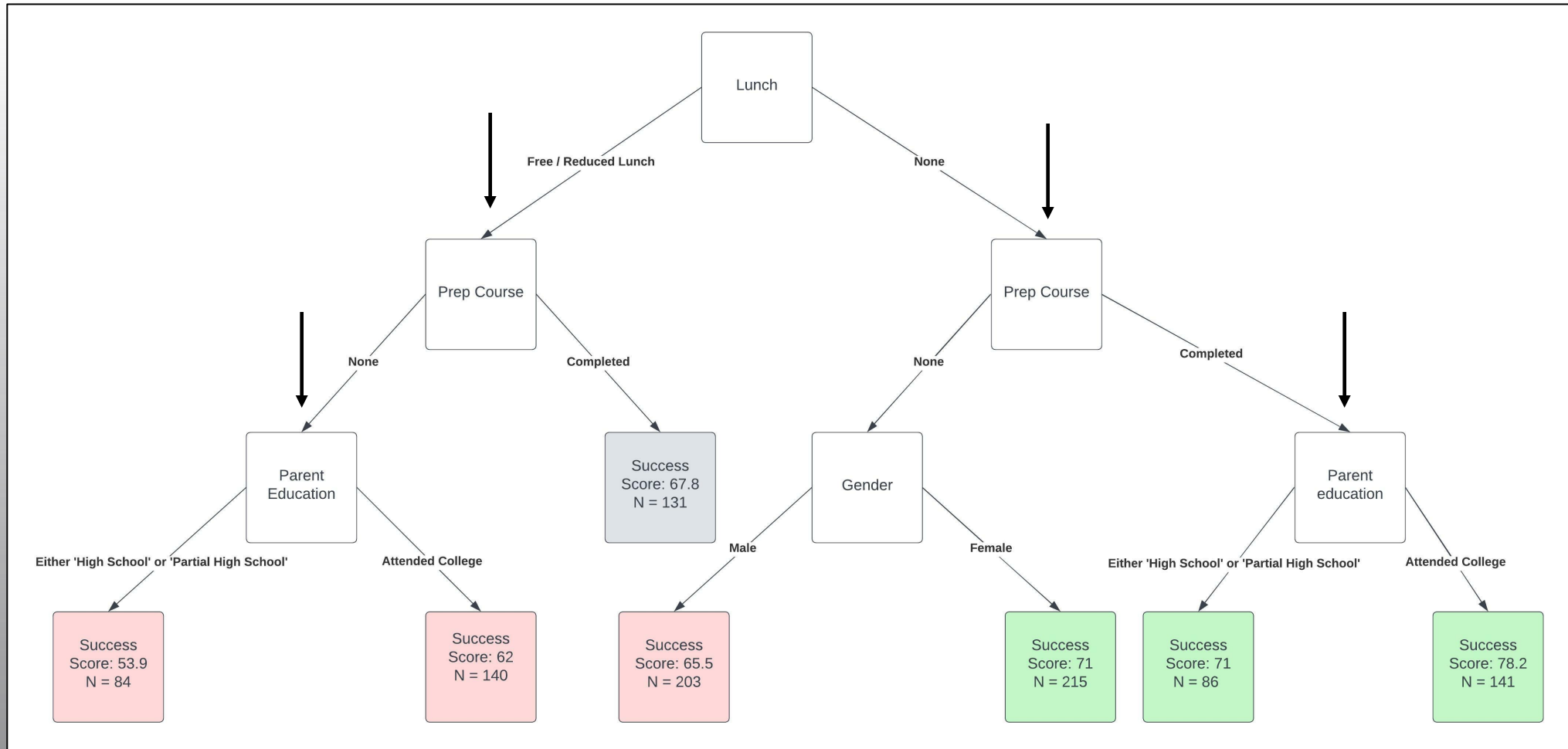
MARKET BASKET ANALYSIS RELIANT ON PREP COURSE

Gender	Ethnicity	Parent Education	Lunch	Prep Course	Success Rate
	Group E			Completed	43.33%
		Associate		Completed	37.80%
			None	Completed	35.23%
	Group E		None		33.33%
Female				Completed	30.98%
	Group E				30.71%
				Completed	29.31%
Female			None		27.35%

HOW TO APPLY THIS INFO

- How to increase probability of success:
  - Enroll ALL students in prep courses
  - Aid students in lunch programs
  - Mentor students with low parent education

- Use tax dollars to enroll all students in prep courses
  - Especially those receiving free/reduced lunch

- Mentor program for college preparation

HASLAM
COLLEGE OF BUSINESS
THE UNIVERSITY OF TENNESSEE, KNOXVILLE

REFERENCES

- Seshapanpu, Jakki. "Students Performance in Exams." Kaggle, 9 Nov. 2018,

  https://www.kaggle.com/datasets/spscientist/students-performance-in-

  exams.