

Rate My Professor Statistical Analysis

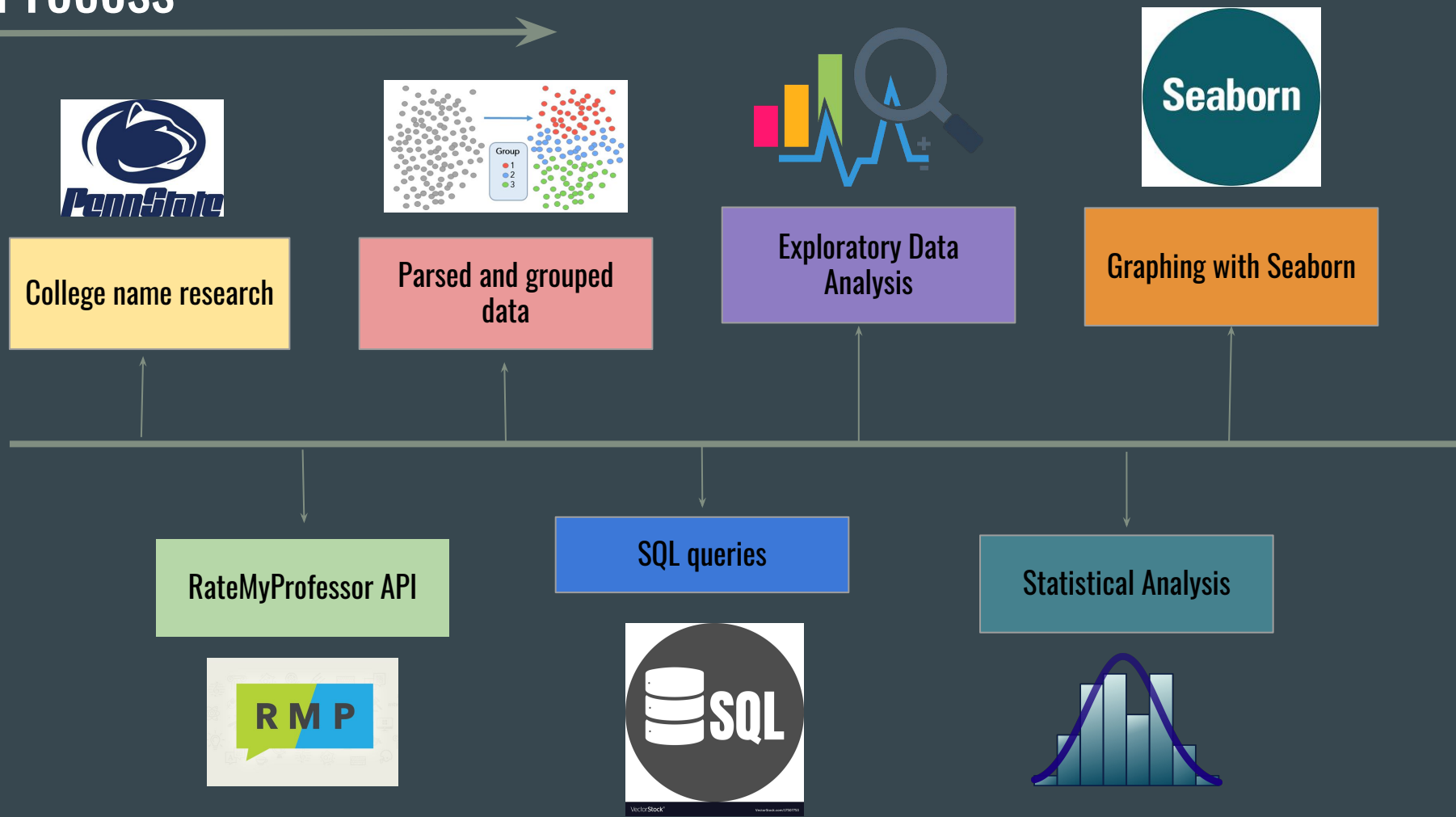


Julia Chong & Ed Haracz

Hypotheses

Alternative Hypotheses	Data Used	Outcome
Private & Public college ratings are statistically different.	50 most populous public colleges from each state, 45 most populous private colleges	Reject Null.
Professors with a greater quantity of ratings have more extreme ratings.	About 10,000 professors from Pennsylvania State University	Failed to reject.
Professors with longer names have statistically different ratings and rating counts than the population.	Top 50 professors from Pennsylvania State University with the longest names, discluding names that include a dash (-)	Failed to reject rating hypothesis Rejected rating counts hypothesis.
Department ratings are statistically different.	146 departments from Pennsylvania State University	Reject Null.

Process

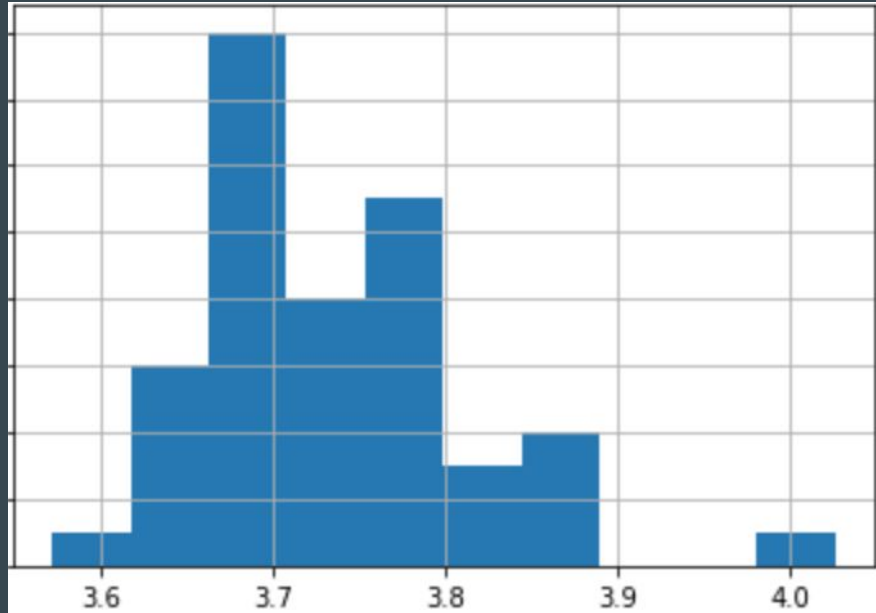


Hypothesis: Public vs. Private

Public Schools Overview:

Mean: 3.734

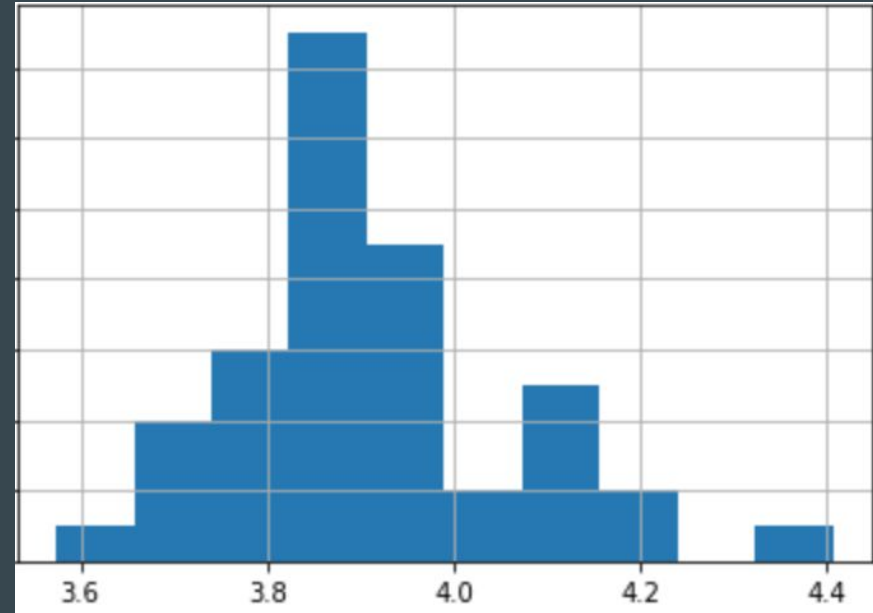
Standard Dev.: 0.078



Private Schools Overview:

Mean: 3.911

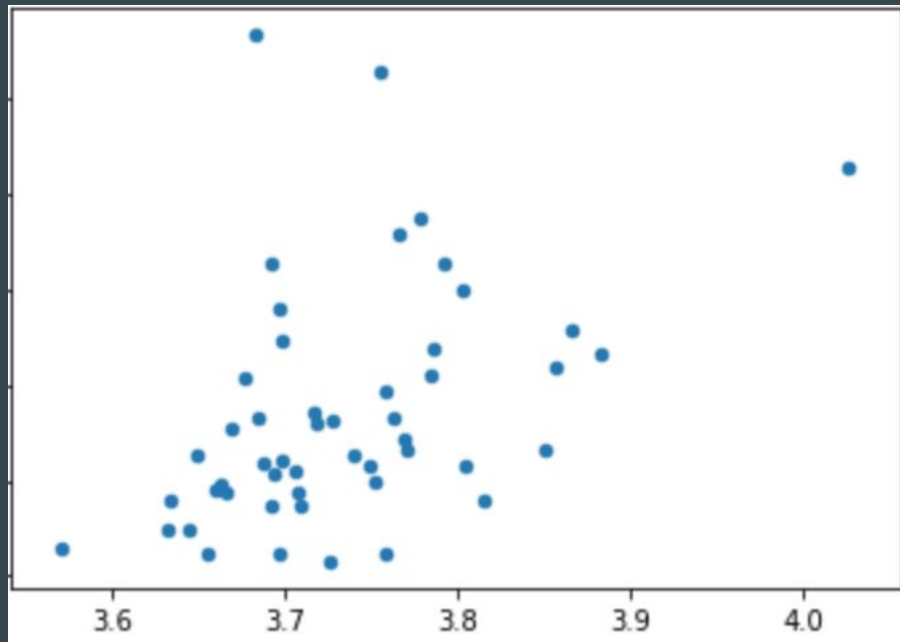
Standard Dev.: 0.151



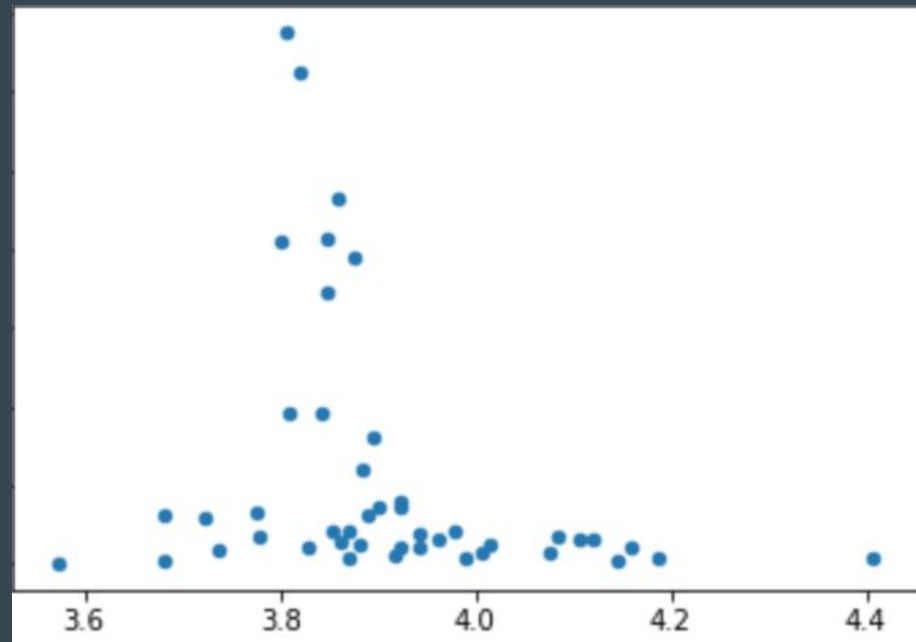
← Rating →

Public vs. Private Scatter

Public



Private



← Rating →

Public vs. Private

T-test results:

P-value: $1.425e-9$

Statistic: -7.061

Effect Size:

Cohen's D: 1.496

Power: -10.312

Public

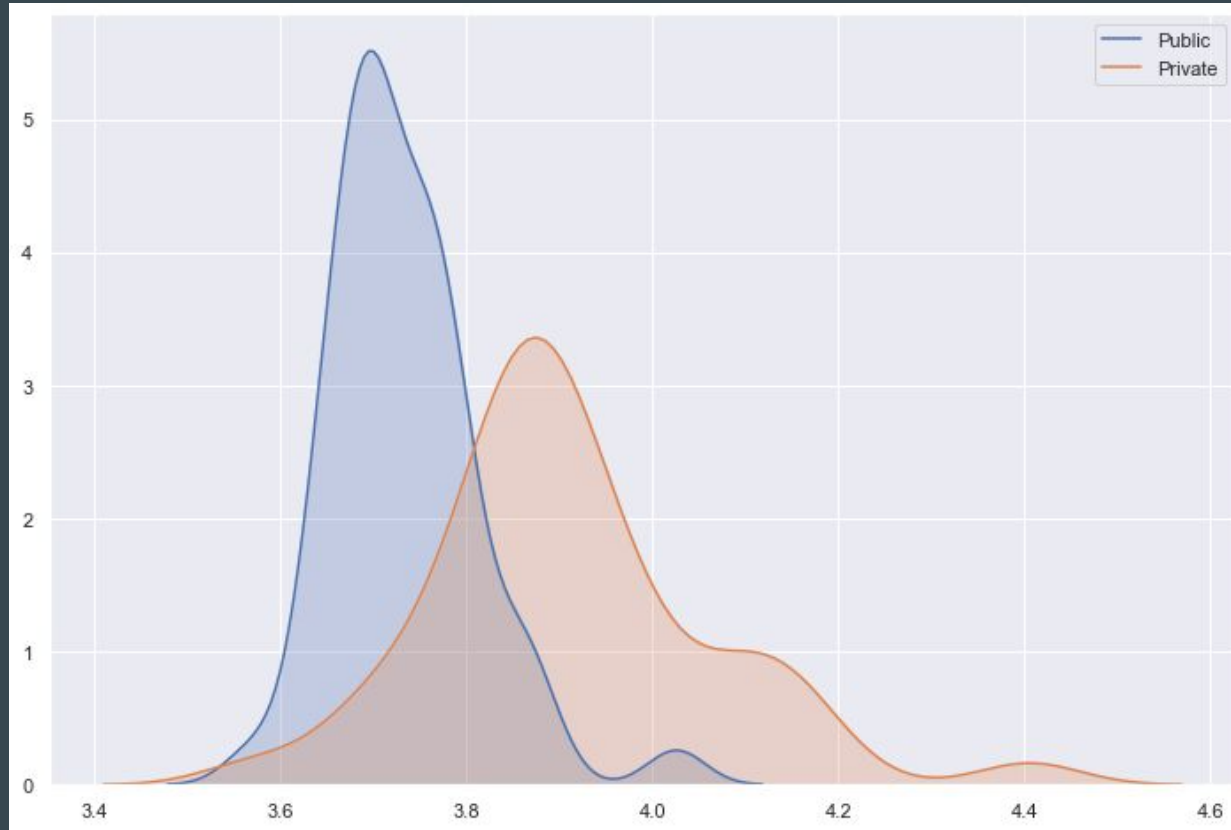
Correlation between Rating & Rating Count: 0.422

Private

Correlation between Rating & Rating Count: -0.269

Public vs Private Distributions

Frequency



Rating

Hypothesis: Rating Count Outliers

- At a glance, the first ten category has more outliers than the other categories.
- However, after running the t-test, the values failed to reject the null hypothesis and also were not consistent.



Hypothesis: Foreign Professors, Rating, and Rating Count

Rating t-statistic: -1.451

Rating p-value: .1531

Rating Count t-statistic: 4.245

Rating Count p-value: .000095

name	department	rating	rating_count
Tantihkarnchana Pitchayaporn	Economics	2.7	80
Techatassanasoontorn Angsana	Information Science	4.5	16
Toribio Almeida Jacqueline	Spanish	2.9	11
Bucciarelli Nicholas Nick	Information Sciences amp Technology	1.3	10
Imamkhodjaeva Oidinposha	History	3.7	28
Chang Coupland Jennifer	Marketing	4.2	82
De Schaepdrijver Sophie	History	4.0	14
Namasivayam Karthikeyan	Hotel & Restaurant Management	2.5	15
Davis Kristopher Allen	Spanish	4.4	11
Bulathsinhala Priyangi	Statistics	4.2	12
Anandakrishnan Sridhar	Geology	3.3	23

Hypothesis: Departments

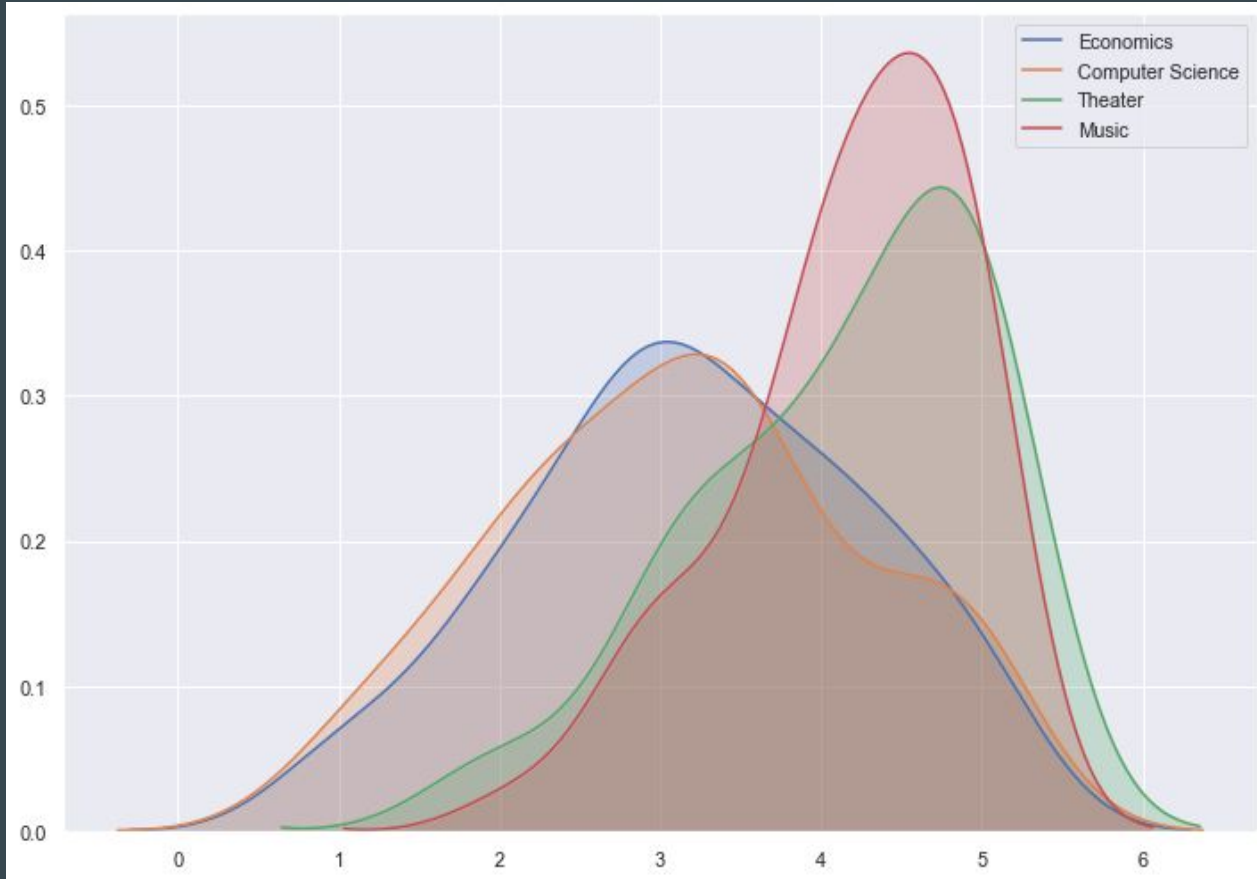
- ANOVA
 - Prob(F-statistic): $677e-20$
- Multi-comparison/Tukey
 - 10586 tests
 - 35 Reject
 - 9 were Computer Science
 - 9 were Economics
- Population vs. Comp. Science
 - Pvalue = $4.99e-6$
 - Statistic = -4.83
- Population vs. Economics
 - Pvalue = $1.92e-6$
 - Statistic = -4.99

Hypothesis: Departments

- STEM vs Liberal Arts
 - The majority of the statistic differences were between STEM Departments and Liberal Arts Departments:

Computer Science	German
Computer Science	Music
Computer Science	Philosophy
Computer Science	Theatre
Economics	Communications
Economics	French
Economics	Music
Economics	Theatre

Departments Distributions



Departments are statistically different. Especially between STEM & Liberal Arts.

STEM have lower means and more standard deviation.

Conclusions

- A new rating system would be effective that separates/weights:
 - Public vs. Private Ratings
 - STEM vs. Liberal Arts
- Ratings follow a similar distribution regardless of quantity.
- A complicated name leads to less quantity but doesn't affect rating itself.