

# Insights into US Colleges: A Comprehensive Analysis of Admission Cost, Diversity and Academic Offerings

*Beenish MM*

*Christopher Heng*

*JongWook Choe*

*Michel Bernstein*

*Vidhya Meganathan*

# Introduction

“What is the socioeconomic status of an average student in US college?”

“Compare and analyze public and private colleges in the United States”



# Data Cleaning Process

## Extract



Data source :  
Institutional level data for  
each institution [\[URL\]](#)

Data structure :  
Total of 6543 rows ×  
3214 columns

## Transform

Data preprocessing :  
Percentage of null < 30%

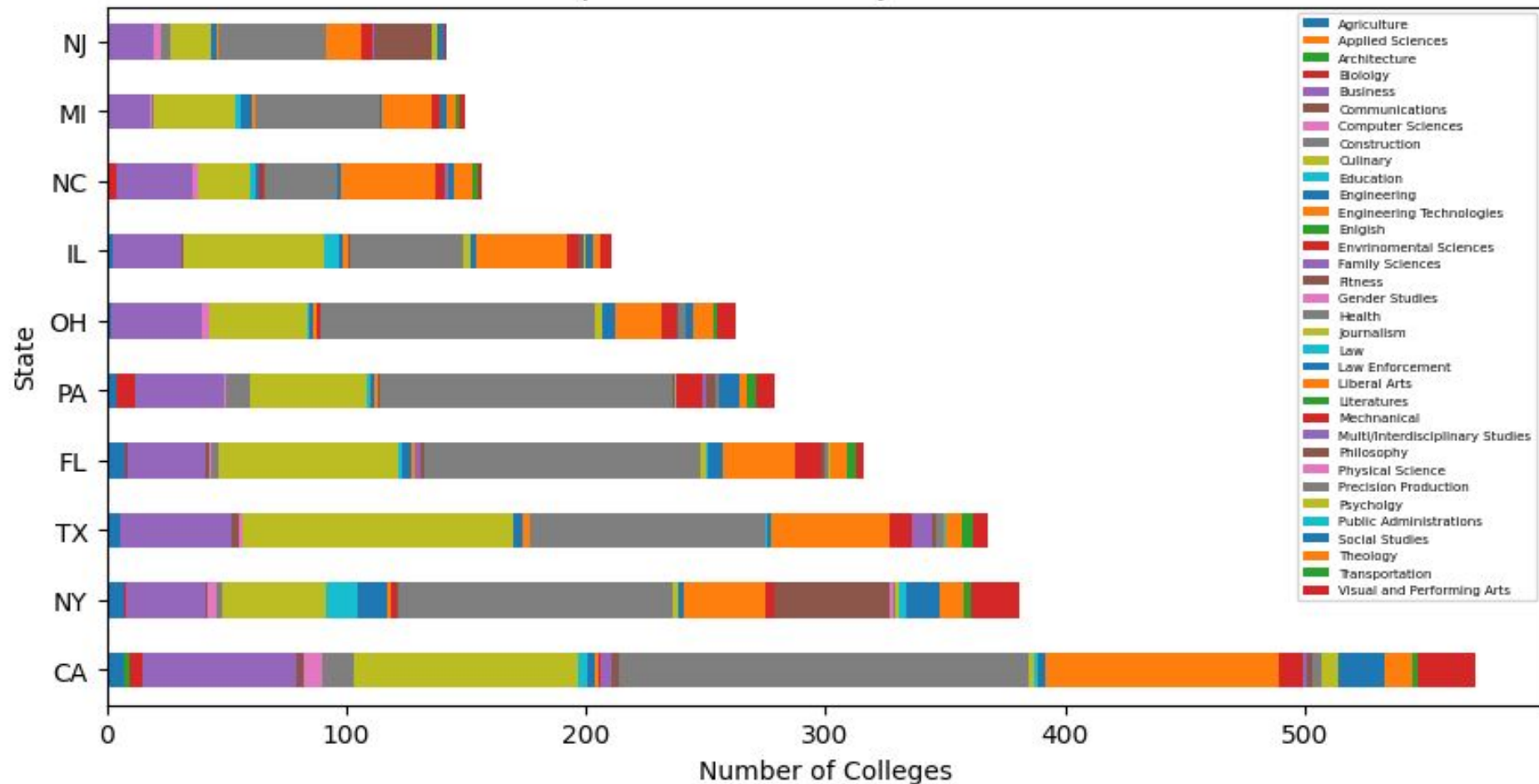
5599 rows × 11 columns  
6044 rows × 13 columns  
5573 rows × 25 columns  
5765 rows × 40 columns  
5219 rows × 8 columns

“Average 15% Data loss”

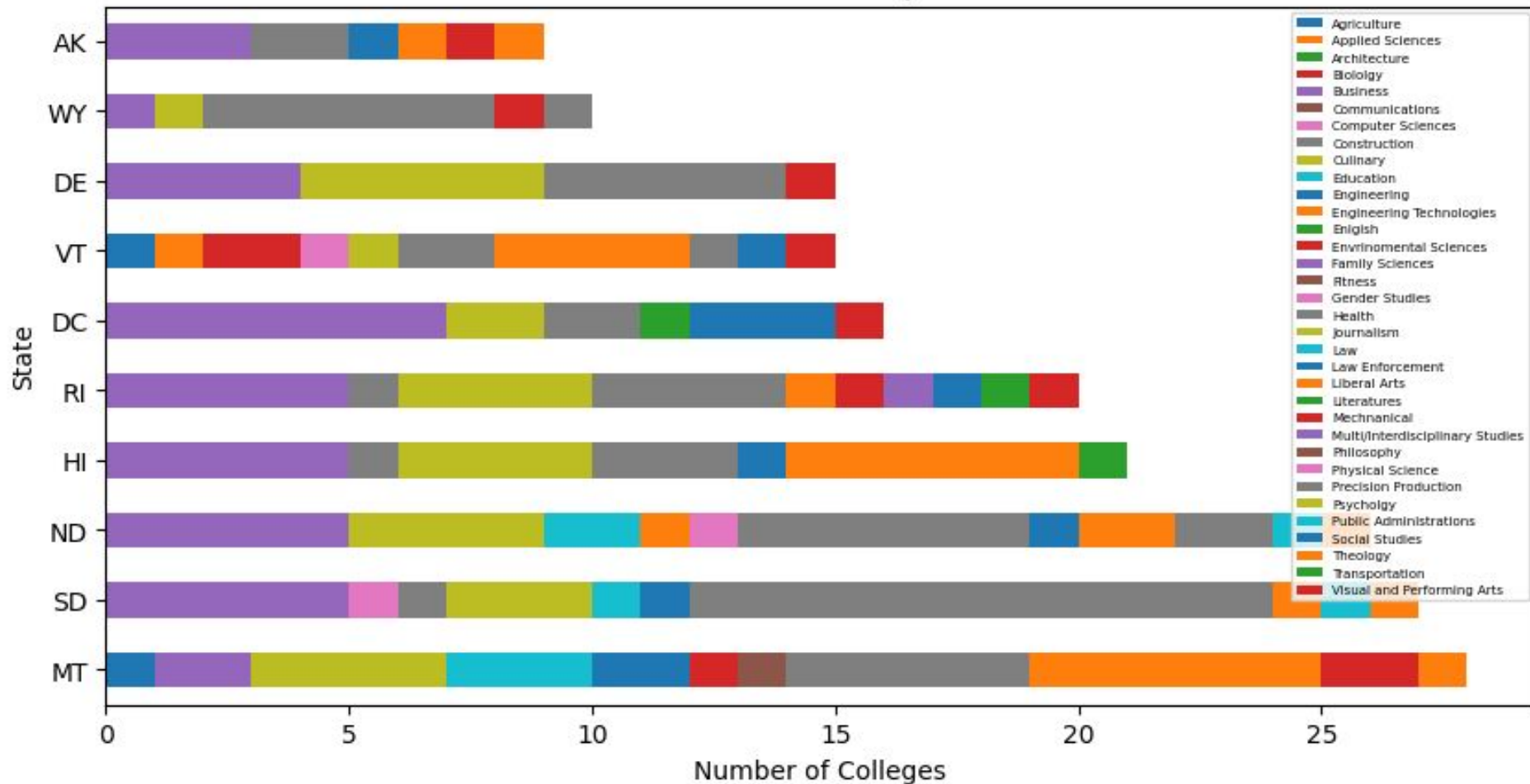
## Load

'data/school\_location.csv',  
'data/school\_type.csv',  
'data/school\_ethnicity.csv',  
'data/school\_major.csv',  
'data/school\_financial.csv'

# Top 10 States and Major Distrubtion

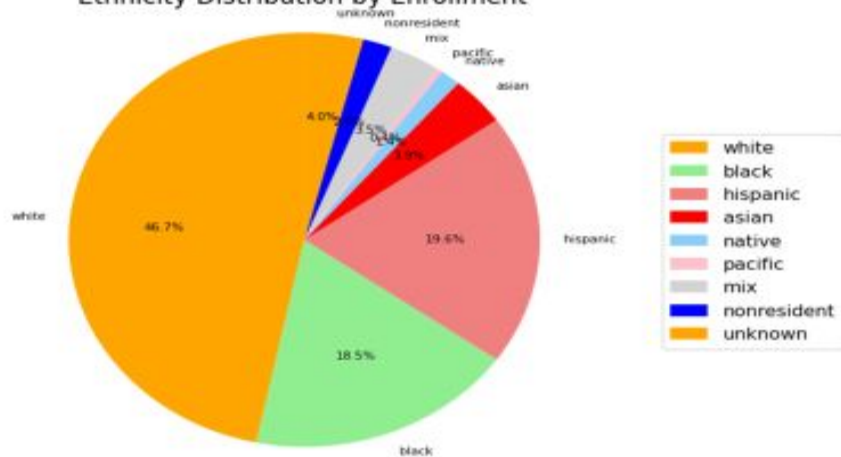


# Bottom 10 States and Major Distrubtion



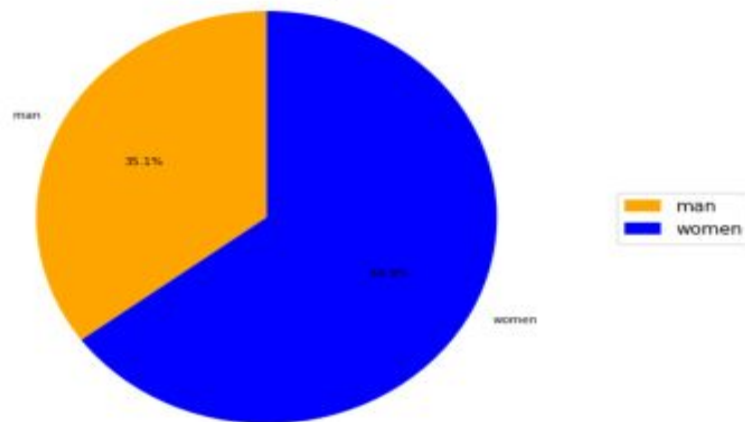
## Ethnicity Distribution by enrollment

Ethnicity Distribution by Enrollment



## Gender Distribution by Enrollment

Gender Distribution by Enrollment



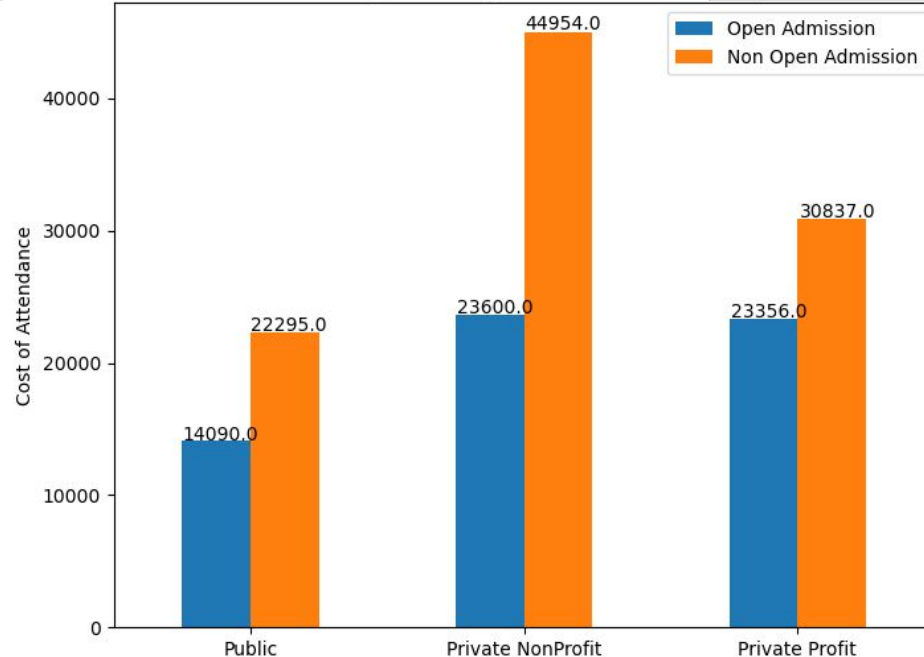
# Cost of Attendance Public vs Private

## College Policy

|                    |     |
|--------------------|-----|
| Open Admission     | 64% |
| Non Open Admission | 36% |

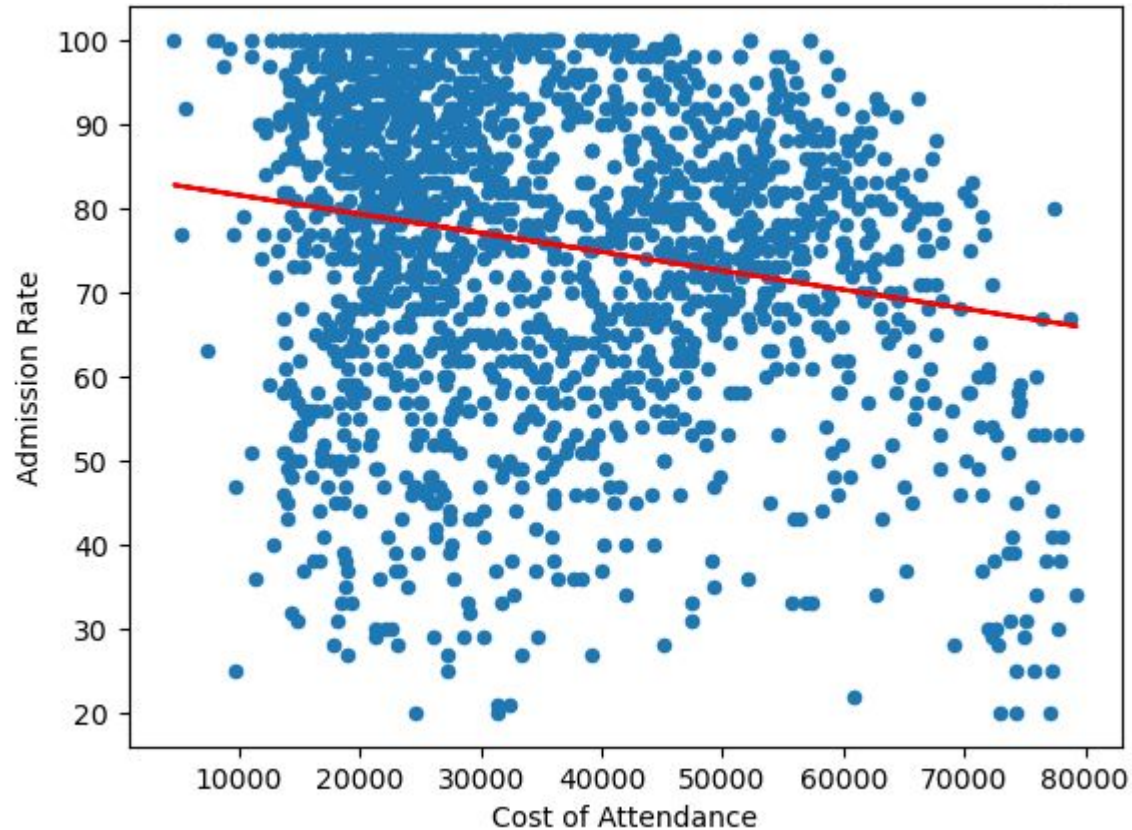
## t-test

|                            |             |
|----------------------------|-------------|
| Public Vs Private          | p value-0.0 |
| Open Vs Non Open Admission | p value-0.0 |



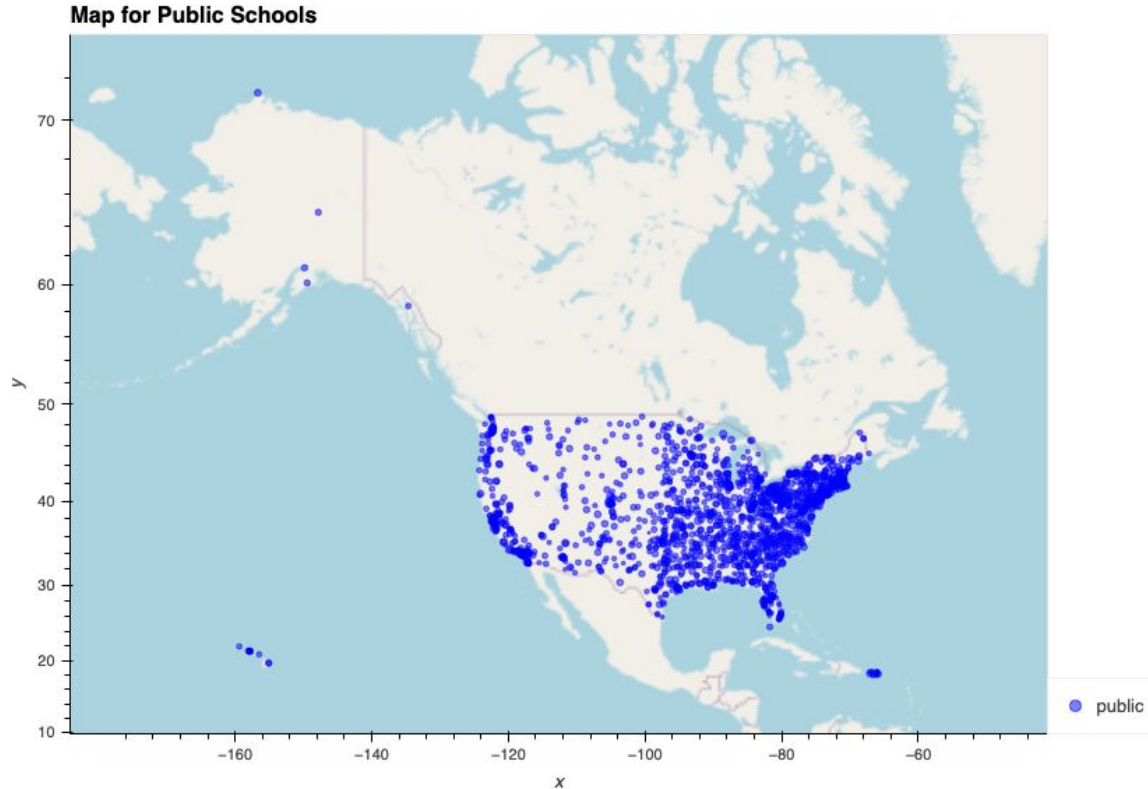


# Cost of Attendance vs Admission Rate(Non Open Admission)

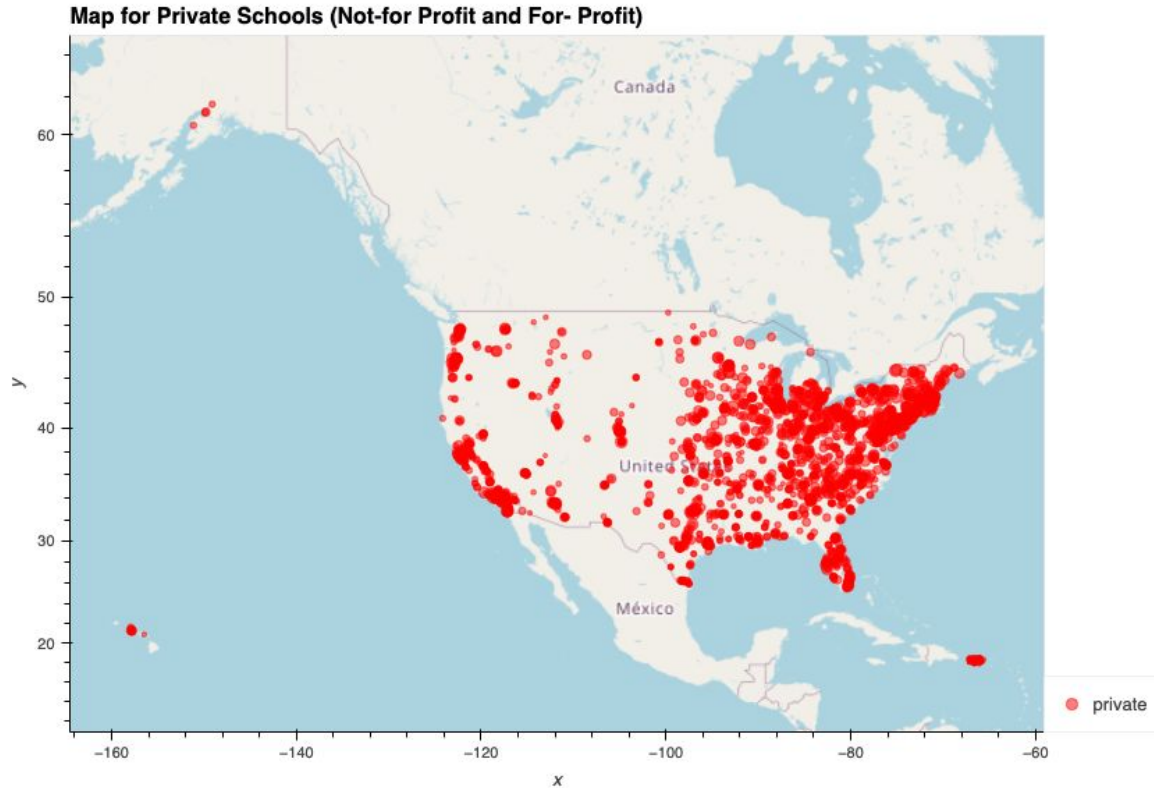


Correlation factor is **-0.2**

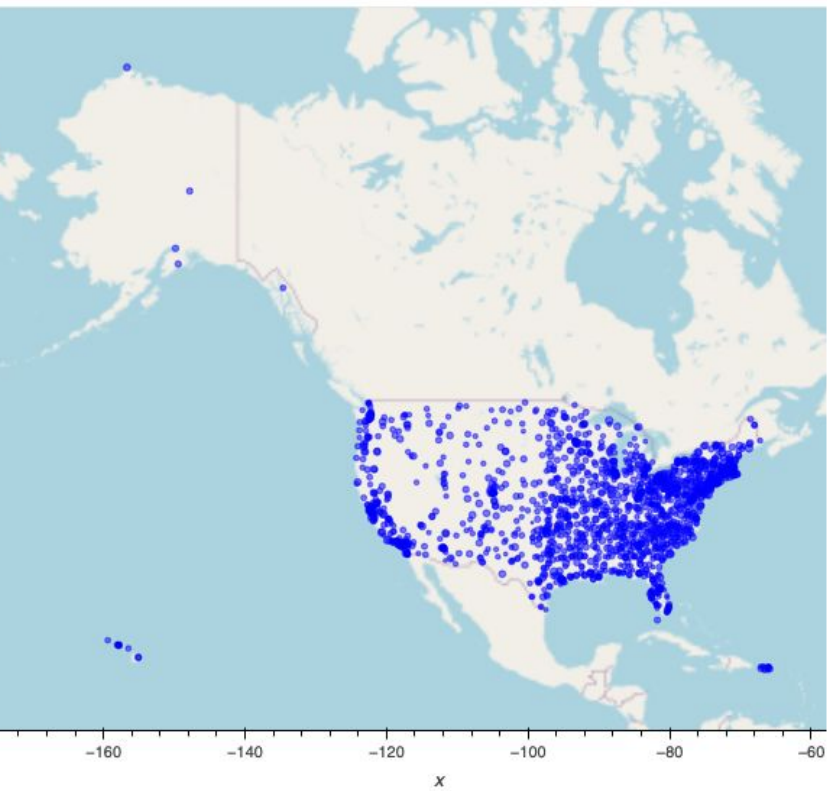
# Cost of Attendance Map Public Institutions



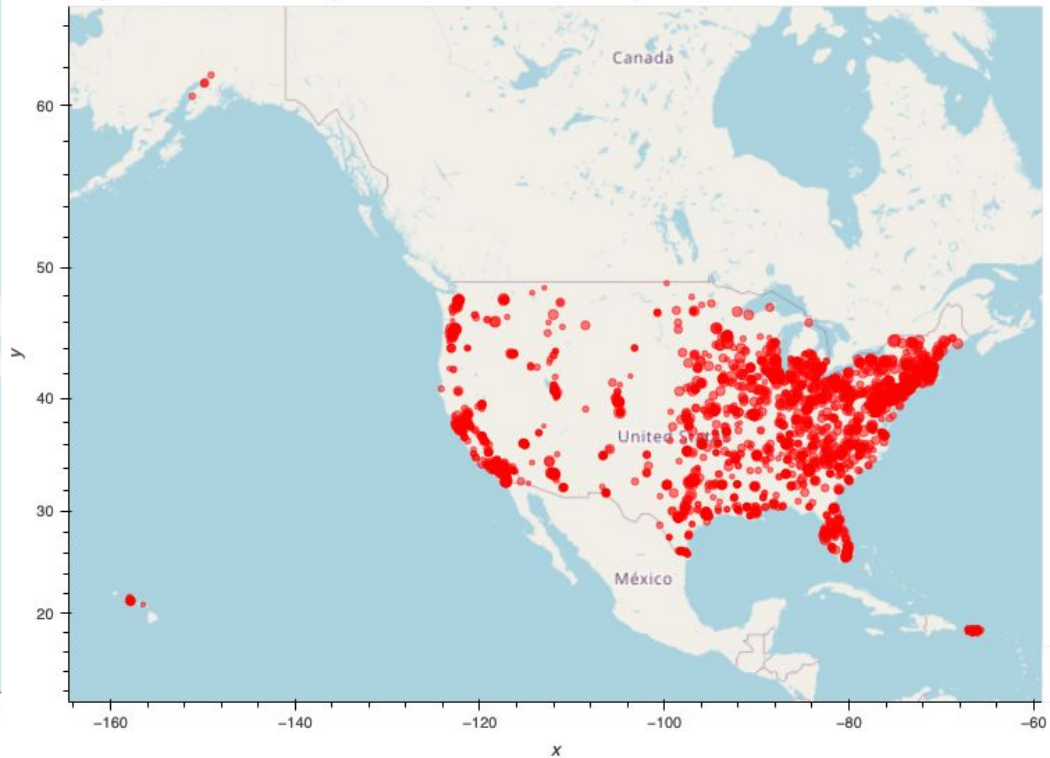
# Cost of Attendance Private Institutions



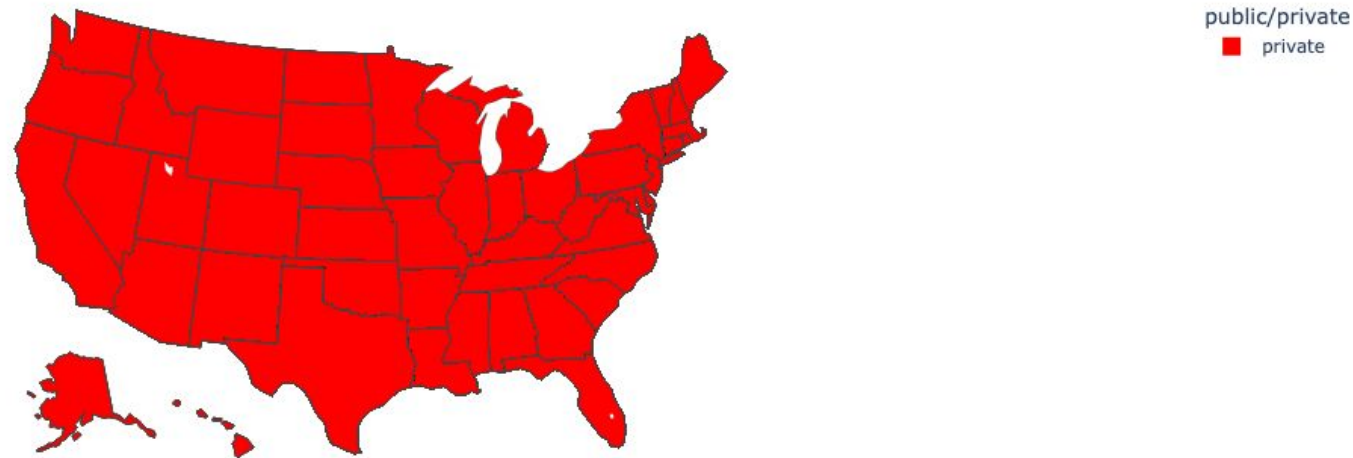
or Public Schools



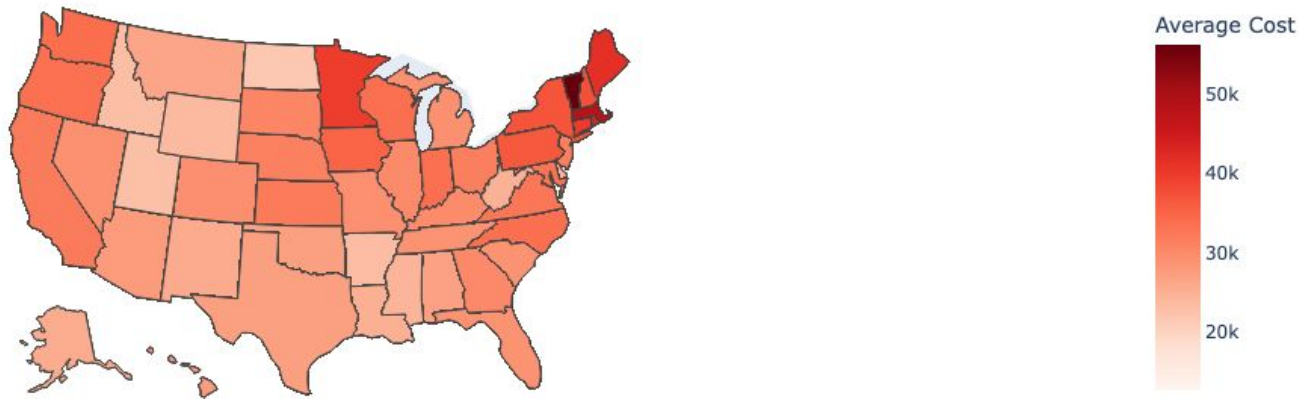
Map for Private Schools (Not-for Profit and For- Profit)



Institution Type with the Highest Average Cost per State

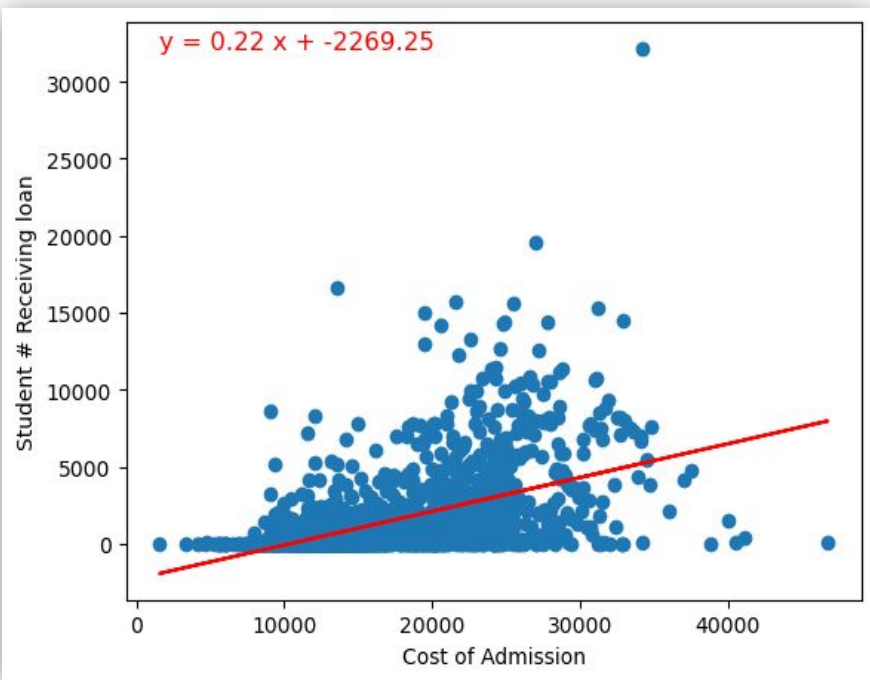


Average Cost Intensity by State

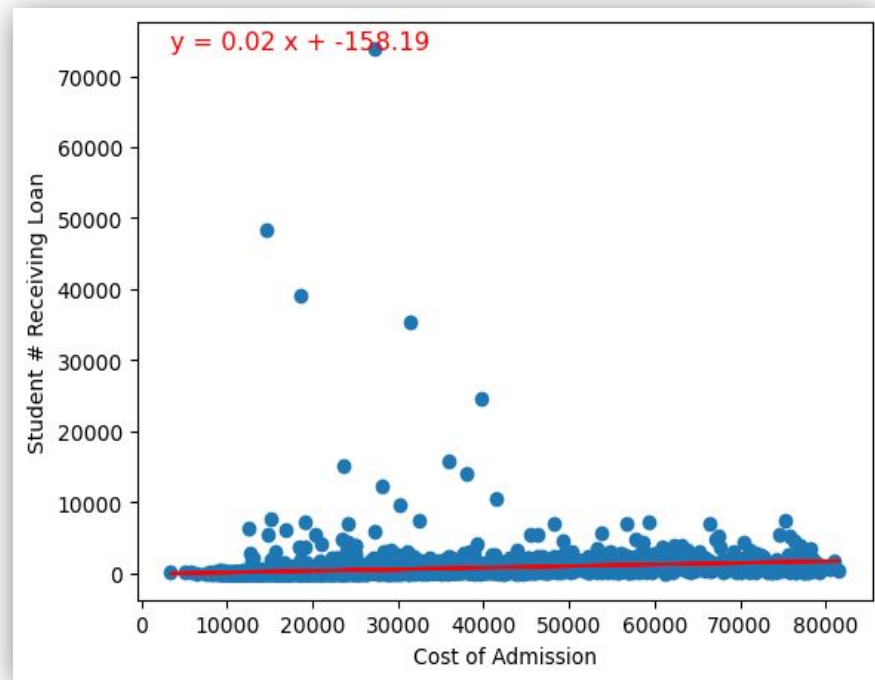


# Cost of Admission vs. Student Receiving Federal loan

*Public School*

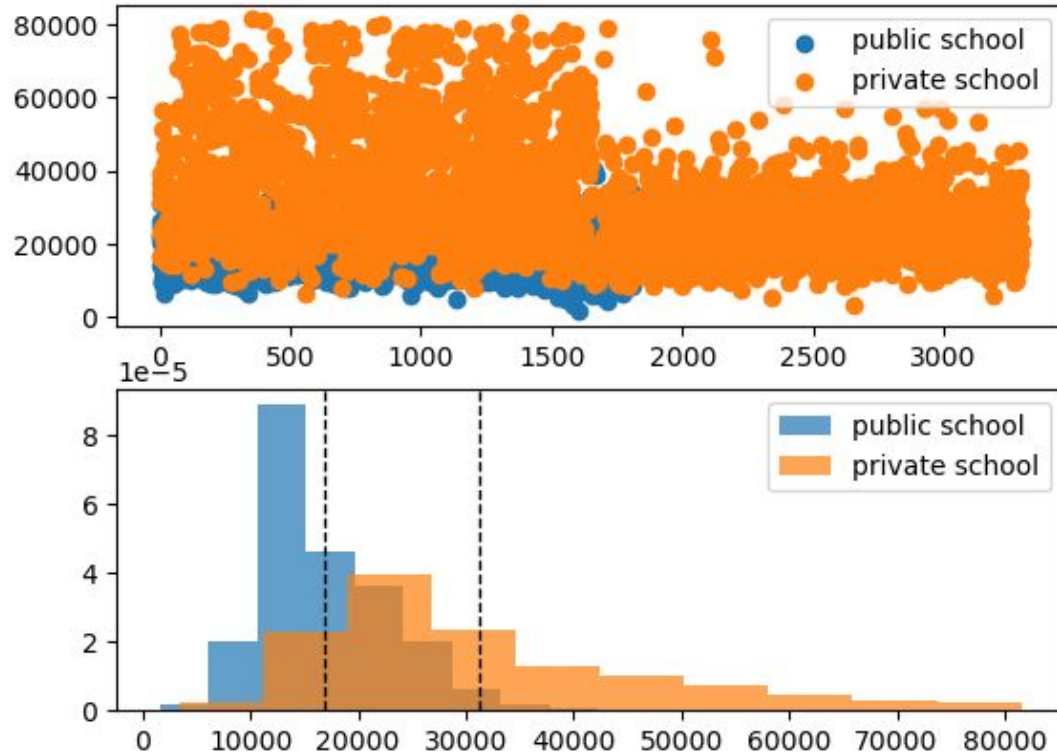


*Private School*





# Hypothesis testing ( Independent T-test )



$H_0$ : The averages of the samples are the same.

$H_1$ : The averages of the samples are different.



## Conclusion:

- Public colleges exhibit a clear and substantial linear relationship between the number of loan recipients and the admission cost, indicating a predictable pattern.
- To explore the contrast in admission costs between public and private schools, an independent t-test was conducted.
- The t-test results strongly reject the null hypothesis, indicating a noteworthy disparity in the admission costs between public and private institutions.
- This implies that public and private colleges in the United States possess different cost structures.
- When making college decisions, prospective students should consider this distinction and carefully assess their financial circumstances, academic objectives, and the overall value offered by public and private colleges.

Q&A