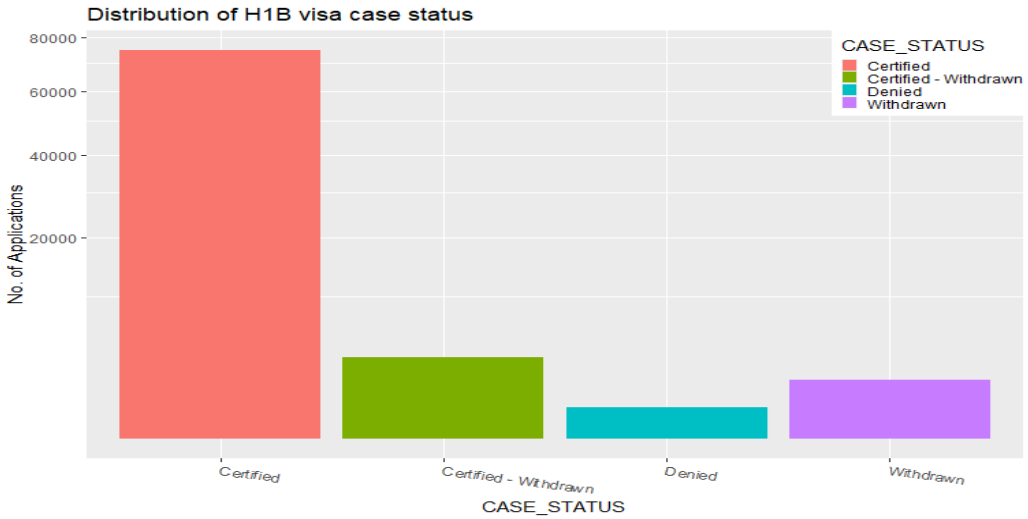
IE6200 Engineering Probability & Statistics - Final Project

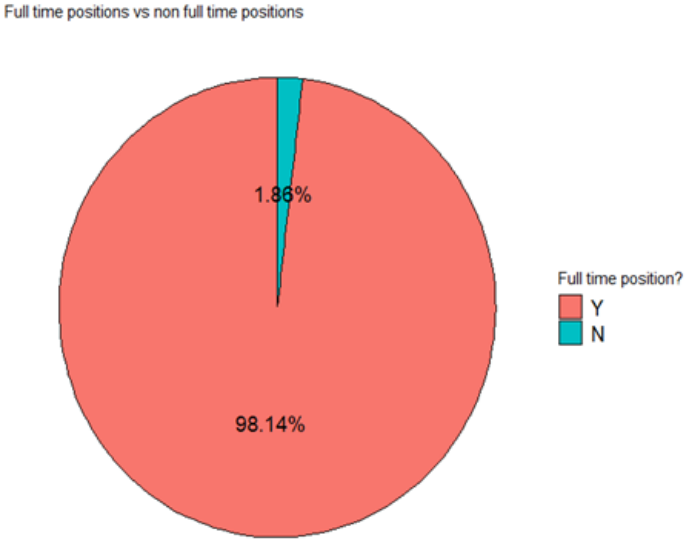
Analysis of rate of H1B Visa Issuance of International Employees in the United States-2021-Q1

Introduction:-

All of the non-immigrant workers in the US have a very significant role played by the H1b visa in their lives. In this project, we'll be looking at the trends in the issue of this visa in relation to several key variables. As a result, we assembled the dataset of applicants who received their H1b decision in the first quarter of 2021, and we attempted to analyze what it was attempting to say using a number of statistical criteria.

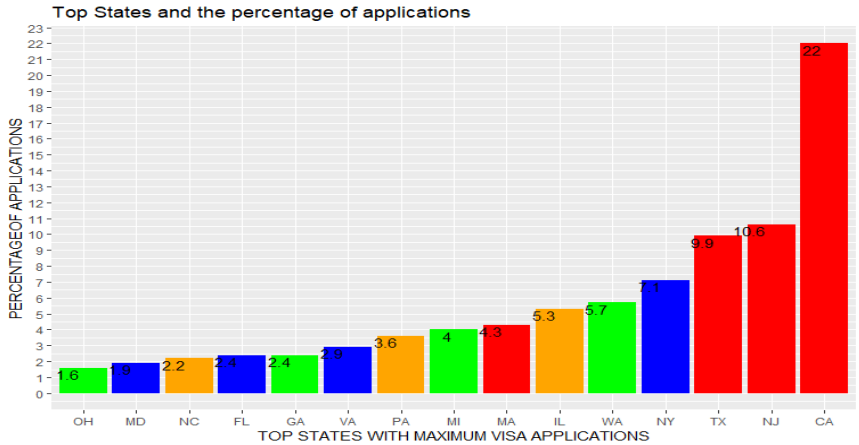
Analysis of H1b's Visa status

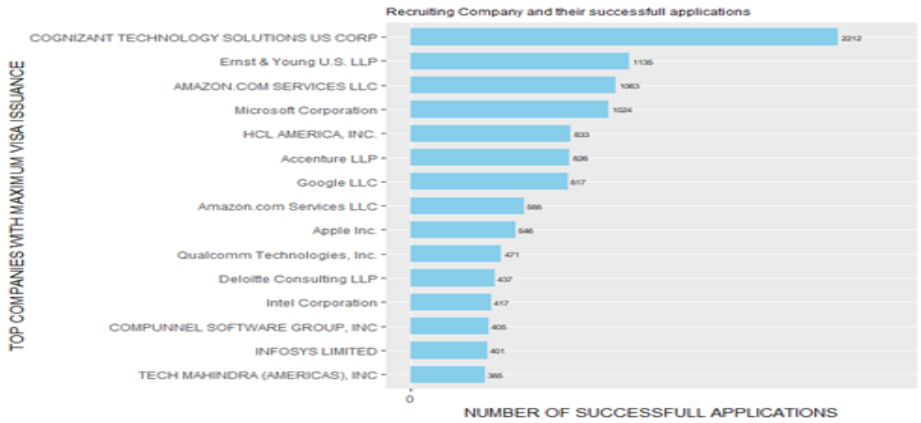


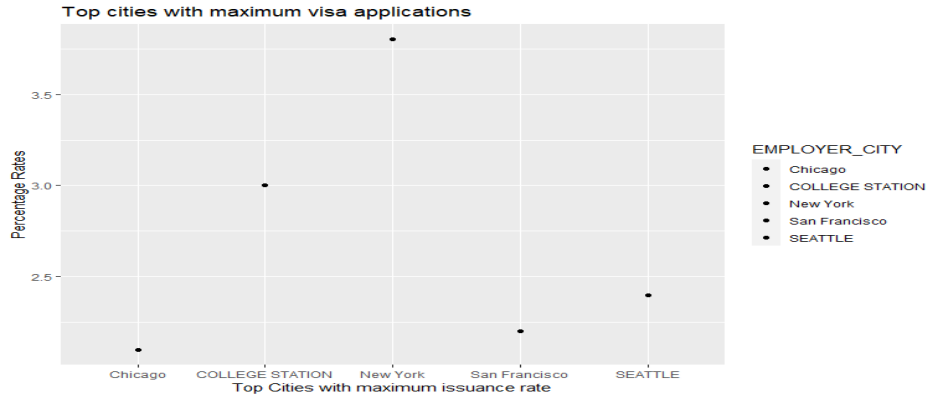


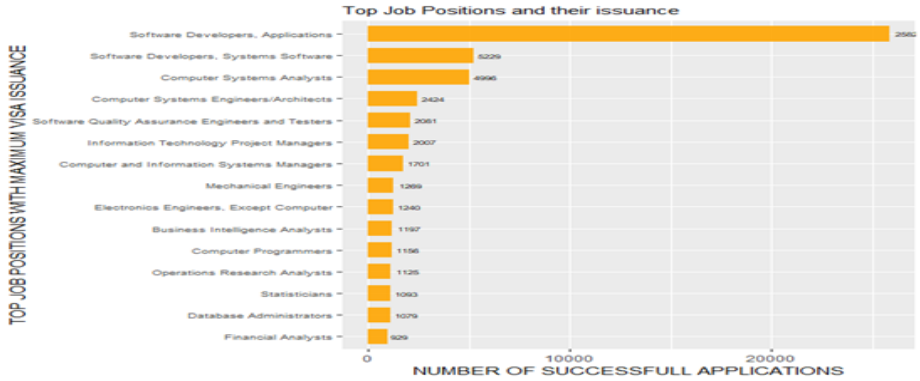
- The average H1b visa status and predicted visa status are being compared. The Bar-Graph below represents the case status and Number of visa Applications applied.

Comparing Top 15 Companies, States , Cities & Job position

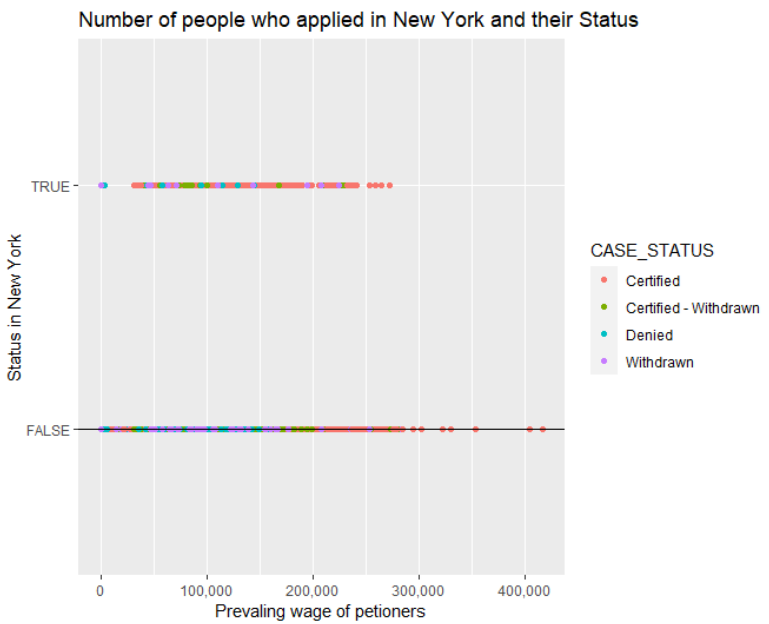


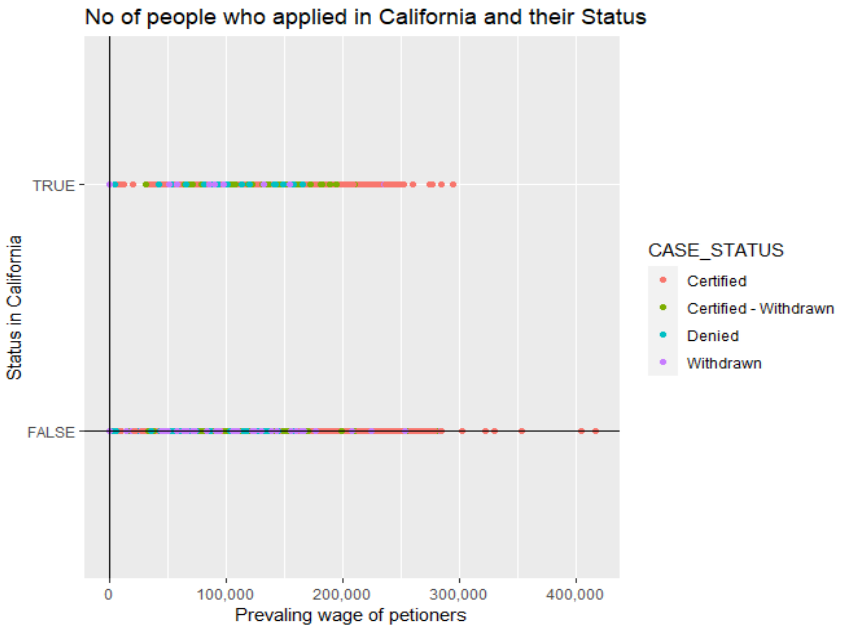






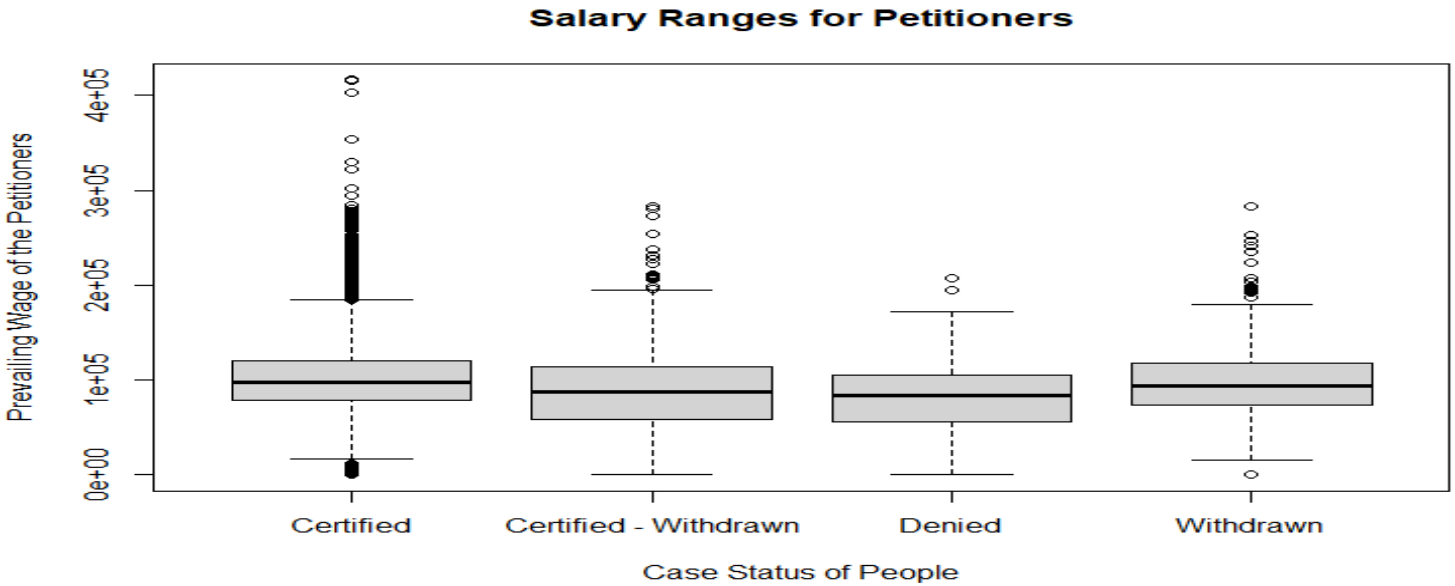
Scatter Plot





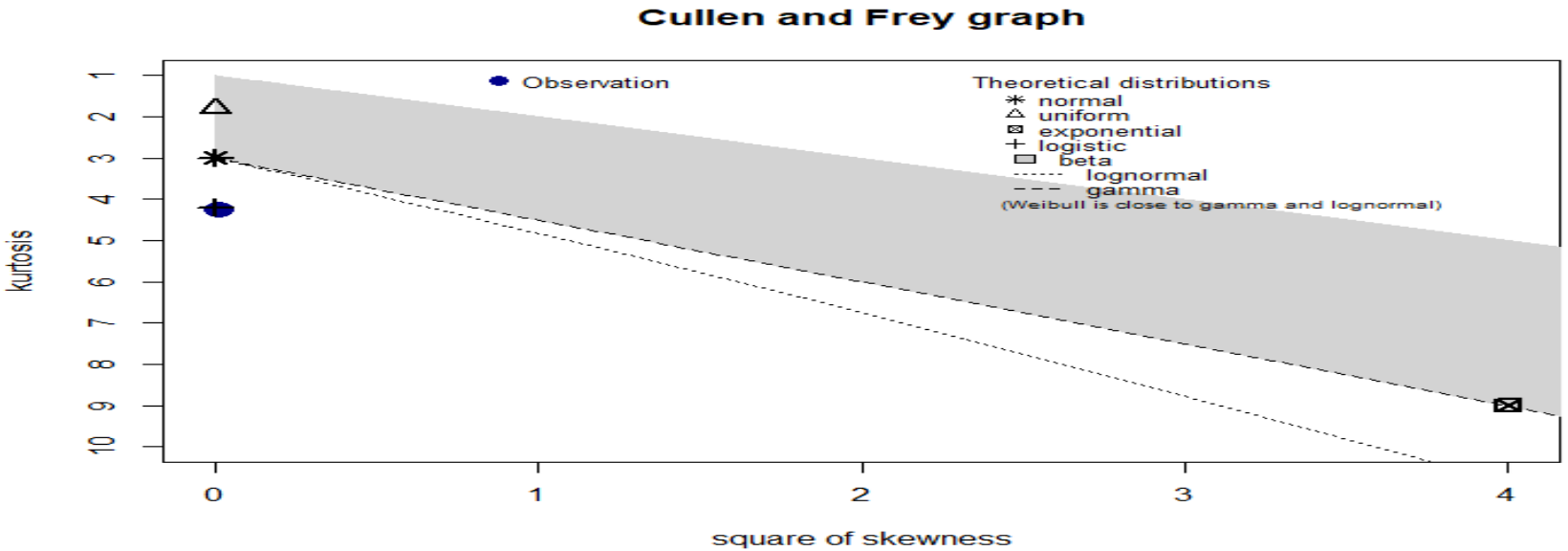
- A representation of the relationship between two variables is called a scatter plot.These two graphs explain about the various prevailing wages in various states in US.

Boxplot of Salary



- The prevailing pay and the state of people's cases are shown in this box graph. As we can see, there are some differences in the median incomes across all classifications, leading us to the conclusion that there are many other considerations that are more important in determining whether or not you will be granted an H1B visa.

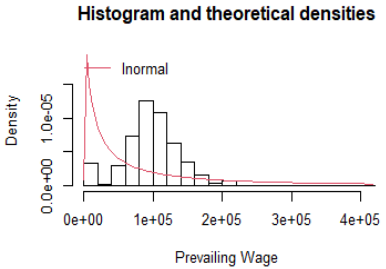
Goodness of Fit test for Distribution of Salaries

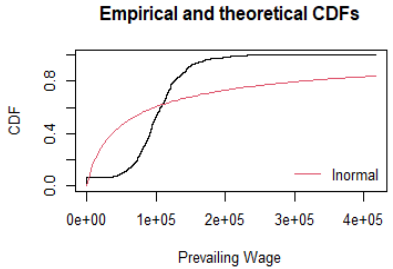


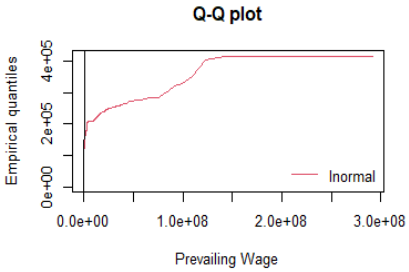
- The data set's observations are plotted against several distributions in the Cullen and Frey graph. we were able to state that the distribution is close to Log normal Distribution, Normal Distribution and Logistic Distribution.

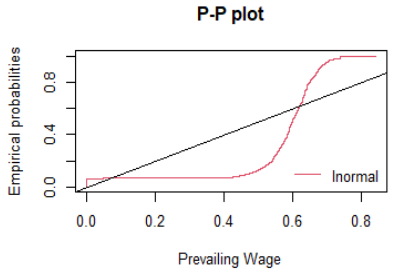
Goodness of Fit

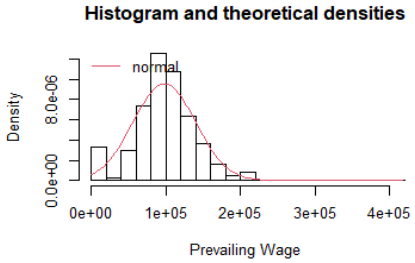
Lognormal Vs Normal

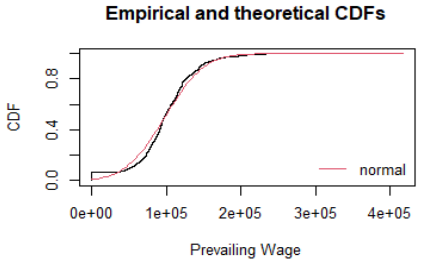


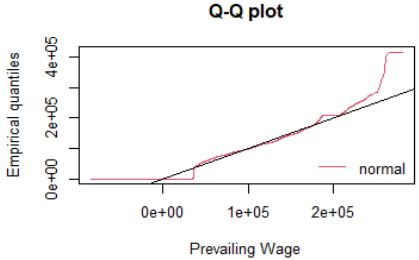


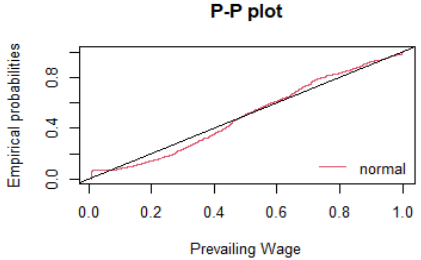




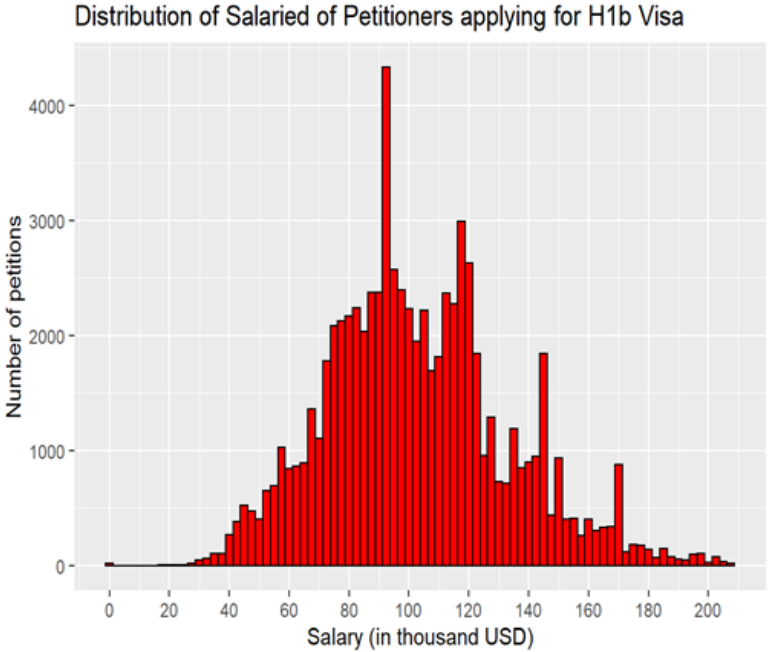


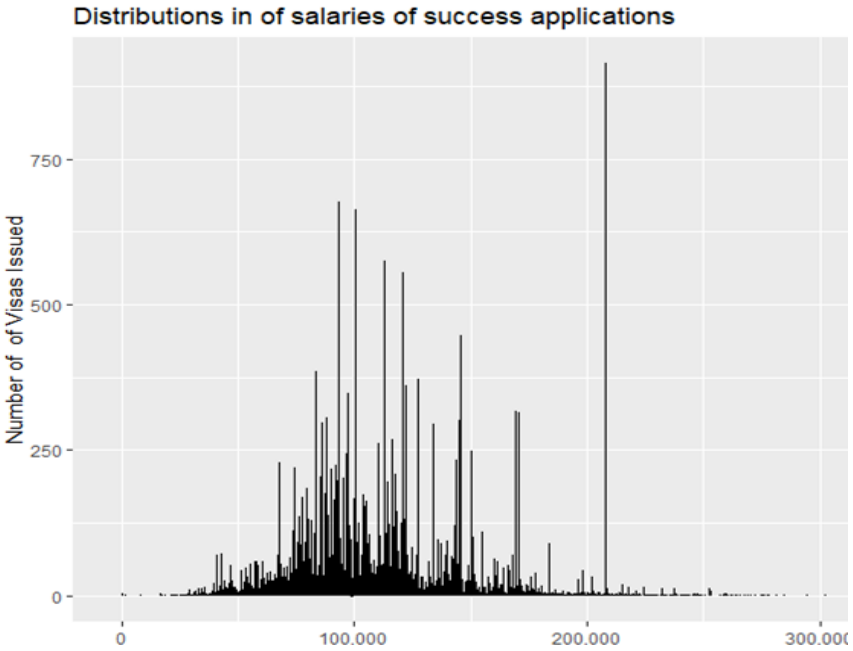




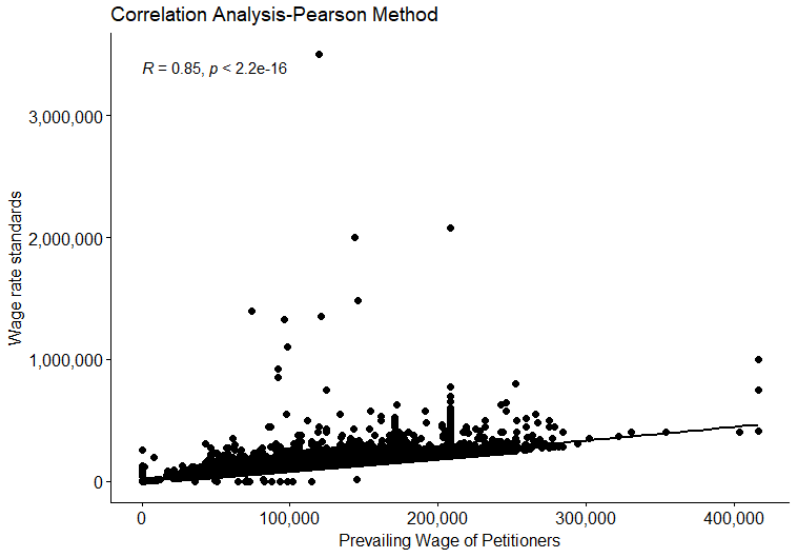


Distribution of Salaries of Applicants





Correlation Analysis



Establishing the presence of a relation between variables, as well as its strength and course of action. Pearson's method measures a linear relationship between two variables.

Hypothesis to compare proportion of visas getting issued in 2021 versus 2016.

87.9%

Null Hypothesis, H0: - Pop_prop = 87.9% (There is no significant difference between proportion of applicants getting H1B visa in 2016 and proportion of applicants getting h1b visa in 2021)

Alternative hypothesis, H1: - Pop_prop! = 87.9% (There is a significant difference between proportion of applicants getting H1B visa in 2016 and proportion of applicants getting h1b visa in 2021)

As p-value<0.05 →We reject the null hypothesis

93.18%

Hypothesis to check whether the proportion of salary of international employees working in California & Texas are equal.

Mean: $119056

Mean: $89674

Null Hypothesis, H0: sal_cali-sal_tx = 0 (There is no significant difference between proportion of salary of international employees working in California and proportion of international employees working in Texas).

Alternative Hypothesis, H1: sal_cali-sal_tx != 0 (There is a significant difference between proportion of salary of international employees working in California and proportion of international employees working in Texas).

As p-value < 0.05, we reject the null hypothesis

Conclusion

- At the end of our analysis, we found out that none of the parameters influence the results.
- From the Salary analysis, we can see that people who got their visa certified and denied is more similar.
- Even though states like California and Cities like New York has issuance rate and Companies like Cognizant and Job position like Software Developer, Applications, it doesn't guarantee that if you follow this pattern, you will end up getting a visa.


thank you