Analyzing Response Times and Question Sentiment in ABA Free Law Answers

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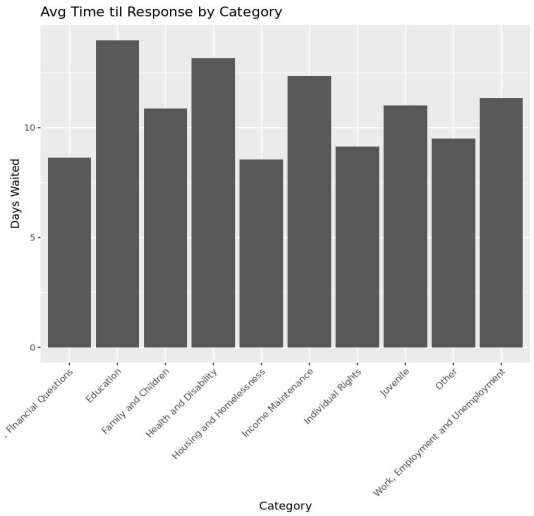
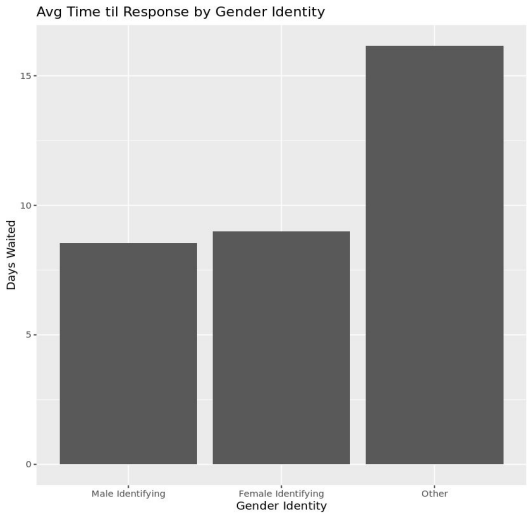
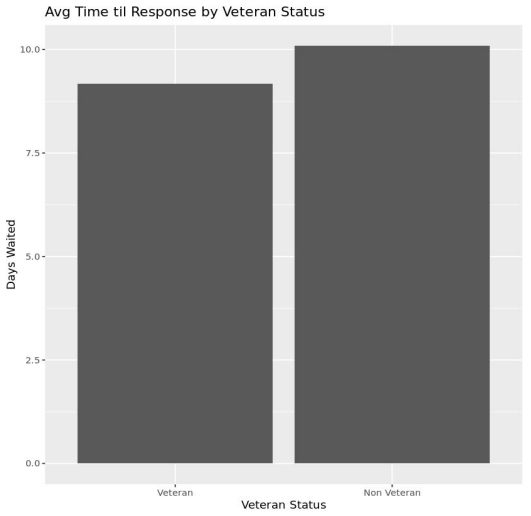
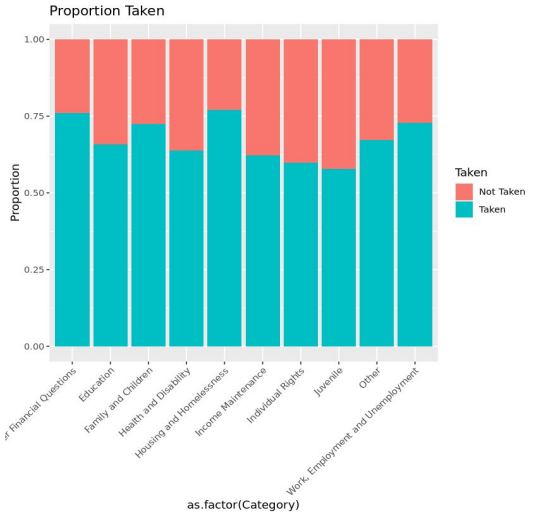
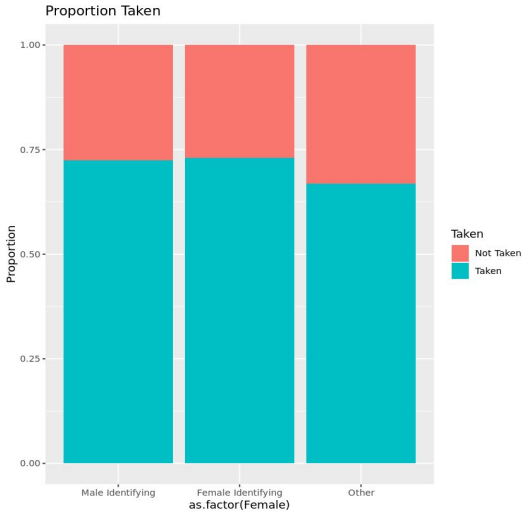
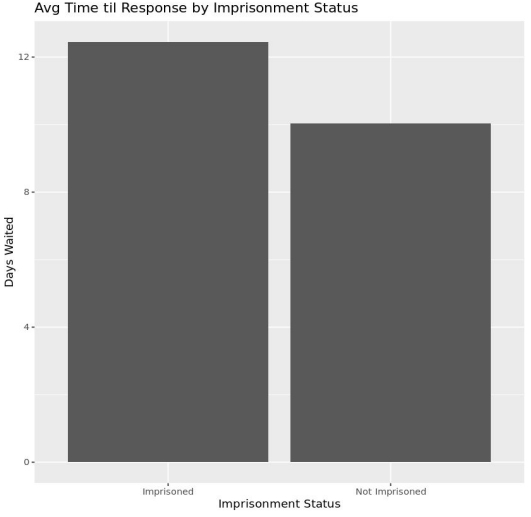

Avg Time til Response by Category
Days Waited
0
5
10
Financial Questions
Education
Family and Children
Health and Disability
Housing and Homelessness
Income Maintenance
Individual Rights
Juvenile
Other
Work, Employment and Unemployment
Category

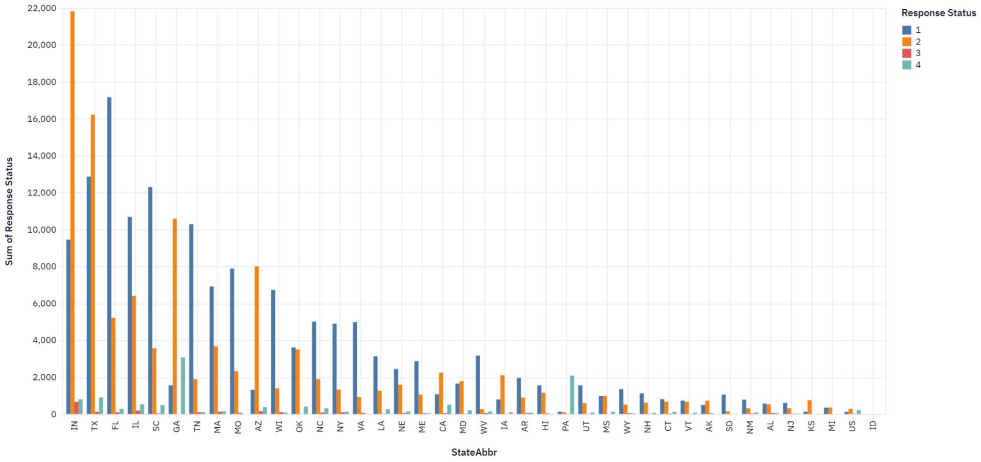

Avg Time til Response by Gender Identity
Days Waited
0
5
10
15
Male Identifying
Female Identifying
Other
Gender Identity

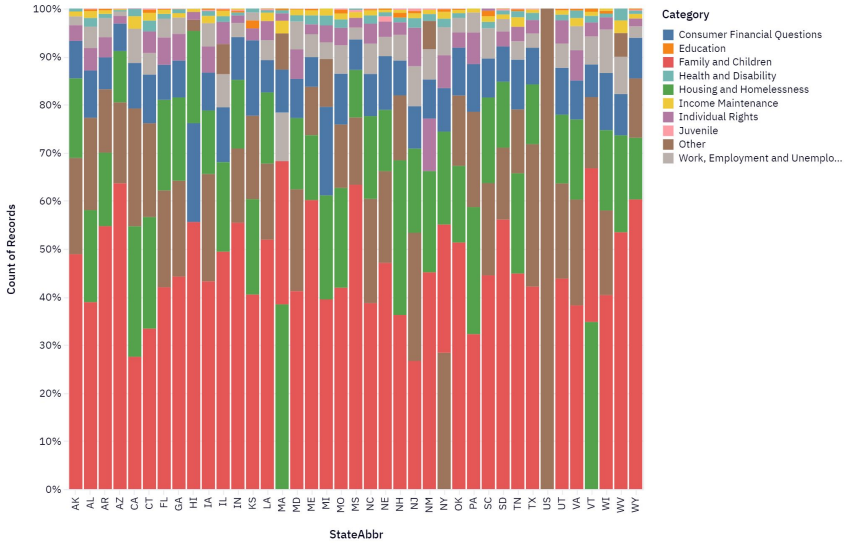

Avg Time til Response by Veteran Status
Days Waited
0.0
2.5
5.0
7.5
10.0
Veteran
Non Veteran
Veteran Status


Proportion Taken
Proportion
0.00
0.25
0.50
0.75
1.00
Financial Questions
Education
Family and Children
Health and Disability
Housing and Homelessness
Income Maintenance
Individual Rights
Juvenile
Other
Work, Employment and Unemployment
as.factor(Category)
Taken
Not Taken
Taken

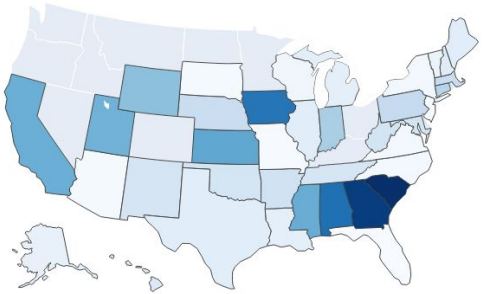

Proportion Taken
Proportion
0.00
0.25
0.50
0.75
1.00
Male Identifying
Female Identifying
Other
as.factor(Female)
Taken
Not Taken
Taken


Avg Time til Response by Imprisonment Status
Days Waited
0
4
8
12
Imprisoned
Not Imprisoned
Imprisonment Status

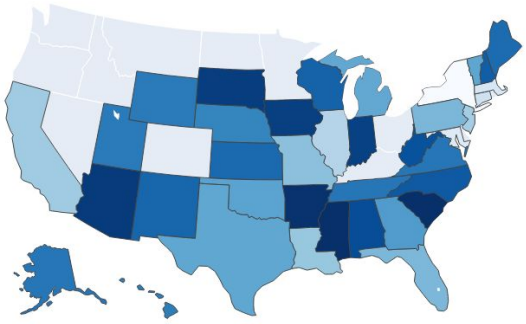




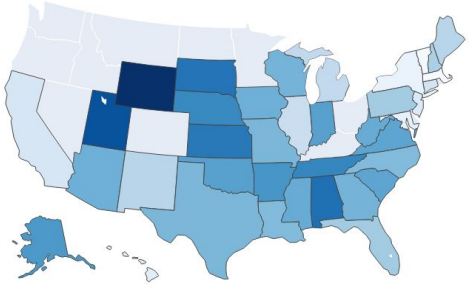
Median Time Till Taken Days by State



Lawyers by state



Political Lean (Repblican voting % - Democratic voting %)



Text Analysis and Conclusions

AutoKeras

Questions Not Taken	Subjectivity	Polarity
Mean	0.360	0.046
Median	0.375	0.029
Standard Dev	0.145	0.193

Questions Taken	Subjectivity	Polarity
Mean	0.365	0.054
Median	0.377	0.038
Standard Dev		

Polarity 2 Sample T-Test (Taken vs Untaken Questions)

```
Ttest_indResult(statistic=-8.345241981330595, pvalue=7.180686112690702e-17)
```

```
x_train = qpAskedFinal['PostText'][:50000].values
x_test = qpAskedFinal['PostText'][50000:].values
y_train = qpAskedFinal['Time till Taken Days'][:50000].values
y_test = qpAskedFinal['Time till Taken Days'][50000:].values
reg = ak.TextRegressor(overwrite=False, max_trials=1)
reg.fit(x_train, y_train, epochs=60)
#Time till Taken Days, and Time till Resolved Used"
```

RMSE Time Till Taken ~ 5.74 Days

RMSE Time Till Resolved ~ 8.1 Days

The Following Factors:

- State Resources (Location, Urbanization, # Lawyers)
- Category/Subcategory Classification
- Text sentiment and deep learning on initial post

Can be used by the ABA to predict response times, and determine which posts are likely to not be answered

We can accurately predict response time giving consumer increased awareness in to how their problem will be resolved

Sources

Outside Resources Analyzed: Pew Research, ABA Demographic, Census Bureau Urbanization, Census Bureau Median Household income, Census Bureau Population

Haifeng Jin, François Chollet, Qingquan Song, and Xia Hu. "AutoKeras: An AutoML Library for Deep Learning." the Journal of machine Learning research 6 (2023):

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