



Data Informatics Consulting Klub

Emma Andrade, Daniel Theng, Nathan Theng, Nicholas Tom



Recommendation/Predictive Models for Clients and Attorneys.

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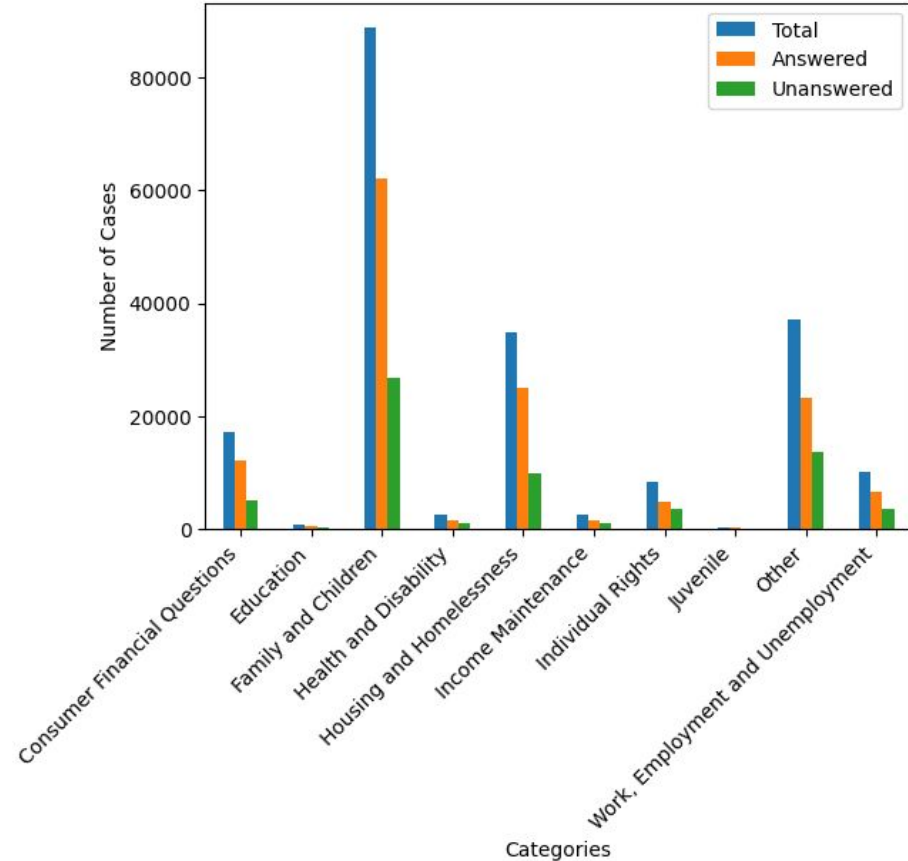
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Data Visualization



Categories	% Unanswered
Consumer Financial	29.53
Education	36.02
Family + Children	30.08
Health and Disability	40.49
Housing and Homelessness	28.17
Income Maintenance	43.64
Individual Rights	43.06
Juvenile Other	37.17
Work + (Un)Employment	34.06

Research Question: Given any question, which attorneys are most suited to take the case?

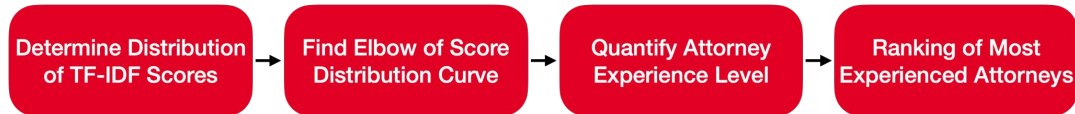


Recommendation System Approach

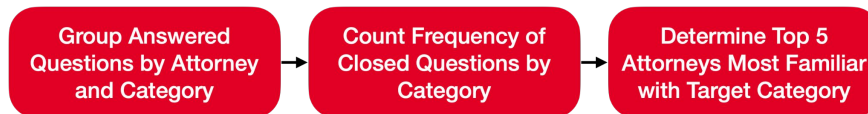
- Recommend attorneys to answer a question based on...
- Question Content
 - Term Frequency - Inverse Document Frequency



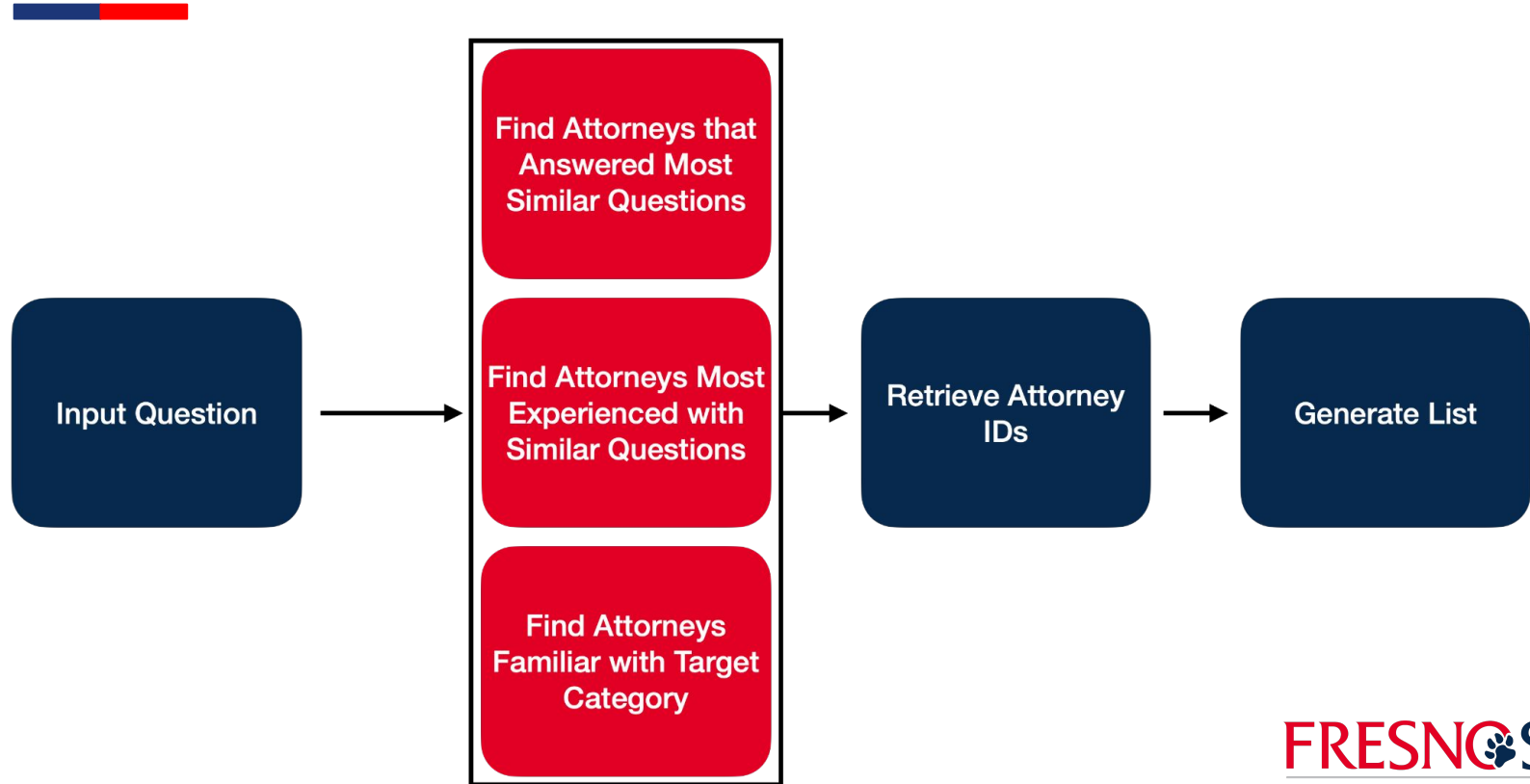
- Attorney Experience with Similar Questions



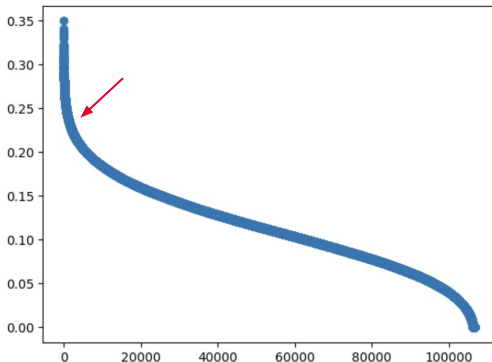
- Attorney Familiarity with Category



Recommendation System Approach



"I applied for a loan modification was told that the underwriter approved and it went off to the ### for final sign off. When calling I asked if they knew what the new terms were and they said no not really but it looked like they were going to ask for a down payment amt of maybe \$### ##..."



	AttorneyUno	Category	count
0	000B021F-9FBF-4058-8ADC-D0A6232B6C04	Housing and Homelessness	1
1	0023FF7C-934D-4974-87A9-B90BE52D4D5B	Family and Children	3
2	003C4876-C682-4E94-B161-4BE485AD0FBD	Family and Children	1
3	00401285-58EE-4E39-9807-87A570C4B9ED	Family and Children	3
4	00609EE0-87BE-496A-9847-A711F4569A25	Family and Children	4
...
12289	FFC66FAF-38C4-4520-88DE-19BBD7BF5F26	Work, Employment and Unemployment	1
12290	FFD551B4-3BB5-4C00-9714-032776657EC0	Family and Children	4
12291	FFD551B4-3BB5-4C00-9714-032776657EC0	Work, Employment and Unemployment	1
12292	FFDDF712-4C58-4DB5-A63E-99355C8448A0	Family and Children	2
12293	FFEADD85-31FF-42D4-A8B3-BEF4F180D8FD	Consumer Financial Questions	1

12294 rows x 3 columns

TakenByAttorneyUno	scores
5972BC62-120C-475A-B045-A74EA9FFFEEDD	0.349322
2E774E9E-E601-4BB6-8668-E26E09615F35	0.340682
53779F6D-8FAF-4B9C-A5D5-AE1AEBDE10C4	0.337067
C170D8A8-A984-45BD-BD90-35DDE32E5978	0.334809
F7E9C10C-2FDA-464C-B579-E5CE07C2498D	0.331775

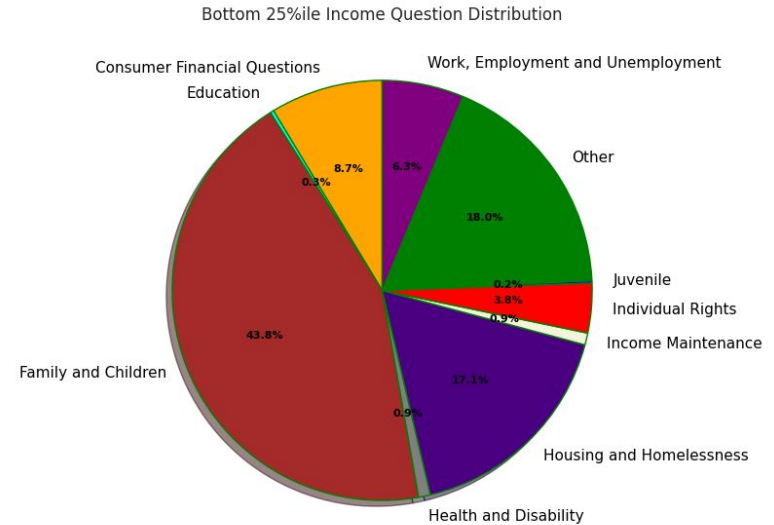
TakenByAttorneyUno	
775743CD-AE89-4866-A5A3-0DDEF53E619F	51
59C1710C-0D02-4D34-BE10-E87A4D0F315E	41
FA34142B-1575-4720-981C-2D28C3560137	23
05DD8A38-5C07-4796-8ED5-699E05424614	23
34322290-1BBC-42BA-B351-76029E9E6F9D	17

AttorneyUno	Category	count
27B73590-F3A5-47DD-A226-B7CD58751722	Health and Disability	61
775743CD-AE89-4866-A5A3-0DDEF53E619F	Health and Disability	48
EBB7B7CE-7372-4DDF-8135-EB7AD00517F5	Health and Disability	37
B68EB95B-020E-48C0-9B8F-D45BC98A27B7	Health and Disability	35
735D4273-3EAC-4C2A-AF1C-F1BCFAFFFEED8	Health and Disability	34

AttorneyUno
775743CD-AE89-4866-A5A3-0DDEF53E619F
05DD8A38-5C07-4796-8ED5-699E05424614
27B73590-F3A5-47DD-A226-B7CD58751722
2E774E9E-E601-4BB6-8668-E26E09615F35
34322290-1BBC-42BA-B351-76029E9E6F9D
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59C1710C-0D02-4D34-BE10-E87A4D0F315E
735D4273-3EAC-4C2A-AF1C-F1BCFAFFFEED8
B68EB95B-020E-48C0-9B8F-D45BC98A27B7
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F7E9C10C-2FDA-464C-B579-E5CE07C2498D
FA34142B-1575-4720-981C-2D28C3560137

What About the Attorneys?

- **3 Models** were implemented to predict **question category** based on **demographic data**
 - Logistic Regression (Score: 0.471)
 - Support Vector Machine (Score: 0.473)
 - Random Forests (Score: 0.447)
- Additionally we utilized **feature importance** to detect which factors were most important and build graphics for our models
 - Annual Income and Investments Balance were determined to be the most important





Thank you, Questions?