

Team 3 Deliverable 1

Preliminary Analysis

The new dataset we have included is the census tract data in 2018, and it has many useful columns including the code and the geometry of each census tract.

Since our task is to make a tract-by-tract summary of number of evictions by eviction type, and number of evictions by owner, we first merged our current eviction data with the new census tract data by 'geometry' column using geopandas to get a new eviction dataset, so that the new dataset has information about the census tract where each eviction case occurred.

Then we chose the columns ['NAME', 'initiation', 'owner_name'], which respectively stand for the code of each census tract, eviction type, and owner's name, as the columns to be used for this task.

The code with well-explained comments about how we get the following result will be uploaded to GitHub under the Spark Data Cleaning folder.

Census Tracts Evictions Analysis

Among all 5498 entries of evictions in MA, there are 998 census tract included.

```
NAME
7317.00    59
7304.01    51
6421.00    50
3840.02    48
3835.01    44
      ..
6134.00     1
6133.00     1
6121.00     1
6112.02     1
2114.02     1
Length: 998, dtype: int64
```

We will focus on the data of top 5 census tracts, creating tract by tract summaries of: 1) # of evictions by eviction type; 2) # of evictions by owner's name.

Data & Analysis

(Properties' owner_name based on Census tract)

The top 5 NAMES are: 7317.00, 7304.01, 6421.00, 3840.02, 3835.01.

For 'NAME == 7317.0':

Census Tract 7317, Worcester, Massachusetts

NAME	owner_name	
7317.0	600 MAIN STREET,LLC	22
	79-83 PLEASANT STREET LLC	2
	CENTRAL BUILDING DEVELOPMENT GROUP LLC	7
	FIFTY FRANKLIN LLC	4
	FLC PROPERTIES LLC	4
	HADLEY APARTMENTS LLC	4
	NGUYEN,HENRY VAN + DEBBIE DIEP	3
	OMODI PROPERTIES LLC	4
	PANADOROU PROPERTIES LLC	1
	PORTLAND TWENTY SIX LLC	2
	PRASHAD,MOHAN RAM + HARDATT B	2
	WORCESTER FRANKLIN HOLDINGS LLC	2
	ZAPPULLA,ALEXANDER	2
dtype: int64		
NAME	initiating	
7317.0	Efiled SP Summons and Complaint - Non-payment of Rent	55
	SP Summons and Complaint - Non-payment of Rent	4
dtype: int64		

There are 59 properties with name "7317.0".

600 MAIN STREET, LLC owns the most. (Over 37%)

55 of them have eviction type "Efiled SP Summons and Complaint - Non-payment of Rent"; 4 of them have eviction type "SP Summons and Complaint - Non-payment of Rent".

For 'NAME == 7304.01':

Census Tract 7304.01, Worcester, MA

NAME	owner_name	
7304.01	LINCOLN STREET REALTY COMPANY	41
	LINCOLN STREET REALTY CORPORATION	5
	40 COUNTRY CLUB BLVD NOMINEE T	1
	DEQUATTRO,ALEXANDER	1
	GFV122 LLC	1
	GOLDTHWAITE HOLDINGS,LLC	1
	LEDGEWOOD PROPERTY REALTY TRUS	1

NAME	initiating	
7304.01	Efiled SP Summons and Complaint - Non-payment of Rent	50
	Efiled SP Summons and Complaint - No Cause	1

There are 51 properties with name "7304.01".

LINCOLN STREET REALTY COMPANY owns the most. (Over 80%)

50 of them have eviction type "Efiled SP Summons and Complaint - Non-payment of Rent"; 1 of them has eviction type "Efiled SP Summons and Complaint - No Cause".

For 'NAME == 6421.0':

Census Tract 6421, Bristol, MA

NAME	owner_name	
6421.0	GPT-RG FALL RIVER LLC	28
	CLAREMONT WINDS LLC,	10
	SOUTH COAST LANDINGS LLC	3
	CARVALHO JOAO P	2
	AZ HERITAGE LLC	1
	CABRAL CHRISTOPHER J	1
	FALL RIVER HOUSING AUTHORITY	1
	GONCALO JR LOUIS	1
	JC FALL RIVER PROPERTIES LLC,	1
	LACERDA ANTHONY H	1
	R P C PROPERTIES LLC	1

NAME	initiating	
6421.0	Efiled SP Summons and Complaint - Non-payment of Rent	37
	Summary Process - Residential (c239)	8
	Efiled SP Summons and Complaint - Cause	3
	SP Summons and Complaint - Non-payment of Rent	2

There are 50 properties with name "6421.0".

GPT-RG FALL RIVER LLC owns the most. (56%)

37 of them have eviction type "Efiled SP Summons and Complaint - Non-payment of Rent"; 8 of them have eviction type "Summary Process - Residential (c239)"; 3 of them have eviction type "Efiled SP Summons and Complaint - Cause"; 2 of them have eviction type "SP Summons and Complaint - Non-payment of Rent".

For 'NAME == 3840.02':

Census Tract 3840.02, Middlesex County, Massachusetts

NAME	owner_name	
3840.02	JEFFERSON AT EDGEWATER HILLS	44
	GUARDIAN EDGEWATER TERRACE, LLC	2
	MASS CONGREGATION CONFERENCE	1
	ZIMMERMAN TRS, SYLVIA & BARRY D & MARC H	1

NAME	initiating	
3840.02	Efiled SP Summons and Complaint - Non-payment of Rent	45
	Efiled SP Summons and Complaint - Cause	3

There are 48 properties with name "3840.02".

JEFFERSON AT EDGEWATER HILLS owns the most. (over 91%)

45 of them have eviction type "Efiled SP Summons and Complaint - Non-payment of Rent"; 3 of them have eviction type "Efiled SP Summons and Complaint - Cause".

For 'NAME == 3835.01':

Census Tract 3835.01, Middlesex, MA

NAME	owner_name	
3835.01	FRAMINGHAM HOUSING AUTHORITY	16
	AIMCO GEORGETOWN LLC	10
	MUSTERFIELD PLACE, LLC	9
	AIMCO BAYBERRY HILL LLC	7
	AIMCO GRANADA LLC	1
	KINNARNEY, MILDRED M TR	1

NAME	initiating	
3835.01	Efiled SP Summons and Complaint - Non-payment of Rent	41
	Efiled SP Summons and Complaint - Cause	3

There are 44 properties with name "3835.01".

FRAMINGHAM HOUSING AUTHORITY owns the most. (over 36%)

41 of them have eviction type "Efiled SP Summons and Complaint - Non-payment of Rent"; 3 of them have eviction type "Efiled SP Summons and Complaint - Cause".

Summary

```
NAME      owner_name
3840.02    JEFFERSON AT EDGEWATER HILLS    44
7304.01    LINCOLN STREET REALTY COMPANY    41
7320.01    WORCESTER HOUSING AUTHORITY      33
6421.00    GPT-RG FALL RIVER LLC             28
4134.02    WINDSOR GARDENS PROPCO LLC          26
..
4132.00    ZANGI, RONEN                          1
4135.00    YU-WONG, YIN J                        1
4141.00    AVALON SHARON, INC                   1
4151.02    CHANCELLOR REALTY TRUST              1
9856.00    SAADE ROUHANA C TR                   1
Length: 3289, dtype: int64
```

While grouping the owner of the property by the descending order, the top 5 owners which have the most eviction are listed above.

```
NAME      initiating
7317.00    Efiled SP Summons and Complaint - Non-payment of Rent    55
7304.01    Efiled SP Summons and Complaint - Non-payment of Rent    50
3840.02    Efiled SP Summons and Complaint - Non-payment of Rent    45
3835.01    Efiled SP Summons and Complaint - Non-payment of Rent    41
6421.00    Efiled SP Summons and Complaint - Non-payment of Rent    37
..
3704.00    Efiled SP Summons and Complaint - Non-payment of Rent     1
3703.00    Efiled SP Summons and Complaint - Non-payment of Rent     1
3691.00    Summary Process - Residential (c239)                       1
3689.02    SP Transfer - Non-payment of Rent                          1
9856.00    SP Summons and Complaint - Non-payment of Rent             1
Length: 1982, dtype: int64
```

While grouping the owner of the property by the descending order, the top 5 reasons for eviction are listed above.

Based on the data of all census tracts:

The top five owner companies (by total number of properties in descending order) for a single census tract are: JEFFERSON AT EDGEWATER HILLS, LINCOLN STREET REALTY COMPANY, WORCESTER HOUSING AUTHORITY, GPT-RG FALL RIVER LLC, and WINDSOR GARDENS PROPCO LLC.

All of them have the same eviction type “Efiled SP Summons and Complaint - Non-payment of Rent”.

Future Analysis

For further analysis, we will analyze the census tract by race, diversity index, housing unit and other factors which might be an influential factor. Also, we will dig into the top 5 census tracts and analyze the affinity and difference.

We will also like to dig into the ls_price column which might be an influential factor. As well as the influence of Covid-19 pandemic on the most popular reason for eviction: they did not pay rent.

Difficulties

For some columns we don't know how to use them which leaves space for improvement. For example, the columns of ALand and AWater which we haven't used but obviously should be an informative column.