problem set IV

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"This submission is our work alone and complies with the 30538 integrity policy." Add your initials to indicate your agreement: **SN JZ**

5. "I have uploaded the names of anyone else other than my partner and I worked with on the problem set **here**" (1 point)
6. Late coins used this pset: **___** Late coins left after submission: **___**
7. Knit your `ps4.qmd` to an PDF file to make `ps4.pdf`,

   - The PDF should not be more than 25 pages. Use `head()` and re-size figures when appropriate.

8. (Partner 1): push `ps4.qmd` and `ps4.pdf` to your github repo.
9. (Partner 1): submit `ps4.pdf` via Gradescope. Add your partner on Gradescope.
10. (Partner 1): tag your submission in Gradescope

Download and explore the Provider of Services (POS) file

1. The variables that I pulled are: PRVDR_CTGRY_SBTYP_CD: subtype Identifies the subtype of the provider, within the primary category. Used in reporting to show the breakdown of provider categories, mainly for hospitals and SNFs.

PRVDR_CTGRY_CD: provider category Identifies the type of provider participating in the Medicare/Medicaid program.

PGM_TRMNTN_CD: termination code Indicates the provider's current termination status.

TRMNTN_EXPRTN_DT: Termination or Expiration Date Date the provider was terminated. For CLIA providers, date the laboratory's certificate was terminated or the expiration date of the current CLIA certificate.

FAC_NAME: Facility / hospital name Name of the provider certified to participate in the Medicare and/or Medicaid programs.

ZIP_CD: Zip code Five-digit ZIP code for a provider's physical address.

CHOW_CNT: CHOW Count Number of times this provider has changed ownership.

CHOW_DT: CHOW Date Effective date of the most recent change of ownership for this provider.

CITY_NAME: City City in which the provider is physically located.

PRVDR_NUM: CMS number Provider number Six or ten position identification number that is assigned to a certified provider. This is the CMS Certification Number.

2.

```python
import pandas as pd
import geopandas as gpd
import shapely
import os
os.chdir("/Users/samarnegahdar/Desktop/untitled
↪ folder/problem-set-4-summer-jenny")
pos2016 = pd.read_csv("pos2016.csv")
print(pos2016.head(10))
```

```
   PRVDR_CTGRY_SBTYP_CD  PRVDR_CTGRY_CD  CHOW_CNT     CHOW_DT     CITY_NAME
   \
0                  1.0               1         1         NaN        DOTHAN
1                  1.0               1         0         NaN     BRIDGEPORT
2                  1.0               1         0         NaN           BOAZ
3                  1.0               1         1  20100701.0      FLORENCE
4                  1.0               1         0         NaN           OPP
5                  1.0               1         1  20020701.0       LUVERNE
6                  1.0               1         3         NaN      HARTSELLE
7                  1.0               1         0         NaN   GUNTERSVILLE
8                  1.0               1         1         NaN     BIRMINGHAM
9                  1.0               1         1  20060401.0    FORT PAYNE

                         FAC_NAME PRVDR_NUM  PGM_TRMNTN_CD  \
0  SOUTHEAST ALABAMA MEDICAL CENTER    010001              0
1            NORTH JACKSON HOSPITAL    010004              1
2      MARSHALL MEDICAL CENTER SOUTH    010005              0
3    ELIZA COFFEE MEMORIAL HOSPITAL    010006              0
4           MIZELL MEMORIAL HOSPITAL    010007              0
5        CRENSHAW COMMUNITY HOSPITAL    010008              0
6           HARTSELLE MEDICAL CENTER    010009              1
7      MARSHALL MEDICAL CENTER NORTH    010010              1
8                  ST VINCENT'S EAST    010011              0
```

```
9    DEKALB REGIONAL MEDICAL CENTER    010012            0

   TRMNTN_EXPRTN_DT    ZIP_CD
0                NaN  36301.0
1         20010831.0  35740.0
2                NaN  35957.0
3                NaN  35631.0
4                NaN  36467.0
5                NaN  36049.0
6         20120201.0  35640.0
7         20111001.0  35976.0
8                NaN  35235.0
9                NaN  35968.0
```

```python
#converting to string
pos2016['PRVDR_CTGRY_SBTYP_CD'] =
↪  pos2016['PRVDR_CTGRY_SBTYP_CD'].astype(str).str.zfill(2)

pos2016['PRVDR_CTGRY_CD'] =
↪  pos2016['PRVDR_CTGRY_CD'].astype(str).str.zfill(2)
pos2016.head()
```

	PRVDR_CTGRY_SBTYP_CD	PRVDR_CTGRY_CD	CHOW_CNT	CHOW_DT	CITY_NAME
0	1.0	01	1	NaN	DOTHAN
1	1.0	01	0	NaN	BRIDGEPORT
2	1.0	01	0	NaN	BOAZ
3	1.0	01	1	20100701.0	FLORENCE
4	1.0	01	0	NaN	OPP

```python
st_hospitals2016 = pos2016[(pos2016['PRVDR_CTGRY_SBTYP_CD'] == '1.0') &
↪  (pos2016['PRVDR_CTGRY_CD'] == '01')]

print(st_hospitals2016.head())
st_hospitals2016.shape
```

```
  PRVDR_CTGRY_SBTYP_CD PRVDR_CTGRY_CD CHOW_CNT      CHOW_DT   CITY_NAME  \
0                  1.0             01        1          NaN      DOTHAN
1                  1.0             01        0          NaN  BRIDGEPORT
2                  1.0             01        0          NaN        BOAZ
3                  1.0             01        1   20100701.0    FLORENCE
```

```
4                    1.0            01            0            NaN            OPP
```

```
                            FAC_NAME PRVDR_NUM  PGM_TRMNTN_CD  \
0  SOUTHEAST ALABAMA MEDICAL CENTER    010001              0
1           NORTH JACKSON HOSPITAL    010004              1
2     MARSHALL MEDICAL CENTER SOUTH    010005              0
3   ELIZA COFFEE MEMORIAL HOSPITAL    010006              0
4          MIZELL MEMORIAL HOSPITAL    010007              0


   TRMNTN_EXPRTN_DT   ZIP_CD
0              NaN  36301.0
1       20010831.0  35740.0
2              NaN  35957.0
3              NaN  35631.0
4              NaN  36467.0

(7245, 10)
```

a. 7,245 hospitals are reported in this data.
b. [To be filled in]

adding the year 2016

```
st_hospitals2016.loc[:, 'YEAR'] = 2016
print(st_hospitals2016)
```

```
        PRVDR_CTGRY_SBTYP_CD PRVDR_CTGRY_CD  CHOW_CNT      CHOW_DT  \
0                       1.0            01         1          NaN
1                       1.0            01         0          NaN
2                       1.0            01         0          NaN
3                       1.0            01         1  20100701.0
4                       1.0            01         0          NaN
...                     ...           ...       ...          ...
133526                  1.0            01         0          NaN
133527                  1.0            01         0          NaN
133528                  1.0            01         0          NaN
133529                  1.0            01         0          NaN
133530                  1.0            01         0          NaN

            CITY_NAME                          FAC_NAME PRVDR_NUM  \
0              DOTHAN  SOUTHEAST ALABAMA MEDICAL CENTER    010001
1          BRIDGEPORT            NORTH JACKSON HOSPITAL    010004
2                BOAZ     MARSHALL MEDICAL CENTER SOUTH    010005
```

```
3           FLORENCE      ELIZA COFFEE MEMORIAL HOSPITAL      010006
4               OPP          MIZELL MEMORIAL HOSPITAL      010007
...             ...                    ...         ...
133526         WEIMAR          WEIMAR MEDICAL CENTER      670114
133527      CLEVELAND    CLEVELAND EMERGENCY HOSPTIAL      670115
133528     FORT WORTH             WISE HEALTH SYSTEM      670116
133529   GRAND SALINE  TEXAS GENERAL HOSPITAL- VZRMC LP      670117
133530        HOUSTON            FIRST TEXAS HOSPITAL      670118


        PGM_TRMNTN_CD  TRMNTN_EXPRTN_DT   ZIP_CD  YEAR
0                   0              NaN  36301.0  2016
1                   1        20010831.0  35740.0  2016
2                   0              NaN  35957.0  2016
3                   0              NaN  35631.0  2016
4                   0              NaN  36467.0  2016
...               ...              ...      ...   ...
133526              0              NaN  78962.0  2016
133527              0              NaN  77327.0  2016
133528              0              NaN  76177.0  2016
133529              0              NaN  75140.0  2016
133530              0              NaN  77070.0  2016

[7245 rows x 11 columns]

/var/folders/j5/rv933w1173s068kbzq0kp2xh0000gn/T/ipykernel_20187/459544367.py:1:
SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation:
https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versu
  st_hospitals2016.loc[:, 'YEAR'] = 2016
```

3. for 2017:

```
#importing pos2017
pos2017 = pd.read_csv("pos2017.csv", encoding='latin1')
```

```
#converting to string
pos2017['PRVDR_CTGRY_SBTYP_CD'] =
↪  pos2017['PRVDR_CTGRY_SBTYP_CD'].astype(str).str.zfill(2)
```

```
pos2017['PRVDR_CTGRY_CD'] =
↪  pos2017['PRVDR_CTGRY_CD'].astype(str).str.zfill(2) ##filling numbers with
↪  a zero before integer
pos2017.head()
```

	PRVDR_CTGRY_SBTYP_CD	PRVDR_CTGRY_CD	CHOW_CNT	CHOW_DT	CITY_NAME
0	1.0	01	1	NaN	DOTHAN
1	1.0	01	0	NaN	BRIDGEPORT
2	1.0	01	0	NaN	BOAZ
3	1.0	01	1	20100701.0	FLORENCE
4	1.0	01	0	NaN	OPP

```
#then focusing on short term hospitals
st_hospitals2017 = pos2017[(pos2017['PRVDR_CTGRY_SBTYP_CD'] == '1.0') &
↪  (pos2017['PRVDR_CTGRY_CD'] == '01')]

print(st_hospitals2017.head())
print(st_hospitals2017.tail())
st_hospitals2017.shape
```

```
   PRVDR_CTGRY_SBTYP_CD PRVDR_CTGRY_CD  CHOW_CNT      CHOW_DT   CITY_NAME  \
0                   1.0             01         1          NaN      DOTHAN
1                   1.0             01         0          NaN  BRIDGEPORT
2                   1.0             01         0          NaN        BOAZ
3                   1.0             01         1   20100701.0    FLORENCE
4                   1.0             01         0          NaN         OPP

                          FAC_NAME PRVDR_NUM  PGM_TRMNTN_CD  \
0  SOUTHEAST ALABAMA MEDICAL CENTER    010001              0
1           NORTH JACKSON HOSPITAL    010004              1
2      MARSHALL MEDICAL CENTER SOUTH    010005              0
3    ELIZA COFFEE MEMORIAL HOSPITAL    010006              0
4          MIZELL MEMORIAL HOSPITAL    010007              0

   TRMNTN_EXPRTN_DT    ZIP_CD
0              NaN   36301.0
1       20010831.0   35740.0
2              NaN   35957.0
3              NaN   35631.0
4              NaN   36467.0
```

	PRVDR_CTGRY_SBTYP_CD	PRVDR_CTGRY_CD	CHOW_CNT	CHOW_DT	CITY_NAME \
135471	1.0	01	0	NaN	HOUSTON
135472	1.0	01	0	NaN	HOUSTON
135473	1.0	01	0	NaN	EL PASO
135474	1.0	01	0	NaN	HURST
135475	1.0	01	0	NaN	THE WOODLANDS

	FAC_NAME	PRVDR_NUM \
135471	FIRST TEXAS HOSPITAL	670118
135472	PROVIDENCE HOSPITAL OF NORTH HOUSTON LLC	670119
135473	THE HOSPITALS OF PROVIDENCE TRANSMOUNTAIN CAMPUS	670120
135474	SAINT CAMILLUS MEDICAL CENTER	670121
135475	HOUSTON METHODIST THE WOODLANDS HOSPITAL	670122

	PGM_TRMNTN_CD	TRMNTN_EXPRTN_DT	ZIP_CD
135471	0	NaN	77070.0
135472	0	NaN	77090.0
135473	0	NaN	79911.0
135474	0	NaN	76054.0
135475	0	NaN	77385.0

(7260, 10)

Adding the 2017 column

```
st_hospitals2017.loc[:, 'YEAR'] = 2017

print(st_hospitals2017)
```

	PRVDR_CTGRY_SBTYP_CD	PRVDR_CTGRY_CD	CHOW_CNT	CHOW_DT \
0	1.0	01	1	NaN
1	1.0	01	0	NaN
2	1.0	01	0	NaN
3	1.0	01	1	20100701.0
4	1.0	01	0	NaN
...	...	...	...	...
135471	1.0	01	0	NaN
135472	1.0	01	0	NaN
135473	1.0	01	0	NaN
135474	1.0	01	0	NaN
135475	1.0	01	0	NaN

```
            CITY_NAME                                       FAC_NAME  \
0              DOTHAN                 SOUTHEAST ALABAMA MEDICAL CENTER
1          BRIDGEPORT                          NORTH JACKSON HOSPITAL
2                BOAZ                   MARSHALL MEDICAL CENTER SOUTH
3            FLORENCE                  ELIZA COFFEE MEMORIAL HOSPITAL
4                 OPP                        MIZELL MEMORIAL HOSPITAL
...               ...                                            ...
135471        HOUSTON                             FIRST TEXAS HOSPITAL
135472        HOUSTON       PROVIDENCE HOSPITAL OF NORTH HOUSTON LLC
135473        EL PASO  THE HOSPITALS OF PROVIDENCE TRANSMOUNTAIN CAMPUS
135474          HURST                   SAINT CAMILLUS MEDICAL CENTER
135475  THE WOODLANDS       HOUSTON METHODIST THE WOODLANDS HOSPITAL

        PRVDR_NUM  PGM_TRMNTN_CD  TRMNTN_EXPRTN_DT   ZIP_CD  YEAR
0          010001              0               NaN  36301.0  2017
1          010004              1        20010831.0  35740.0  2017
2          010005              0               NaN  35957.0  2017
3          010006              0               NaN  35631.0  2017
4          010007              0               NaN  36467.0  2017
...           ...            ...               ...      ...   ...
135471     670118              0               NaN  77070.0  2017
135472     670119              0               NaN  77090.0  2017
135473     670120              0               NaN  79911.0  2017
135474     670121              0               NaN  76054.0  2017
135475     670122              0               NaN  77385.0  2017

[7260 rows x 11 columns]
```

/var/folders/j5/rv933w1173s068kbzq0kp2xh0000gn/T/ipykernel_20187/3920803632.py:1:
SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation:
https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus
  st_hospitals2017.loc[:, 'YEAR'] = 2017

for 2018:

```
#importing pos2018
pos2018 = pd.read_csv('pos2018.csv', encoding='latin1')
```

```
#converting to string
pos2018['PRVDR_CTGRY_SBTYP_CD'] =
↪ pos2018['PRVDR_CTGRY_SBTYP_CD'].astype(str).str.zfill(2)

pos2018['PRVDR_CTGRY_CD'] =
↪ pos2018['PRVDR_CTGRY_CD'].astype(str).str.zfill(2)
pos2018.head()
```

	PRVDR_CTGRY_SBTYP_CD	PRVDR_CTGRY_CD	CHOW_CNT	CHOW_DT	CITY_NAME
0	1.0	01	1	NaN	DOTHAN
1	1.0	01	0	NaN	BRIDGEPORT
2	1.0	01	0	NaN	BOAZ
3	1.0	01	1	20100701.0	FLORENCE
4	1.0	01	0	NaN	OPP

```
#then focus on st hospitals
st_hospitals2018 = pos2018[(pos2018['PRVDR_CTGRY_SBTYP_CD'] == '1.0') &
↪ (pos2018['PRVDR_CTGRY_CD'] == '01')]

print(st_hospitals2018.head())
print(st_hospitals2018.tail())
st_hospitals2018.shape
```

```
  PRVDR_CTGRY_SBTYP_CD PRVDR_CTGRY_CD CHOW_CNT      CHOW_DT   CITY_NAME  \
0                  1.0             01        1          NaN      DOTHAN
1                  1.0             01        0          NaN  BRIDGEPORT
2                  1.0             01        0          NaN        BOAZ
3                  1.0             01        1   20100701.0    FLORENCE
4                  1.0             01        0          NaN         OPP

                        FAC_NAME PRVDR_NUM  PGM_TRMNTN_CD  \
0  SOUTHEAST ALABAMA MEDICAL CENTER   010001              0
1          NORTH JACKSON HOSPITAL   010004              1
2    MARSHALL MEDICAL CENTER SOUTH   010005              0
3   ELIZA COFFEE MEMORIAL HOSPITAL   010006              0
4         MIZELL MEMORIAL HOSPITAL   010007              0

   TRMNTN_EXPRTN_DT    ZIP_CD
0              NaN   36301.0
1       20010831.0   35740.0
```

9

```
2                  NaN  35957.0
3                  NaN  35631.0
4                  NaN  36467.0
        PRVDR_CTGRY_SBTYP_CD PRVDR_CTGRY_CD  CHOW_CNT  CHOW_DT      CITY_NAME
    \
137567                  1.0             01         0      NaN          HURST
137568                  1.0             01         0      NaN  THE WOODLANDS
137569                  1.0             01         0      NaN   HORIZON CITY
137570                  1.0             01         0      NaN    SAN ANTONIO
137571                  1.0             01         0      NaN       CROCKETT

                                                FAC_NAME PRVDR_NUM  \
137567                    SAINT CAMILLUS MEDICAL CENTER     670121
137568          HOUSTON METHODIST THE WOODLANDS HOSPITAL    670122
137569  THE HOSPITALS OF PROVIDENCE HORIZON CITY CAMPUS   670124
137570             TEXAS CENTER FOR INFECTIOUS DISEASE     670125
137571                       CROCKETT MEDICAL CENTER      670126


        PGM_TRMNTN_CD  TRMNTN_EXPRTN_DT  ZIP_CD
137567              0               NaN  76054.0
137568              0               NaN  77385.0
137569              0               NaN  79928.0
137570              0               NaN  78223.0
137571              0               NaN  75835.0

(7277, 10)
```

Adding the 2018 column

```
#column had to be extended
st_hospitals2018.loc[:, 'YEAR'] = 2018

print(st_hospitals2018)
```

```
        PRVDR_CTGRY_SBTYP_CD PRVDR_CTGRY_CD  CHOW_CNT      CHOW_DT  \
0                       1.0             01         1          NaN
1                       1.0             01         0          NaN
2                       1.0             01         0          NaN
3                       1.0             01         1   20100701.0
4                       1.0             01         0          NaN
...                     ...            ...       ...          ...
137567                  1.0             01         0          NaN
137568                  1.0             01         0          NaN
```

10

```
137569                      1.0          01          0          NaN
137570                      1.0          01          0          NaN
137571                      1.0          01          0          NaN

                 CITY_NAME                                      FAC_NAME  \
0                   DOTHAN                 SOUTHEAST ALABAMA MEDICAL CENTER
1                BRIDGEPORT                         NORTH JACKSON HOSPITAL
2                     BOAZ                   MARSHALL MEDICAL CENTER SOUTH
3                  FLORENCE                  ELIZA COFFEE MEMORIAL HOSPITAL
4                      OPP                       MIZELL MEMORIAL HOSPITAL
...                     ...                                           ...
137567                HURST                 SAINT CAMILLUS MEDICAL CENTER
137568        THE WOODLANDS      HOUSTON METHODIST THE WOODLANDS HOSPITAL
137569          HORIZON CITY  THE HOSPITALS OF PROVIDENCE HORIZON CITY CAMPUS
137570          SAN ANTONIO           TEXAS CENTER FOR INFECTIOUS DISEASE
137571             CROCKETT                       CROCKETT MEDICAL CENTER

         PRVDR_NUM  PGM_TRMNTN_CD  TRMNTN_EXPRTN_DT   ZIP_CD  YEAR
0           010001              0               NaN  36301.0  2018
1           010004              1        20010831.0  35740.0  2018
2           010005              0               NaN  35957.0  2018
3           010006              0               NaN  35631.0  2018
4           010007              0               NaN  36467.0  2018
...            ...            ...               ...      ...   ...
137567      670121              0               NaN  76054.0  2018
137568      670122              0               NaN  77385.0  2018
137569      670124              0               NaN  79928.0  2018
137570      670125              0               NaN  78223.0  2018
137571      670126              0               NaN  75835.0  2018

[7277 rows x 11 columns]

/var/folders/j5/rv933w1173s068kbzq0kp2xh0000gn/T/ipykernel_20187/800898756.py:2:
SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation:
https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus
  st_hospitals2018.loc[:, 'YEAR'] = 2018
```

for 2019:

```
#importing pos2019
pos2019 = pd.read_csv('pos2019.csv', encoding='latin1')
```

```
#converting to string
pos2019['PRVDR_CTGRY_SBTYP_CD'] =
↪  pos2019['PRVDR_CTGRY_SBTYP_CD'].astype(str).str.zfill(2)

pos2019['PRVDR_CTGRY_CD'] =
↪  pos2019['PRVDR_CTGRY_CD'].astype(str).str.zfill(2)
pos2019.head()
```

	PRVDR_CTGRY_SBTYP_CD	PRVDR_CTGRY_CD	CHOW_CNT	CHOW_DT	CITY_NAME
0	1.0	01	1	NaN	DOTHAN
1	1.0	01	0	NaN	BRIDGEPORT
2	1.0	01	0	NaN	BOAZ
3	1.0	01	1	20100701.0	FLORENCE
4	1.0	01	0	NaN	OPP

```
#then focus on st hospitals
st_hospitals2019 = pos2019[(pos2019['PRVDR_CTGRY_SBTYP_CD'] == '1.0') &
↪  (pos2019['PRVDR_CTGRY_CD'] == '01')]

print(st_hospitals2019.head())
print(st_hospitals2019.tail())
st_hospitals2019.shape
```

```
  PRVDR_CTGRY_SBTYP_CD PRVDR_CTGRY_CD CHOW_CNT     CHOW_DT   CITY_NAME  \
0                  1.0             01        1         NaN      DOTHAN
1                  1.0             01        0         NaN  BRIDGEPORT
2                  1.0             01        0         NaN        BOAZ
3                  1.0             01        1  20100701.0    FLORENCE
4                  1.0             01        0         NaN         OPP


                              FAC_NAME PRVDR_NUM  PGM_TRMNTN_CD  \
0        SOUTHEAST ALABAMA MEDICAL CENTER    010001              0
1                 NORTH JACKSON HOSPITAL    010004              1
2  MARSHALL MEDICAL CENTERS SOUTH CAMPUS    010005              0
3           NORTH ALABAMA MEDICAL CENTER    010006              0
4               MIZELL MEMORIAL HOSPITAL    010007              0
```

```
    TRMNTN_EXPRTN_DT     ZIP_CD
0               NaN   36301.0
1        20010831.0   35740.0
2               NaN   35957.0
3               NaN   35630.0
4               NaN   36467.0
        PRVDR_CTGRY_SBTYP_CD PRVDR_CTGRY_CD  CHOW_CNT  CHOW_DT     CITY_NAME
    \
139514                  1.0             01         0      NaN      CROCKETT
139515                  1.0             01         0      NaN       EL PASO
139516                  1.0             01         0      NaN  PFLUGERVILLE
139517                  1.0             01         0      NaN       HOUSTON
139518                  1.0             01         0      NaN   SAN ANTONIO

                                               FAC_NAME PRVDR_NUM  \
139514                          CROCKETT MEDICAL CENTER    670126
139515                           EL PASO LTAC HOSPTIAL    670127
139516  BAYLOR SCOTT & WHITE MEDICAL CENTER   PFLUGERV...    670128
139517                            THE HEIGHTS HOSPITAL    670129
139518                            SOUTHCROSS HOSPITAL    670130

        PGM_TRMNTN_CD  TRMNTN_EXPRTN_DT     ZIP_CD
139514              7        20190131.0   75835.0
139515              7        20190630.0   79902.0
139516              0               NaN   78660.0
139517              0               NaN   77008.0
139518              0               NaN   78222.0

(7303, 10)
```

Adding the 2019 column

```python
st_hospitals2019.loc[:, 'YEAR'] = 2019

print(st_hospitals2019.head(5))
```

```
   PRVDR_CTGRY_SBTYP_CD PRVDR_CTGRY_CD  CHOW_CNT     CHOW_DT   CITY_NAME  \
0                  1.0             01         1         NaN      DOTHAN
1                  1.0             01         0         NaN  BRIDGEPORT
2                  1.0             01         0         NaN        BOAZ
3                  1.0             01         1  20100701.0    FLORENCE
4                  1.0             01         0         NaN         OPP
```

```
                               FAC_NAME PRVDR_NUM  PGM_TRMNTN_CD  \
0         SOUTHEAST ALABAMA MEDICAL CENTER    010001              0
1                   NORTH JACKSON HOSPITAL    010004              1
2  MARSHALL MEDICAL CENTERS SOUTH CAMPUS    010005              0
3             NORTH ALABAMA MEDICAL CENTER    010006              0
4                MIZELL MEMORIAL HOSPITAL    010007              0


   TRMNTN_EXPRTN_DT    ZIP_CD  YEAR
0              NaN   36301.0  2019
1       20010831.0   35740.0  2019
2              NaN   35957.0  2019
3              NaN   35630.0  2019
4              NaN   36467.0  2019
```

/var/folders/j5/rv933w1173s068kbzq0kp2xh0000gn/T/ipykernel_20187/1564410207.py:1:
SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation:
https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus
  st_hospitals2019.loc[:, 'YEAR'] = 2019

Appending them together

```
all_years_data = pd.concat([st_hospitals2016, st_hospitals2017,
 ↪  st_hospitals2018, st_hospitals2019], ignore_index=True)

print(all_years_data.head())
```

```
   PRVDR_CTGRY_SBTYP_CD  PRVDR_CTGRY_CD  CHOW_CNT      CHOW_DT   CITY_NAME  \
0                   1.0              01         1          NaN      DOTHAN
1                   1.0              01         0          NaN  BRIDGEPORT
2                   1.0              01         0          NaN        BOAZ
3                   1.0              01         1   20100701.0    FLORENCE
4                   1.0              01         0          NaN         OPP


                            FAC_NAME PRVDR_NUM  PGM_TRMNTN_CD  \
0  SOUTHEAST ALABAMA MEDICAL CENTER    010001              0
1            NORTH JACKSON HOSPITAL    010004              1
2      MARSHALL MEDICAL CENTER SOUTH    010005              0
3    ELIZA COFFEE MEMORIAL HOSPITAL    010006              0
```

```
4            MIZELL MEMORIAL HOSPITAL      010007                    0

   TRMNTN_EXPRTN_DT    ZIP_CD  YEAR
0              NaN  36301.0  2016
1       20010831.0  35740.0  2016
2              NaN  35957.0  2016
3              NaN  35631.0  2016
4              NaN  36467.0  2016
```

4. a.

::: {.cell execution_count=18} {.python .cell-code} #we will be plotting all
unique hospitals :::

b.

Identify hospital closures in POS file (15 pts) (*)

1.

```python
# List to store suspected closures
suspected_closures = []

# Filter for hospitals that were active in 2016
active_2016 = all_years_data[(all_years_data['YEAR'] == 2016) &
 ↪  (all_years_data['PGM_TRMNTN_CD'] == 0)]

# Loop through each hospital active in 2016
for _, hospital in active_2016.iterrows():
    facility_name = hospital['FAC_NAME']
    zip_code = hospital['ZIP_CD']

    # Check if the hospital is closed in 2019 with specific closure codes (1,
     ↪  2, 3, or 4)
    closed_2019 = all_years_data[
        (all_years_data['FAC_NAME'] == facility_name) &
        (all_years_data['ZIP_CD'] == zip_code) &
        (all_years_data['YEAR'] == 2019) &
        (all_years_data['PGM_TRMNTN_CD'].isin([1, 2, 3, 4]))
    ]

    # If the hospital is closed in 2019, add it to the suspected closures
    if not closed_2019.empty:
```

```python
        suspected_closures.append({
            'FAC_NAME': facility_name,
            'ZIP_CD': zip_code,
            'year_of_closure': 2019
        })

# Convert to DataFrame and remove duplicates to ensure unique hospitals
suspected_closures_df =
↪  pd.DataFrame(suspected_closures).drop_duplicates(subset=['FAC_NAME',
↪  'ZIP_CD'])

# Display the count of unique suspected closures
num_unique_suspected_closures = len(suspected_closures_df)
print(f"Number of unique hospitals suspected to have closed by 2019:
↪  {num_unique_suspected_closures}")
print(suspected_closures_df)
```

```
Number of unique hospitals suspected to have closed by 2019: 145
                               FAC_NAME    ZIP_CD  year_of_closure
0                GEORGIANA MEDICAL CENTER  36033.0             2019
1                      RMC JACKSONVILLE  36265.0             2019
2                         UAB HIGHLANDS  35205.0             2019
3               ATMORE COMMUNITY HOSPITAL  36502.0             2019
4       NORTH ALABAMA SPECIALITY HOSPITAL  35611.0             2019
..                                   ...      ...              ...
140            WALNUT HILL MEDICAL CENTER  75231.0             2019
141  LITTLE RIVER HEALTHCARE CAMERON HOSPITAL  76520.0             2019
142     BAY AREA REGIONAL MEDICAL CENTER, LLC  77598.0             2019
143         BAYLOR EMERGENCY MEDICAL CENTER  75087.0             2019
144         TEXAS GENERAL HOSPITAL- VZRMC LP  75140.0             2019

[145 rows x 3 columns]
```

2.

```python
print(suspected_closures_df.head(10))
```

```
                               FAC_NAME    ZIP_CD  year_of_closure
0                GEORGIANA MEDICAL CENTER  36033.0             2019
1                      RMC JACKSONVILLE  36265.0             2019
2                         UAB HIGHLANDS  35205.0             2019
3               ATMORE COMMUNITY HOSPITAL  36502.0             2019
```

```
4  NORTH ALABAMA SPECIALITY HOSPITAL  35611.0              2019
5               ABRAZO MARYVALE CAMPUS  85031.0              2019
6                      GILBERT HOSPITAL  85295.0              2019
7  FLORENCE HOSPITAL AT ANTHEM, LLC  85132.0              2019
8    PACIFIC ALLIANCE MEDICAL CENTER  90012.0              2019
9                     O'CONNOR HOSPITAL  95128.0              2019
```

3. a.

```python
# Lists to store final classifications
properly_closed_hospitals = []
merge_hospitals = []

# Iterate over each hospital in open_2016_closed_2019_df
for _, hospital in suspected_closures_df.iterrows():
    facility_name = hospital['FAC_NAME']
    zip_code = hospital['ZIP_CD']

    # Filter for this hospital's data in all_years_data for the years 2017
    ↪   and 2018
    hospital_data = all_years_data[
        (all_years_data['FAC_NAME'] == facility_name) &
        (all_years_data['ZIP_CD'] == zip_code) &
        (all_years_data['YEAR'].isin([2017, 2018]))
    ]

    # Debug print statements to understand the data for this hospital
    print(f"Processing hospital: {facility_name} in ZIP: {zip_code}")
    print("Hospital data across years:\n", hospital_data[['YEAR',
    ↪   'PGM_TRMNTN_CD']])

    # Determine if it's a proper closure or suspected merger
    if not hospital_data.empty:
        # Check for 2018 status first
        year_2018_data = hospital_data[hospital_data['YEAR'] == 2018]

        if not year_2018_data.empty:
            termination_code_2018 = year_2018_data['PGM_TRMNTN_CD'].iloc[0]
            print(f"2018 Termination Code: {termination_code_2018}")

            if termination_code_2018 != 0:
                # Properly closed if not active in 2018
                properly_closed_hospitals.append({
```

```python
                    'FAC_NAME': facility_name,
                    'ZIP_CD': zip_code
                })
                print("Classified as properly closed.\n")
            else:
                # If active in 2018, check 2017
                year_2017_data = hospital_data[hospital_data['YEAR'] == 2017]

                if not year_2017_data.empty:
                    termination_code_2017 =
↪    year_2017_data['PGM_TRMNTN_CD'].iloc[0]
                    print(f"2017 Termination Code: {termination_code_2017}")

                    if termination_code_2017 != 0:
                        # Suspected merger if not active in 2017
                        merge_hospitals.append({
                            'FAC_NAME': facility_name,
                            'ZIP_CD': zip_code
                        })
                        print("Classified as suspected merger.\n")
                    else:
                        print("Remained active in 2017; not classified as a
                         ↪  merger.\n")

# Convert results to DataFrames for inspection
properly_closed_hospitals_df = pd.DataFrame(properly_closed_hospitals)
merge_hospitals_df = pd.DataFrame(merge_hospitals)

# Display results
print("Properly closed hospitals:")
print(properly_closed_hospitals_df)

print("\nHospitals suspected of merger:")
print(merge_hospitals_df)

# Number of properly closed hospitals
num_properly_closed = properly_closed_hospitals_df.shape[0]
print(f"Number of properly closed hospitals: {num_properly_closed}")

# Number of suspected mergers
num_suspected_mergers = merge_hospitals_df.shape[0]
print(f"Number of suspected mergers: {num_suspected_mergers}")
```

```
Processing hospital: GEORGIANA MEDICAL CENTER in ZIP: 36033.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
7284    2017              0
14544   2018              0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: RMC JACKSONVILLE in ZIP: 36265.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
7365    2017              0
14625   2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: UAB HIGHLANDS in ZIP: 35205.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
7314    2017              1
7382    2017              0
14574   2018              1
14642   2018              0
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: ATMORE COMMUNITY HOSPITAL in ZIP: 36502.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
7289    2017              1
7384    2017              0
14549   2018              1
14644   2018              0
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: NORTH ALABAMA SPECIALITY HOSPITAL in ZIP: 35611.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
7387    2017              0
14647   2018              1
2018 Termination Code: 1
```

Classified as properly closed.

Processing hospital: ABRAZO MARYVALE CAMPUS in ZIP: 85031.0
Hospital data across years:
```
        YEAR   PGM_TRMNTN_CD
7413    2017               1
14673   2018               1
```
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: GILBERT HOSPITAL in ZIP: 85295.0
Hospital data across years:
```
        YEAR   PGM_TRMNTN_CD
7512    2017               0
14772   2018               1
```
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: FLORENCE HOSPITAL AT ANTHEM, LLC in ZIP: 85132.0
Hospital data across years:
```
        YEAR   PGM_TRMNTN_CD
7524    2017               0
14784   2018               1
```
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: PACIFIC ALLIANCE MEDICAL CENTER in ZIP: 90012.0
Hospital data across years:
```
        YEAR   PGM_TRMNTN_CD
7663    2017               0
14925   2018               0
```
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.

Processing hospital: O'CONNOR HOSPITAL in ZIP: 95128.0
Hospital data across years:
```
        YEAR   PGM_TRMNTN_CD
7777    2017               0
15039   2018               0
```
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.

```
Processing hospital: ADVENTIST MEDICAL CENTER - CENTRAL VALLEY in ZIP:
93230.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
7809    2017               1
15071   2018               1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: UKIAH VALLEY MEDICAL CENTER in ZIP: 95482.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
7887    2017               0
8009    2017               1
15271   2018               1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: TULARE REGIONAL MEDICAL CENTER in ZIP: 93274.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
7926    2017               0
15188   2018               1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: FALLBROOK HOSPITAL DISTRICT in ZIP: 92028.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
7983    2017               1
15245   2018               1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: MOTION PICTURE & TELEVISION HOSPITAL in ZIP: 91364.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
8057    2017               0
15319   2018               1
2018 Termination Code: 1
Classified as properly closed.
```

```
Processing hospital: LAKEWOOD REGIONAL MEDICAL CENTER in ZIP: 90712.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
7771   2017              1
8078   2017              0
15033  2018              1
15340  2018              0
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: COMMUNITY HOSPITAL OF LONG BEACH in ZIP: 90804.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
8194   2017              0
15456  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: MONTEREY PARK HOSPITAL in ZIP: 91754.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
8087   2017              1
8203   2017              0
15349  2018              1
15465  2018              0
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: GARFIELD MEDICAL CENTER in ZIP: 91754.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
7980   2017              1
8204   2017              0
15242  2018              1
15466  2018              0
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: GREATER EL MONTE COMMUNITY HOSPITAL in ZIP: 91733.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
8102   2017              1
8205   2017              0
```

```
15364  2018              1
15467  2018              0
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: CENTINELA HOSPITAL MEDICAL CENTER in ZIP: 90301.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
7844   2017              1
8206   2017              0
15106  2018              1
15468  2018              0
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: MENLO PARK SURGICAL HOSPITAL in ZIP: 94025.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
8174   2017              1
8221   2017              0
15436  2018              1
15483  2018              0
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: SHERMAN OAKS HOSPITAL in ZIP: 91403.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
7742   2017              1
8222   2017              0
15004  2018              1
15484  2018              0
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: ALVARADO HOSPITAL MEDICAL CENTER in ZIP: 92120.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
8079   2017              1
8224   2017              0
15341  2018              1
15486  2018              0
2018 Termination Code: 1
```

Classified as properly closed.

Processing hospital: MONTCLAIR HOSPITAL MEDICAL CENTER in ZIP: 91763.0
Hospital data across years:
```
        YEAR  PGM_TRMNTN_CD
8080    2017              4
8225    2017              0
15342   2018              4
15487   2018              0
```
2018 Termination Code: 4
Classified as properly closed.

Processing hospital: SHASTA REGIONAL MEDICAL CENTER in ZIP: 96001.0
Hospital data across years:
```
        YEAR  PGM_TRMNTN_CD
8200    2017              1
8231    2017              0
15462   2018              1
15493   2018              0
```
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: COAST PLAZA HOSPITAL in ZIP: 90650.0
Hospital data across years:
```
        YEAR  PGM_TRMNTN_CD
7826    2017              1
8238    2017              0
15088   2018              1
15500   2018              0
```
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: SAN LEANDRO HOSPITAL in ZIP: 94578.0
Hospital data across years:
```
        YEAR  PGM_TRMNTN_CD
7860    2017              1
8240    2017              0
15122   2018              1
15502   2018              0
```
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: SONOMA WEST MEDICAL CENTER in ZIP: 95472.0

Hospital data across years:
```
       YEAR  PGM_TRMNTN_CD
7945   2017              1
8247   2017              0
15207  2018              1
```
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: MILFORD HOSPITAL, INC in ZIP: 6460.0
Hospital data across years:
```
       YEAR  PGM_TRMNTN_CD
8376   2017              0
15642  2018              0
```
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.

Processing hospital: WEST PALM HOSPITAL in ZIP: 33407.0
Hospital data across years:
```
       YEAR  PGM_TRMNTN_CD
8611   2017              0
15877  2018              1
```
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: TAMPA COMMUNITY HOSPITAL in ZIP: 33615.0
Hospital data across years:
```
      YEAR  PGM_TRMNTN_CD
8628  2017              0
```
Processing hospital: LANDMARK HOSPITAL OF SOUTHWEST FLORIDA in ZIP: 34108.0
Hospital data across years:
```
       YEAR  PGM_TRMNTN_CD
8692   2017              1
15958  2018              1
```
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: MIAMI MEDICAL CENTER, THE in ZIP: 33126.0
Hospital data across years:
```
       YEAR  PGM_TRMNTN_CD
8693   2017              0
15959  2018              1
```
2018 Termination Code: 1

Classified as properly closed.

Processing hospital: HUTCHESON MEDICAL CENTER in ZIP: 30742.0
Hospital data across years:
```
       YEAR  PGM_TRMNTN_CD
8698   2017              0
15964  2018              0
```
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.

Processing hospital: TRINITY HOSPITAL OF AUGUSTA in ZIP: 30904.0
Hospital data across years:
```
       YEAR  PGM_TRMNTN_CD
8729   2017              0
15995  2018              1
```
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: EMORY-ADVENTIST HOSPITAL in ZIP: 30080.0
Hospital data across years:
```
       YEAR  PGM_TRMNTN_CD
8846   2017              0
16112  2018              0
```
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.

Processing hospital: CHESTATEE REGIONAL HOSPITAL in ZIP: 30533.0
Hospital data across years:
```
       YEAR  PGM_TRMNTN_CD
8850   2017              0
16116  2018              0
```
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.

Processing hospital: METROSOUTH MEDICAL CENTER in ZIP: 60406.0
Hospital data across years:
```
       YEAR  PGM_TRMNTN_CD
9083   2017              0
16350  2018              0
```
2018 Termination Code: 0

2017 Termination Code: 0
Remained active in 2017; not classified as a merger.

Processing hospital: THE HEART HOSPITAL AT DEACONESS GATEWAY LLC in ZIP: 47630.0
Hospital data across years:
```
        YEAR   PGM_TRMNTN_CD
9388    2017              0
16655   2018              0
```
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.

Processing hospital: KENTUCKIANA MEDICAL CENTER LLC in ZIP: 47129.0
Hospital data across years:
```
        YEAR   PGM_TRMNTN_CD
9389    2017              0
16656   2018              0
```
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.

Processing hospital: FRANCISCAN HEALTH CARMEL in ZIP: 46032.0
Hospital data across years:
```
        YEAR   PGM_TRMNTN_CD
9395    2017              0
16662   2018              0
```
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.

Processing hospital: MONROE HOSPITAL in ZIP: 47403.0
Hospital data across years:
```
        YEAR   PGM_TRMNTN_CD
9377    2017              1
9396    2017              0
16644   2018              1
16663   2018              0
```
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: MERCY HOSPITAL-FORT SCOTT in ZIP: 66701.0
Hospital data across years:

```
        YEAR  PGM_TRMNTN_CD
9583   2017              0
16850  2018              0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: COFFEY COUNTY HOSPITAL in ZIP: 66839.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
9614   2017              0
16881  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: UNIVERSITY OF LOUISVILLE HOSPITAL in ZIP: 40202.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
9803   2017              1
9807   2017              0
17070  2018              1
17074  2018              0
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: CONTINUECARE HOSPITAL AT BAPTIST HEALTH PADUCAH in ZIP:
42003.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
9819   2017              4
17086  2018              4
2018 Termination Code: 4
Classified as properly closed.


Processing hospital: LAKEVIEW REGIONAL MEDICAL CENTER in ZIP: 70433.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
9944   2017              1
17211  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: VILLA FELICIANA MEDICAL COMPLEX in ZIP: 70748.0
```

```
Hospital data across years:
        YEAR    PGM_TRMNTN_CD
9964    2017                0
17231   2018                1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: WOMEN'S AND CHILDREN'S HOSPITAL in ZIP: 70508.0
Hospital data across years:
        YEAR    PGM_TRMNTN_CD
9961    2017                1
9970    2017                0
17228   2018                1
17237   2018                0
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: SABINE MEDICAL CENTER in ZIP: 71449.0
Hospital data across years:
        YEAR    PGM_TRMNTN_CD
9857    2017                1
9983    2017                0
17124   2018                1
17250   2018                0
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: WILLIS KNIGHTON BOSSIER HEALTH CENTER in ZIP: 71111.0
Hospital data across years:
        YEAR    PGM_TRMNTN_CD
10001   2017                0
17268   2018                1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: ST ELIZABETH HOSPITAL in ZIP: 70737.0
Hospital data across years:
        YEAR    PGM_TRMNTN_CD
10007   2017                0
17274   2018                0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.
```

```
Processing hospital: P & S SURGICAL HOSPITAL in ZIP: 71201.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
10010  2017              0
17277  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: LOUISIANA HEART HOSPITAL in ZIP: 70445.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
10014  2017              1
17281  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: LAFAYETTE GENERAL SURGICAL HOSPITAL in ZIP: 70503.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
10032  2017              0
17299  2018              0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: DOCTORS HOSPITAL AT DEER CREEK L L C in ZIP: 71446.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
10042  2017              0
17309  2018              0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: SOUTH CAMERON MEMORIAL HOSPITAL in ZIP: 70631.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
9849   2017              1
10049  2017              0
17116  2018              1
17316  2018              0
2018 Termination Code: 1
```

Classified as properly closed.

Processing hospital: BAYSTATE MARY LANE HOSPITAL in ZIP: 1082.0
Hospital data across years:
```
        YEAR   PGM_TRMNTN_CD
10199   2017               1
17466   2018               1
```
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: CLINTON HOSPITAL ASSOCIATION in ZIP: 1510.0
Hospital data across years:
```
        YEAR   PGM_TRMNTN_CD
10205   2017               0
17472   2018               1
```
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: METROWEST MEDICAL CENTER in ZIP: 1701.0
Hospital data across years:
```
        YEAR   PGM_TRMNTN_CD
10233   2017               1
10277   2017               0
17500   2018               1
17544   2018               0
```
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: ST VINCENT HOSPITAL in ZIP: 1608.0
Hospital data across years:
```
        YEAR   PGM_TRMNTN_CD
10183   2017               1
10278   2017               0
17450   2018               1
17545   2018               0
```
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: NANTUCKET COTTAGE HOSPITAL in ZIP: 2554.0
Hospital data across years:
```
        YEAR   PGM_TRMNTN_CD
10226   2017               1
10279   2017               0
```

```
17493  2018              1
17546  2018              0
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: UNITY HOSPITAL in ZIP: 55432.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
10623  2017              1
17890  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: PHILLIPS EYE INSTITUTE in ZIP: 55404.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
10671  2017              0
17938  2018              0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: NORTH OAK REGIONAL MEDICAL CENTER in ZIP: 38668.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
10790  2017              0
18057  2018              0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: ALLIANCE LAIRD HOSPITAL in ZIP: 39365.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
10821  2017              0
18088  2018              0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: TWIN RIVERS REGIONAL MEDICAL CENTER in ZIP: 63857.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
```

```
10845   2017                0
18112   2018                1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: SOUTHEAST HEALTH CENTER OF RIPLEY COUNTY in ZIP: 63935.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
10900   2017                0
18167   2018                0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: ST ALEXIUS HOSPITAL in ZIP: 63118.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
10919   2017                1
10995   2017                0
18186   2018                1
18262   2018                0
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: BLACK RIVER COMMUNITY MEDICAL CENTER in ZIP: 63901.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
11010   2017                0
18277   2018                0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: CHI HLTH CREIGHTON UNIVERSITY MED CTR-BERGAN MERCY in
ZIP: 68131.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
11105   2017                0
18372   2018                1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: SIERRA SURGERY HOSPITAL in ZIP: 89703.0
```

```
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
11237   2017              0
18504   2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: EASTERN NEW MEXICO MEDICAL CENTER in ZIP: 88201.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
11380   2017              0
11382   2017              1
18648   2018              0
18650   2018              1
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: LAKESIDE MEMORIAL HOSPITAL in ZIP: 14420.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
11467   2017              0
18736   2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: ST CLARE'S HOSPITAL in ZIP: 12304.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
11490   2017              1
18759   2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: ST FRANCIS HOSPITAL in ZIP: 12601.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
11491   2017              1
18760   2018              1
2018 Termination Code: 1
Classified as properly closed.
```

```
Processing hospital: COMMUNITY-GENERAL HOSPITAL OF GREATER SYRACUSE in ZIP:
13215.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
11553   2017              0
18822   2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: ALBANY MEDICAL CENTER / SOUTH CLINICAL CAMPUS in ZIP:
12208.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
11579   2017              1
18848   2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: SVCMC-ST VINCENT'S CTRS  NY & WEST BRANCHES in ZIP:
10011.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
11653   2017              0
18922   2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: LUTHERAN MEDICAL CENTER in ZIP: 11220.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
11659   2017              0
18928   2018              0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: SOUTHAMPTON HOSPITAL in ZIP: 11968.0
Hospital data across years:
 Empty DataFrame
Columns: [YEAR, PGM_TRMNTN_CD]
Index: []
Processing hospital: ROCKEFELLER UNIVERSITY HOSPITAL in ZIP: 10021.0
Hospital data across years:
```

```
        YEAR  PGM_TRMNTN_CD
11699  2017              0
18968  2018              0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: NORTH GENERAL HOSPITAL in ZIP: 10035.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
11701  2017              0
18970  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: TRI-TOWN REGIONAL HEALTHCARE in ZIP: 13838.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
11718  2017              0
18987  2018              0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: SANDHILLS REGIONAL MEDICAL CENTER in ZIP: 28345.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
11804  2017              0
19073  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: CENTRAL REGIONAL HOSPITAL in ZIP: 27509.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
11831  2017              0
19100  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: CAROLINAS  CONTINUECARE HOSPITAL AT UNIVERSITY in ZIP:
28217.0
Hospital data across years:
```

```
        YEAR  PGM_TRMNTN_CD
11876  2017              1
19145  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: SUMMA BARBERTON HOSPITAL in ZIP: 44203.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
11953  2017              0
19222  2018              0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: GOOD SAMARITAN HOSPITAL in ZIP: 45406.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
11983  2017              0
19252  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: FLOWER HOSPITAL in ZIP: 43560.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
12004  2017              0
19273  2018              0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: EAST OHIO REGIONAL HOSPITAL in ZIP: 43935.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
12010  2017              0
19279  2018              0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: AFFINITY MEDICAL CENTER in ZIP: 44646.0
Hospital data across years:
```

```
         YEAR   PGM_TRMNTN_CD
12074  2017                0
19343  2018                1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: BELMONT COMMUNITY HOSPITAL in ZIP: 43906.0
Hospital data across years:
         YEAR   PGM_TRMNTN_CD
12076  2017                0
19345  2018                0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: UPPER VALLEY MEDICAL CENTER in ZIP: 45373.0
Hospital data across years:
         YEAR   PGM_TRMNTN_CD
12093  2017                0
12100  2017                1
19362  2018                0
19369  2018                1
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: MERCY HOSPITAL EL RENO in ZIP: 73036.0
Hospital data across years:
         YEAR   PGM_TRMNTN_CD
12192  2017                0
19461  2018                0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: ALLIANCEHEALTH DEACONESS in ZIP: 73112.0
Hospital data across years:
         YEAR   PGM_TRMNTN_CD
12210  2017                0
19479  2018                0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.
```

Processing hospital: CRAIG GENERAL HOSPITAL in ZIP: 74301.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
12237   2017   1
19506   2018   1
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: LATIMER COUNTY GENERAL HOSPITAL in ZIP: 74578.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
12240   2017   0
19509   2018   0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.

Processing hospital: SOUTHWESTERN MEDICAL CENTER in ZIP: 73505.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
12259   2017   0
12323   2017   4
19528   2018   0
19592   2018   4
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.

Processing hospital: PAULS VALLEY HOSPITAL AUTHORITY in ZIP: 73075.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
12293   2017   0
19562   2018   0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.

Processing hospital: LINDSAY MUNICIPAL HOSPITAL in ZIP: 73052.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
12223   2017   1
12345   2017   0

```
19492  2018              1
19614  2018              0
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: PINNACLE SPECIALTY HOSPITAL in ZIP: 74137.0
Hospital data across years:
       YEAR  PGM_TRMNTN_CD
12362  2017              0
19631  2018              3
2018 Termination Code: 3
Classified as properly closed.


Processing hospital: BRADFORD REGIONAL MEDICAL CENTER in ZIP: 16701.0
Hospital data across years:
       YEAR  PGM_TRMNTN_CD
12558  2017              0
19828  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: LEHIGH VALLEY HOSPITAL in ZIP: 18105.0
Hospital data across years:
       YEAR  PGM_TRMNTN_CD
12571  2017              0
12670  2017              1
19841  2018              0
19940  2018              1
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: LEHIGH VALLEY HOSPITAL - MUHLENBERG in ZIP: 18017.0
Hospital data across years:
       YEAR  PGM_TRMNTN_CD
12672  2017              0
19942  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: HAHNEMANN UNIVERSITY HOSPITAL in ZIP: 19102.0
Hospital data across years:
       YEAR  PGM_TRMNTN_CD
```

```
12497   2017              4
12695   2017              0
19767   2018              4
19965   2018              0
2018 Termination Code: 4
Classified as properly closed.


Processing hospital: BARIX CLINICS OF PENNSYLVANIA in ZIP: 19047.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
12707   2017              0
19977   2018              0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: ROXBOROUGH MEMORIAL HOSPITAL in ZIP: 19128.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
12572   2017              4
12709   2017              0
19842   2018              4
19979   2018              0
2018 Termination Code: 4
Classified as properly closed.


Processing hospital: SANTA ROSA CLINIC in ZIP: 785.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
12744   2017              4
20015   2018              4
2018 Termination Code: 4
Classified as properly closed.


Processing hospital: LAFAYETTE HOSPITAL in ZIP: 714.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
12760   2017              1
20031   2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: HOSPITAL SAN GERARDO in ZIP: 928.0
```

Hospital data across years:
```
         YEAR   PGM_TRMNTN_CD
12798   2017               1
20069   2018               1
```
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: MEMORIAL HOSPITAL OF RHODE ISLAND in ZIP: 2860.0
Hospital data across years:
```
         YEAR   PGM_TRMNTN_CD
12809   2017               0
20082   2018               1
```
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: MARY BLACK HEALTH SYSTEM SPARTANBURG in ZIP: 29307.0
Hospital data across years:
```
         YEAR   PGM_TRMNTN_CD
12888   2017               0
20161   2018               0
```
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.

Processing hospital: PHS INDIAN HOSPITAL AT RAPID CITY - SIOUX SAN in ZIP:
57702.0
Hospital data across years:
```
         YEAR   PGM_TRMNTN_CD
12971   2017               0
20244   2018               0
```
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.

Processing hospital: DAKOTA PLAINS SURGICAL CENTER LLP in ZIP: 57401.0
Hospital data across years:
```
         YEAR   PGM_TRMNTN_CD
12981   2017               1
20254   2018               1
```
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: LEWIS AND CLARK SPECIALTY HOSPITAL in ZIP: 57078.0

```
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
12985  2017              1
20258  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: LAKEWAY REGIONAL HOSPITAL in ZIP: 37814.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
13041  2017              0
20314  2018              0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: MCKENZIE REGIONAL HOSPITAL in ZIP: 38201.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
13118  2017              0
20391  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: TENNOVA HEALTHCARE-REGIONAL JACKSON in ZIP: 38305.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
13125  2017              0
20398  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: CHILDREN'S HOSPITAL -SCOTT & WHITE HEALTHCARE in ZIP:
76502.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
13169  2017              1
20442  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: HAMLIN MEMORIAL HOSPITAL in ZIP: 79520.0
Hospital data across years:
```

```
        YEAR  PGM_TRMNTN_CD
13348  2017              0
20621  2018              0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: BAYLOR SCOTT & WHITE MEDICAL CENTER GARLAND in ZIP:
75042.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
13369  2017              0
20642  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: STAMFORD MEMORIAL HOSPITAL in ZIP: 79553.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
13385  2017              0
20658  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: CARE REGIONAL MEDICAL CENTER in ZIP: 78336.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
13543  2017              0
20816  2018              0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: EAST TEXAS MEDICAL CENTER TRINITY in ZIP: 75862.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
13659  2017              1
20932  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: HAMILTON GENERAL HOSPITAL in ZIP: 76531.0
Hospital data across years:
```

```
        YEAR   PGM_TRMNTN_CD
13411  2017                1
13664  2017                0
20684  2018                1
20937  2018                0
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: UT SOUTHWESTERN UNIVERSITY HOSPITAL-ZALE LIPSHY in ZIP:
75390.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
13675  2017                0
20948  2018                0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: EL PASO SPECIALTY HOSPITAL in ZIP: 79902.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
13749  2017                0
21022  2018                0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: PINE CREEK MEDICAL CENTER LLP in ZIP: 75235.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
13798  2017                0
21071  2018                0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: WALLA WALLA GENERAL HOSPITAL in ZIP: 99362.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
14028  2017                0
21301  2018                1
2018 Termination Code: 1
Classified as properly closed.
```

```
Processing hospital: OHIO VALLEY MEDICAL CENTER in ZIP: 26003.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
14142  2017              0
21416  2018              0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.

Processing hospital: COLUMBIA CENTER in ZIP: 53097.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
14337  2017              0
21611  2018              1
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: WHEATON FRANCISCAN HEALTHCARE FRANKLIN in ZIP: 53132.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
14346  2017              0
21620  2018              1
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: MOUNTAIN VIEW REGIONAL HOSPITAL in ZIP: 82605.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
14380  2017              0
21654  2018              1
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: UNIVERSITY GENERAL HOSPITAL in ZIP: 77054.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
14405  2017              1
21679  2018              1
2018 Termination Code: 1
Classified as properly closed.

Processing hospital: NORTH CYPRESS MEDICAL CENTER in ZIP: 77429.0
```

```
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
14410  2017              0
21684  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: LAKEWAY REGIONAL MEDICAL CENTER, LLC in ZIP: 78734.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
14462  2017              1
21736  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: BAYLOR SCOTT & WHITE EMERGENCY MEDICAL CENTER AT C in
ZIP: 78613.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
14469  2017              0
21743  2018              0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: NIX COMMUNITY GENERAL HOSPITAL in ZIP: 78017.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
14471  2017              1
21745  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: WALNUT HILL MEDICAL CENTER in ZIP: 75231.0
Hospital data across years:
        YEAR  PGM_TRMNTN_CD
14474  2017              1
21748  2018              1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: LITTLE RIVER HEALTHCARE CAMERON HOSPITAL in ZIP: 76520.0
Hospital data across years:
```

```
        YEAR   PGM_TRMNTN_CD
14476  2017               0
21750  2018               0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: BAY AREA REGIONAL MEDICAL CENTER, LLC in ZIP: 77598.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
14478  2017               0
21752  2018               1
2018 Termination Code: 1
Classified as properly closed.


Processing hospital: BAYLOR EMERGENCY MEDICAL CENTER in ZIP: 75087.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
14479  2017               0
21753  2018               0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Processing hospital: TEXAS GENERAL HOSPITAL- VZRMC LP in ZIP: 75140.0
Hospital data across years:
        YEAR   PGM_TRMNTN_CD
14499  2017               0
21773  2018               0
2018 Termination Code: 0
2017 Termination Code: 0
Remained active in 2017; not classified as a merger.


Properly closed hospitals:
                                FAC_NAME    ZIP_CD
0                       RMC JACKSONVILLE   36265.0
1                          UAB HIGHLANDS   35205.0
2              ATMORE COMMUNITY HOSPITAL   36502.0
3     NORTH ALABAMA SPECIALITY HOSPITAL   35611.0
4                  ABRAZO MARYVALE CAMPUS   85031.0
..                                   ...       ...
89          NORTH CYPRESS MEDICAL CENTER   77429.0
90   LAKEWAY REGIONAL MEDICAL CENTER, LLC  78734.0
```

```
91              NIX COMMUNITY GENERAL HOSPITAL  78017.0
92                 WALNUT HILL MEDICAL CENTER  75231.0
93  BAY AREA REGIONAL MEDICAL CENTER, LLC  77598.0

[94 rows x 2 columns]

Hospitals suspected of merger:
Empty DataFrame
Columns: []
Index: []
Number of properly closed hospitals: 94
Number of suspected mergers: 0
```

b.
c.

Download Census zip code shapefile (10 pt)

1. a.
    b.
2.

Calculate zip code's distance to the nearest hospital (20 pts) (*)

1.
2.
3.
4. a.
    b.
5. a.
    b.
    c.

Effects of closures on access in Texas (15 pts)

1.
2.
3.
4.

Reflecting on the exercise (10 pts)