

import pandas as pd
import numpy as np

df1 = pd.read_excel(r"C:\Users\Anmol\OneDrive\Desktop\New Folder\Book1.xlsx")
df1 = df1.drop("Unnamed: 0", axis=1)

Out[133]:
Unnamed: 1 Unnamed: 2 Unnamed: 3 Unnamed: 4 Unnamed: 5 Unnamed: 6 Unnamed: 7 Unnamed: 8 Unnamed: 9 Unnamed: 10 Unnamed: 11
0 Physician Level Data NaN NaN NaN NaN NaN NaN NaN NaN NaN NaN
1 NaN NaN NaN NaN NaN NaN NaN NaN NaN NaN NaN
2 NaN NaN NaN Fluoride Prescriptions (Sales) NaN NaN NaN NaN NaN Mercapto Prescriptions (Sales) NaN
3 Physician ID Physician Name Specialty Jan 23 Feb 23 Mar 23 Apr 23 May 23 Jun 23 Jan 23 Feb 23
4 51019201 Rahul Naik SURGICAL ONCOLOGY 12 13 31 28 28 48 1 24
15993 77676681 Rajeev Balmiki PATHOLOGY, HEMATOLOGY 11 15 16 19 28 37 25 9
15994 54257321 GREGORY OTTERSON RADIOLOGY ONCOLOGY 4 21 28 28 38 50 7 18
15995 71747190 MARC LORIAUX HEMATOLOGY 5 12 20 21 37 41 7 9
15996 74951364 YOUNG KWAK - 10 13 18 15 26 39 8 6
15997 40665907 SANDRA VICTOR HEMATOLOGY 2 13 32 23 36 40 25 2
15998 rows x 15 columns

In [134]:
df1 = df1.drop(df1.index[:2])
df1

Out[134]:
Unnamed: 1 Unnamed: 2 Unnamed: 3 Unnamed: 4 Unnamed: 5 Unnamed: 6 Unnamed: 7 Unnamed: 8 Unnamed: 9 Unnamed: 10 Unnamed: 11
2 NaN NaN NaN Fluoride Prescriptions (Sales) NaN NaN NaN NaN NaN Mercapto Prescriptions (Sales) NaN
3 Physician ID Physician Name Specialty Jan 23 Feb 23 Mar 23 Apr 23 May 23 Jun 23 Jan 23 Feb 23
4 51019201 Rahul Naik SURGICAL ONCOLOGY 12 13 31 28 28 48 1 24
5 61507774 ALBERT PARK RADIOLOGY ONCOLOGY 12 11 29 25 27 44 12 11
6 82693360 ELLICE WONG RADIOLOGY ONCOLOGY 1 11 33 32 40 39 13 13
15993 77676681 Rajeev Balmiki PATHOLOGY, HEMATOLOGY 11 15 16 19 28 37 25 9
15994 54257321 GREGORY OTTERSON RADIOLOGY ONCOLOGY 4 21 28 28 38 50 7 18
15995 71747190 MARC LORIAUX HEMATOLOGY 5 12 20 21 37 41 7 9
15996 74951364 YOUNG KWAK - 10 13 18 15 26 39 8 6
15997 40665907 SANDRA VICTOR HEMATOLOGY 2 13 32 23 36 40 25 2
15998 rows x 15 columns

In [135]:
new_column_names = {
 'Unnamed: 1': 'Physician ID',
 'Unnamed: 2': 'Physician Name',
 'Unnamed: 3': 'Specialty',
 'Unnamed: 4': 'Jan 23',
 'Unnamed: 5': 'Feb 23',
 'Unnamed: 6': 'Mar 23',
 'Unnamed: 7': 'Apr 23',
 'Unnamed: 8': 'May 23',
 'Unnamed: 9': 'Jun 23',
 'Unnamed: 10': 'Jan 23',
 'Unnamed: 11': 'Feb 23',
 'Unnamed: 12': 'Mar 23',
 'Unnamed: 13': 'Apr 23',
 'Unnamed: 14': 'May 23',
 'Unnamed: 15': 'Jun 23'
 # Add more mappings as needed
}
df1.rename(columns=new_column_names, inplace=True)

In [137]:
df1 = df1.drop(df1.index[:2])
df1

Out[137]:
Physician ID Physician Name Specialty Jan 23 Feb 23 Mar 23 Apr 23 May 23 Jun 23 Jan 23 Feb 23 Mar 23 Apr 23 May 23 Jun 23
4 51019201 Rahul Naik SURGICAL ONCOLOGY 12 13 31 28 28 48 1 24 35 38 47 55
5 61507774 ALBERT PARK RADIOLOGY ONCOLOGY 12 11 29 25 27 44 12 11 25 33 43
6 82693360 ELLICE WONG RADIOLOGY ONCOLOGY 1 11 33 32 40 39 13 11 35 46 38 156.0
7 14600351 KANISHKA CHAKRABORTY HEMATOLOGY/ONCOLOGY 3 19 16 19 31 30 25 10 37 40 37 44 118.0
8 28190162 BRENDA SHOO RADIOLOGY ONCOLOGY 12 16 18 32 35 42 2 14 13 19 42 45 155.0
15993 77676681 Rajeev Balmiki PATHOLOGY, HEMATOLOGY 11 15 16 19 28 37 25 9 22 40 48 37 126.0
15994 54257321 GREGORY OTTERSON RADIOLOGY ONCOLOGY 4 21 28 28 38 50 7 18 14 38 45 43 169.0
15995 71747190 MARC LORIAUX HEMATOLOGY 5 12 20 21 37 41 7 9 33 39 46 42 136.0
15996 74951364 YOUNG KWAK - 10 13 18 15 26 39 8 6 31 24 35 48 121.0
15997 40665907 SANDRA VICTOR HEMATOLOGY 2 13 32 23 36 40 25 2 34 34 38 45 146.0
15994 rows x 15 columns

In [138]:
sum_values = df1.iloc[:, 3:9].sum(axis=1)
df1['Total Sum Fluoride'] = sum_values

In [139]:
sum_values = df1.iloc[:, 9:15].sum(axis=1)
df1['Total Sales Mercapto'] = sum_values
df1.rename(columns={'Total Sum Fluoride': 'Total Sales Fluoride'}, inplace=True)

In [140]:
df1

Out[140]:
Physician ID Physician Name Specialty Jan 23 Feb 23 Mar 23 Apr 23 May 23 Jun 23 Feb 23 Mar 23 Apr 23 May 23 Jun 23 Total Sales Fluoride Total Sales Mercapto
4 51019201 Rahul Naik SURGICAL ONCOLOGY 12 13 31 28 28 48 1 24 35 38 47 55 160.0 200.0
5 61507774 ALBERT PARK RADIOLOGY ONCOLOGY 12 11 29 25 27 44 12 11 25 33 43 148.0 126.0
6 82693360 ELLICE WONG RADIOLOGY ONCOLOGY 1 11 33 32 40 39 13 11 35 46 38 156.0 156.0
7 14600351 KANISHKA CHAKRABORTY HEMATOLOGY/ONCOLOGY 3 19 16 19 31 30 25 10 37 40 37 44 118.0 193.0
8 28190162 BRENDA SHOO RADIOLOGY ONCOLOGY 12 16 18 32 35 42 2 14 13 19 42 45 155.0 135.0
15993 77676681 Rajeev Balmiki PATHOLOGY, HEMATOLOGY 11 15 16 19 28 37 25 9 22 40 48 37 126.0 181.0
15994 54257321 GREGORY OTTERSON RADIOLOGY ONCOLOGY 4 21 28 28 38 50 7 18 14 38 45 43 169.0 165.0
15995 71747190 MARC LORIAUX HEMATOLOGY 5 12 20 21 37 41 7 9 33 39 46 42 136.0 176.0
15996 74951364 YOUNG KWAK - 10 13 18 15 26 39 8 6 31 24 35 48 121.0 152.0
15997 40665907 SANDRA VICTOR HEMATOLOGY 2 13 32 23 36 40 25 2 34 34 38 45 146.0 178.0
15994 rows x 17 columns

In [141]:
sum_values = df1.iloc[:, 15:17].sum(axis=1)
df1['Total Sales'] = sum_values
df1

Out[141]:
Physician ID Physician Name Specialty Jan 23 Feb 23 Mar 23 Apr 23 May 23 Jun 23 Feb 23 Mar 23 Apr 23 May 23 Jun 23 Total Sales Fluoride Total Sales Mercapto
4 51019201 Rahul Naik SURGICAL ONCOLOGY 12 13 31 28 28 48 1 24 35 38 47 55 160.0 200.0
5 61507774 ALBERT PARK RADIOLOGY ONCOLOGY 12 11 29 25 27 44 12 11 25 33 43 148.0 126.0
6 82693360 ELLICE WONG RADIOLOGY ONCOLOGY 1 11 33 32 40 39 13 11 35 46 38 156.0 156.0
7 14600351 KANISHKA CHAKRABORTY HEMATOLOGY/ONCOLOGY 3 19 16 19 31 30 25 10 37 40 37 44 118.0 193.0
8 28190162 BRENDA SHOO RADIOLOGY ONCOLOGY 12 16 18 32 35 42 2 14 13 19 42 45 155.0 135.0
15993 77676681 Rajeev Balmiki PATHOLOGY, HEMATOLOGY 11 15 16 19 28 37 25 9 22 40 48 37 126.0 181.0
15994 54257321 GREGORY OTTERSON RADIOLOGY ONCOLOGY 4 21 28 28 38 50 7 18 14 38 45 43 169.0 165.0
15995 71747190 MARC LORIAUX HEMATOLOGY 5 12 20 21 37 41 7 9 33 39 46 42 136.0 176.0
15996 74951364 YOUNG KWAK - 10 13 18 15 26 39 8 6 31 24 35 48 121.0 152.0
15997 40665907 SANDRA VICTOR HEMATOLOGY 2 13 32 23 36 40 25 2 34 34 38 45 146.0 178.0
15994 rows x 18 columns

In [142]:
gain_ratio = df1['Total Sales Mercapto']/df1['Total Sales Fluoride']
df1

Out[142]:
Physician ID Physician Name Specialty Jan 23 Feb 23 Mar 23 Apr 23 May 23 Jun 23 Feb 23 Mar 23 Apr 23 May 23 Jun 23 Total Sales Fluoride Total Sales Mercapto
4 51019201 Rahul Naik SURGICAL ONCOLOGY 12 13 31 28 28 48 1 24 35 38 47 55 160.0 200.0
5 61507774 ALBERT PARK RADIOLOGY ONCOLOGY 12 11 29 25 27 44 12 11 25 33 43 148.0 126.0
6 82693360 ELLICE WONG RADIOLOGY ONCOLOGY 1 11 33 32 40 39 13 11 35 46 38 156.0 156.0
7 14600351 KANISHKA CHAKRABORTY HEMATOLOGY/ONCOLOGY 3 19 16 19 31 30 25 10 37 40 37 44 118.0 193.0
8 28190162 BRENDA SHOO RADIOLOGY ONCOLOGY 12 16 18 32 35 42 2 14 13 19 42 45 155.0 135.0
15993 77676681 Rajeev Balmiki PATHOLOGY, HEMATOLOGY 11 15 16 19 28 37 25 9 22 40 48 37 126.0 181.0
15994 54257321 GREGORY OTTERSON RADIOLOGY ONCOLOGY 4 21 28 28 38 50 7 18 14 38 45 43 169.0 165.0
15995 71747190 MARC LORIAUX HEMATOLOGY 5 12 20 21 37 41 7 9 33 39 46 42 136.0 176.0
15996 74951364 YOUNG KWAK - 10 13 18 15 26 39 8 6 31 24 35 48 121.0 152.0
15997 40665907 SANDRA VICTOR HEMATOLOGY 2 13 32 23 36 40 25 2 34 34 38 45 146.0 178.0
15994 rows x 19 columns

In [143]:
df1.rename(columns={'gain_ratio': 'Gain_Ratio'}, inplace=True)

In [144]:
scope_index = df1['Gain_Ratio']*df1['Total Sales']
df1['Scope Index'] = scope_index
df1

Out[144]:
Physician ID Physician Name Specialty Jan 23 Feb 23 Mar 23 Apr 23 May 23 Jun 23 Feb 23 Mar 23 Apr 23 May 23 Jun 23 Total Sales Fluoride Total Sales Mercapto
4 51019201 Rahul Naik SURGICAL ONCOLOGY 12 13 31 28 28 48 1 24 35 38 47 55 160.0 200.0
5 61507774 ALBERT PARK RADIOLOGY ONCOLOGY 12 11 29 25 27 44 12 11 25 33 43 148.0 126.0
6 82693360 ELLICE WONG RADIOLOGY ONCOLOGY 1 11 33 32 40 39 13 11 35 46 38 156.0 156.0
7 14600351 KANISHKA CHAKRABORTY HEMATOLOGY/ONCOLOGY 3 19 16 19 31 30 25 10 37 40 37 44 118.0 193.0
8 28190162 BRENDA SHOO RADIOLOGY ONCOLOGY 12 16 18 32 35 42 2 14 13 19 42 45 155.0 135.0
15993 77676681 Rajeev Balmiki PATHOLOGY, HEMATOLOGY 11 15 16 19 28 37 25 9 22 40 48 37 126.0 181.0
15994 54257321 GREGORY OTTERSON RADIOLOGY ONCOLOGY 4 21 28 28 38 50 7 18 14 38 45 43 169.0 165.0
15995 71747190 MARC LORIAUX HEMATOLOGY 5 12 20 21 37 41 7 9 33 39 46 42 136.0 176.0
15996 74951364 YOUNG KWAK - 10 13 18 15 26 39 8 6 31 24 35 48 121.0 152.0
15997 40665907 SANDRA VICTOR HEMATOLOGY 2 13 32 23 36 40 25 2 34 34 38 45 146.0 178.0
15994 rows x 20 columns

In [145]:
df1 = df1.sort_values(by='Scope Index', ascending=False)
df1

Out[145]:
Physician ID Physician Name Specialty Jan 23 Feb 23 Mar 23 Apr 23 May 23 Jun 23 Feb 23 Mar 23 Apr 23 May 23 Jun 23 Total Sales Fluoride Total Sales Mercapto
6096 12757599 RICHARD HYMAS ORTHOPEDIC SURG, MUSCULOSKELETAL ONCOL 14 16 10 21 30 34 30 28 38 38 50 53 125.0 237.0
10366 16708862 ASIT JHA HEMATOLOGY/ONCOLOGY 1 21 30 16 26 30 28 21 40 36 48 54 124.0 227.0
12401 90321673 Laura Dickerson HEMATOLOGY 2 17 13 16 29 35 29 22 32 36 45 52 112.0 216.0
14429 12641680 JAMES SIEBERT PATHOLOGY, HEMATOLOGY 4 24 10 29 36 33 27 30 40 35 50 51 136.0 233.0
5166 34897820 JOSHUA DIJAC SURGICAL ONCOLOGY 0 21 12 21 30 40 22 29 37 35 48 52 124.0 223.0
9752 70741714 OLIVIN CNAR RADIOLOGY ONCOLOGY 14 12 31 30 37 48 5 6 17 15 27 38 172.0 108.0
13020 80026815 DENNIS LOWENTHAL ORTHOPEDIC SURG, MUSCULOSKELETAL ONCOL 6 20 30 15 35 33 2 2 10 21 28 38 139.0 101.0
9821 95971943 DENNIS LOWENTHAL ORTHOPEDIC SURG, MUSCULOSKELETAL ONCOL 15 18 27 27 34 45 1 0 14 16 28 47 166.0 106.0
732 82923714 NIDHI MISHRA RADIOLOGY ONCOLOGY 10 24 27 27 40 7 2 11 15 27 41 155.0 103.0
413 6412661 KAZUHIRO SABET PATHOLOGY, HEMATOLOGY 15 24 20 33 36 46 3 14 14 15 25 35 174.0 106.0
15994 rows x 20 columns

In [146]:
dftarget = df1.iloc[:1200]
dftarget

Out[146]:
Physician ID Physician Name Specialty Jan 23 Feb 23 Mar 23 Apr 23 May 23 Jun 23 Feb 23 Mar 23 Apr 23 May 23 Jun 23 Total Sales Fluoride Total Sales Mercapto
6096 12757599 RICHARD HYMAS ORTHOPEDIC SURG, MUSCULOSKELETAL ONCOL 14 16 10 21 30 34 30 28 38 38 50 53 125.0 237.0
10366 16708862 ASIT JHA HEMATOLOGY/ONCOLOGY 1 21 30 16 26 30 28 21 40 36 48 54 124.0 227.0
12401 90321673 Laura Dickerson HEMATOLOGY 2 17 13 16 29 35 29 22 32 36 45 52 112.0 216.0
14429 12641680 JAMES SIEBERT PATHOLOGY, HEMATOLOGY 4 24 10 29 36 33 27 30 40 35 50 51 136.0 233.0
5166 34897820 JOSHUA DIJAC SURGICAL ONCOLOGY 0 21 12 21 30 40 22 29 37 35 48 52 124.0 223.0
6093 72861648 NITVA GUJATI RADIOLOGY ONCOLOGY 2 14 21 28 39 32 30 28 20 40 46 43 136.0 207.0
3559 24409344 Jason Shohet PEDIATRIC HEMATOLOGY ONCOLOGY 3 24 12 22 32 39 23 20 28 29 16 55 121.0 198.0
2111 51152437 Rhonda Gentry SURGICAL ONCOLOGY 3 13 12 16 33 32 39 23 25 30 22 45 53 121.0 198.0
8146 33463764 Eric Lee GYNECOLOGICAL ONCOLOGY 10 18 28 25 35 39 23 25 37 37 38 52 145.0 210.0
5005 85538065 Anna Koget PEDIATRIC HEMATOLOGY ONCOLOGY 7 14 18 18 35 34 29 27 18 37 49 41 126.0 202.0
200 rows x 20 columns

In [147]:
dfdoc = pd.read_excel(r"C:\Users\Anmol\OneDrive\Desktop\New Folder\Book2.xlsx")
dfdoc = dfdoc.drop("Unnamed: 0", axis=1)

Out[147]:
Unnamed: 1 Unnamed: 2 Unnamed: 3 Unnamed: 4 Unnamed: 5 Unnamed: 6
0 Affiliation Data NaN NaN NaN NaN NaN
1 NaN NaN NaN NaN NaN NaN
2 Physician Details NaN Hospital Details NaN NaN NaN
3 Physician ID Physician Name Hospital ID Hospital Name Hospital ZIP Hospital City
4 51019201 Rahul Naik AC430 Saint Luke's Cancer Institute 603 AGUADILLA
13375 91688023 Amrita Krishnan AC443 Maine Medical Center 17036 HUMMELSTOWN
13376 77676681 Rajeev Balmiki AC454 Multicare Mary Bridge Childrens Health Center 77504 PASADENA
13377 54257321 GREGORY OTTERSON AC674 Dosik Hematology And Oncology 28207 CHARLOTTE
13378 71747190 MARC LORIAUX AC783 NEA Baptist Cancer Center 50010 AMES
13379 40665907 SANDRA VICTOR AC367 Samaritan Pastega Regional Cancer Center 49508 GRAND RAPIDS
13380 rows x 6 columns

In [148]:
dfdoc = dfdoc.drop(dfdoc.index[:2])
dfdoc

Out[148]:
Unnamed: 1 Unnamed: 2 Unnamed: 3 Unnamed: 4 Unnamed: 5 Unnamed: 6
2 Physician Details NaN Hospital Details NaN NaN NaN
3 Physician ID Physician Name Hospital ID Hospital Name Hospital ZIP Hospital City
4 51019201 Rahul Naik AC430 Saint Luke's Cancer Institute 603 AGUADILLA
5 61507774 ALBERT PARK AC353 Joliet Oncology-Hematology Associates LTD 6040 MANCHESTER
6 82693360 ELLICE WONG AC186 St. Bernards Cancer Center 45601 CHILLICOTHE
13375 91688023 Amrita Krishnan AC443 Maine Medical Center 17036 HUMMELSTOWN
13376 77676681 Rajeev Balmiki AC454 Multicare Mary Bridge Childrens Health Center 77504 PASADENA
13377 54257321 GREGORY OTTERSON AC674 Dosik Hematology And Oncology 28207 CHARLOTTE
13378 71747190 MARC LORIAUX AC783 NEA Baptist Cancer Center 50010 AMES
13379 40665907 SANDRA VICTOR AC367 Samaritan Pastega Regional Cancer Center 49508 GRAND RAPIDS
13378 rows x 6 columns

In [149]:
dfdoc = dfdoc.drop(dfdoc.index[:2])
col_names = {
 'Unnamed: 1': 'Physician Details',
 'Unnamed: 2': 'Physician Name',
 'Unnamed: 3': 'Hospital ID',
 'Unnamed: 4': 'Hospital Name',
 'Unnamed: 5': 'Hospital ZIP',
 'Unnamed: 6': 'Hospital City'
}
dfdoc.rename(columns=col_names, inplace=True)

Out[149]:
Physician Details Physician Name Hospital ID Hospital Name Hospital ZIP Hospital City
4 51019201 Rahul Naik AC430 Saint Luke's Cancer Institute 603 AGUADILLA
5 61507774 ALBERT PARK AC353 Joliet Oncology-Hematology Associates LTD 6040 MANCHESTER
6 82693360 ELLICE WONG AC186 St. Bernards Cancer Center 45601 CHILLICOTHE
7 14600351 KANISHKA CHAKRABORTY AC486 Genesis Cancer Care Institute 56401 BRAINERD
8 28190162 BRENDA SHOO AC357 Houson Methodist Health System 20715 BOWIE
13375 91688023 Amrita Krishnan AC443 Maine Medical Center 17036 HUMMELSTOWN
13376 77676681 Rajeev Balmiki AC454 Multicare Mary Bridge Childrens Health Center 77504 PASADENA
13377 54257321 GREGORY OTTERSON AC674 Dosik Hematology And Oncology 28207 CHARLOTTE
13378 71747190 MARC LORIAUX AC783 NEA Baptist Cancer Center 50010 AMES
13379 40665907 SANDRA VICTOR AC367 Samaritan Pastega Regional Cancer Center 49508 GRAND RAPIDS
13376 rows x 6 columns

In [150]:
dfdoc.rename(columns={'Physician Details': 'Physician ID'}, inplace=True)

In [151]:
dfnew = pd.merge(df1, dfdoc)

In [152]:
dftarget = dfnew[:1200]

Out[152]:
Physician ID Physician Name Specialty Jan 23 Feb 23 Mar 23 Apr 23 May 23 Jun 23 Jan 23 Feb 23 Mar 23 Apr 23 May 23 Jun 23 Total Sales Fluoride Total Sales Mercapto Gain Ratio
0 12757599 RICHARD HYMAS ORTHOPEDIC SURG, MUSCULOSKELETAL ONCOL 14 16 10 21 30 34 30 ... 53 125.0 237.0 362.0 1.896000 68
1 16708862 ASIT JHA HEMATOLOGY/ONCOLOGY 1 21 30 16 26 30 28 ... 54 124.0 227.0 351.0 1.830645 64
2 90321673 Laura Dickerson HEMATOLOGY 2 17 13 16 29 35 29 ... 52 112.0 216.0 328.0 1.928571 63
3 12641680 JAMES SIEBERT PATHOLOGY, HEMATOLOGY 4 24 10 29 36 33 27 ... 51 136.0 233.0 369.0 1.713235 63
4 34897820 JOSHUA DIJAC SURGICAL ONCOLOGY 0 21 12 21 30 40 22 ... 52 124.0 223.0 347.0 1.793837 62
195 99792603 Kashif Ali PATHOLOGY, HEMATOLOGY 2 11 19 18 26 30 16 ... 54 106.0 187.0 293.0 1.764151 51
196 35796098 Brian Vikstrom PEDIATRIC HEMATOLOGY ONCOLOGY 15 18 21 15 25 33 26 ... 54 128.0 201.0 329.0 1.570312 51
197 94768562 JESSICA POWERS ORTHOPEDIC SURG, MUSCULOSKELETAL ONCOL 2 15 13 22 39 37 27 ... 51 128.0 201.0 329.0 1.570312 51
198 51889626 MARGARET FRIGER RADIOLOGY ONCOLOGY 8 25 31 16 31 33 17 ... 47 144.0 210.0 354.0 1.458333 51
199 69758865 MIRA SHAH HEMATOLOGY/ONCOLOGY 1 22 12 28 36 47 12 ... 55 146.0 211.0 357.0 1.445205 51
200 rows x 24 columns

In [153]:
hospital_with_tardoc = dftarget['Hospital Name'].value_counts()
total_hospital = dfnew['Hospital Name'].value_counts()

In [154]:
total_hospital

Out[154]:
Tennessee Oncology 27
Mercy Hospital Springfield 27
Texas Oncology - Mansfield 26
Cancer And Blood Care Of San Jose Inc 26
Hematology Oncology Associates of Alabama 26
Hematology Oncology 6
Methodist Hospital 6
Northwest Oncology And Hematology 5
Windstrong Radiology 4
Name: Hospital Name, Length: 901, dtype: int64

In [155]:
hospital_without_tardoc

Out[155]:
Alegent Health Partners 3
Pheobe Hematology Oncology of Albany 2
Hudson Valley Heme/Onc Services 2
Regional Hospital of Scranton 2
Englewood Hospital 2
Genesis Care - South Florida 1
De Paul Health Center 1
FirstHealth of The Carolinas 1
Starrt Center for Cancer Care 1
Penn Medicine Lancaster General Hospital 1
Name: Hospital Name, Length: 176, dtype: int64

In [156]:
hospitals_without_tardoc = 901-176
hospitals_without_tardoc

Out[156]:
725

In [157]:
dftarget['Specialty'].value_counts()

Out[157]:
PEDIATRIC HEMATOLOGY ONCOLOGY 26
SURGICAL ONCOLOGY 23
GYNECOLOGICAL ONCOLOGY 22
HEMATOLOGY/ONCOLOGY 21
HEMATOLOGY 21
PATHOLOGY, HEMATOLOGY 17
RADIOLOGY ONCOLOGY 17
ORTHOPEDIC SURG, MUSCULOSKELETAL ONCOL 15
ONCOLOGY MEDICAL 15
Name: Specialty, dtype: int64

In [158]:
df2 = pd.DataFrame({'Specialty': [], 'Hospital Name': []})
df2['Specialty'] = dfnew['Specialty']
df2['Hospital Name'] = dftarget['Hospital Name']

Out[158]:
Specialty Hospital Name
0 ORTHOPEDIC SURG, MUSCULOSKELETAL ONCOL Oncology Consultants
1 HEMATOLOGY/ONCOLOGY University Of Massachusetts Memorial Healthcare
2 HEMATOLOGY Lewis Lipsey, MD
3 PATHOLOGY, HEMATOLOGY New York Cancer and Blood Specialists
4 SURGICAL ONCOLOGY Decatur Memorial Hospital
195 PATHOLOGY, HEMATOLOGY Pheobe Hematology Oncology of Albany
196 PEDIATRIC HEMATOLOGY ONCOLOGY Riverside Medical Group
197 ORTHOPEDIC SURG, MUSCULOSKELETAL ONCOL Hematology Oncology Clinic
198 RADIOLOGY ONCOLOGY Penn Medicine Lancaster General Hospital
199 HEMATOLOGY/ONCOLOGY Englewood Hospital
200 rows x 2 columns

In [159]:
specialty = dfnew['Specialty']
hospitals = dfnew['Hospital Name']
df2 = pd.DataFrame({'Hospital Name': hospitals, 'Specialty': dfnew['Specialty']})
hosp_table = df2.pivot_table(index='Hospital Name', columns='Specialty', aggfunc='size', fill_value=0)
hosp_table

Out[159]:
Specialty GYNECOLOGICAL ONCOLOGY HEMATOLOGY HEMATOLOGY/ONCOLOGY ONCOLOGY MEDICAL ORTHOPEDIC SURG, MUSCULOSKELETAL ONCOL PATHOLOGY, HEMATOLOGY PEDIATRIC HEMATOLOGY ONCOLOGY
Hospital Name
AHNI American Health Network Of Indiana 1 0 1 0 0 0 0 1
AIS Cancer Center 2 3 1 2 0 0 1 2
ANMED Cancer Center 3 2 2 2 3 2 3 1
APDermatology 3 1 2 2 0 3 3 2 1
Wright Patterson Airforce 88th Medical Group 1 0 2 2 0 2 1 0
Yale New Haven Health System 0 2 2 1 2 1 0 2
Yuma Regional Medical Center 2 3 1 1 2 2 1 2
Yunhee Chung, MD 4 3 1 0 0 1 2 2
Zangmeister Cancer Center 2 0 2 2 2 0 1 0
901 rows x 10 columns

In [160]:
hosp_table = hosp_table.drop(columns=['GYNECOLOGICAL ONCOLOGY', 'ORTHOPEDIC SURG, MUSCULOSKELETAL ONCOL', 'PEDIATRIC HEMATOLOGY ONCOLOGY'])
hosp_table

Out[160]:
Specialty HEMATOLOGY HEMATOLOGY/ONCOLOGY ONCOLOGY MEDICAL PEDIATRIC HEMATOLOGY ONCOLOGY
Hospital Name
AHNI American Health Network Of Indiana 1 1 0 0 1
AIS Cancer Center 2 0 3 1 2
ANMED Cancer Center 3 2 2 3 1
APDermatology 3 2 0 3 1
Wright Patterson Airforce 88th Medical Group 1 2 2 0 0
Yale New Haven Health System 0 2 1 2 2
Yuma Regional Medical Center 2 1 1 2 2
Yunhee Chung, MD 4 1 0 0 2
Zangmeister Cancer Center 2 2 2 2 0
901 rows x 5 columns

In [161]:
hosp_table = hosp_table.drop(columns=[''], axis=1)
hosp_table

Out[161]:
Specialty HEMATOLOGY HEMATOLOGY/ONCOLOGY ONCOLOGY MEDICAL PEDIATRIC HEMATOLOGY ONCOLOGY sum
Hospital Name
OSF Moeller Cancer Center 2 3 5 5 15
Nashville Oncology Associates 2 3 7 2 14
Childrens Hospital And Medical Center Omaha 3 4 3 3 13
Hematology Oncology Associates Of Central New York 3 3 3 4 13
Texas Oncology - Waco 5 3 3 2 13
42005 96912 Los Angeles South, CA West
42006 96923 Los Angeles South, CA West
42007 96931 Los Angeles South, CA West
42008 96939 Los Angeles South, CA West
42009 96940 Los Angeles South, CA West
42006 rows x 3 columns

In [162]:
df3 = df3.drop(df3.index[:2])
df3

Out[162]:
Unnamed: 1 Unnamed: 2 Unnamed: 3
0 ZTT (Zip to Territory) NaN NaN
1 NaN NaN NaN
2 ZIP Territory Name Region Name
3 30002 Atlanta, GA South
4 30003 Atlanta, GA South
42005 96912 Los Angeles South, CA West
42006 96923 Los Angeles South, CA West
42007 96931 Los Angeles South, CA West
42008 96939 Los Angeles South, CA West
42009 96940 Los Angeles South, CA West
42006 rows x 3 columns

In [163]:
df3.rename(columns = {'Unnamed: 1': 'Hospital ZIP', 'Unnamed: 2': 'Territory', 'Unnamed: 3': 'Region'}, inplace=True)
df3

Out[163]:
Hospital ZIP Territory Region
4 30003 Atlanta, GA South
5 30004 Atlanta, GA South
6 30005 Atlanta, GA South
7 30006 Atlanta, GA South
8 30007 Atlanta, GA South
42005 96912 Los Angeles South, CA West
42006 96923 Los Angeles South, CA West
42007 96931 Los Angeles South, CA West
42008 96939 Los Angeles South, CA West
42009 96940 Los Angeles South, CA West
42006 rows x 3 columns

In [164]:
dfnew = pd.merge(dfnew, df3, on='Hospital ZIP')
dfnew

Out[164]:
Hospital ZIP Territory Region
4 30003 Atlanta, GA South
5 30004 Atlanta, GA South
6 30005 Atlanta, GA South
7 30006 Atlanta, GA South
8 30007 Atlanta, GA South
42005 96912 Los Angeles South, CA West
42006 96923 Los Angeles South, CA West
42007 96931 Los Angeles South, CA West
42008 96939 Los Angeles South, CA West
42009 96940 Los Angeles South, CA West
42006 rows x 4 columns

In [169]	<pre>Physician ID Physician Name Specialty Jan 23 Feb 23 Mar 23 Apr 23 May 23 Jun 23 ... Total Sales Mercapto Total Sales Gain Ratio Scope Index Physician ID</pre> <table><tr><td>0</td><td>12757599</td><td>RICHARD HYMAS</td><td>ORTHOPEDIC SURG. MUSCULOSKELETAL ONCOL</td><td>14</td><td>16</td><td>10</td><td>21</td><td>30</td><td>34</td><td>30</td><td>...</td><td>237.0</td><td>362.0</td><td>1.896000</td><td>686.352000</td><td>AC280</td></tr><tr><td>1</td><td>38117307</td><td>YING WANG</td><td>PEDIATRIC HEMATOLOGY ONCOLOGY</td><td>13</td><td>24</td><td>11</td><td>23</td><td>29</td><td>46</td><td>30</td><td>...</td><td>210.0</td><td>356.0</td><td>1.438356</td><td>512.054795</td><td>AC280</td></tr><tr><td>2</td><td>51982812</td><td>TRIPESH CHAUDHURY</td><td>ONCOLOGY MEDICAL</td><td>7</td><td>13</td><td>12</td><td>15</td><td>33</td><td>30</td><td>28</td><td>...</td><td>180.0</td><td>290.0</td><td>1.636364</td><td>474.545455</td><td>AC280</td></tr><tr><td>3</td><td>43973287</td><td>SHERMAN BAKER</td><td>RADIOLOGY ONCOLOGY</td><td>1</td><td>19</td><td>27</td><td>28</td><td>27</td><td>34</td><td>28</td><td>...</td><td>190.0</td><td>326.0</td><td>1.397059</td><td>455.441176</td><td>AC280</td></tr><tr><td>4</td><td>84464791</td><td>YANA GOLDBERG</td><td>PATHOLOGY, HEMATOLOGY</td><td>11</td><td>14</td><td>22</td><td>22</td><td>37</td><td>38</td><td>23</td><td>...</td><td>191.0</td><td>335.0</td><td>1.326389</td><td>444.340278</td><td>AC280</td></tr><tr><td>...</td><td>...</td><td>...</td><td>...</td><td>...</td><td>...</td><td>...</td><td>...</td><td>...</td><td>...</td><td>...</td><td>...</td><td>...</td><td>...</td><td>...</td><td>...</td><td>...</td></tr><tr><td>13371</td><td>50569085</td><td>LAKSHMI AGGARWAL</td><td>ORTHOPEDIC SURG. MUSCULOSKELETAL ONCOL</td><td>6</td><td>18</td><td>34</td><td>26</td><td>37</td><td>31</td><td>8</td><td>...</td><td>158.0</td><td>310.0</td><td>1.039474</td><td>322.236842</td><td>AC404</td></tr><tr><td>13372</td><td>48100635</td><td>KIM-ANN KRAMER</td><td>PEDIATRIC HEMATOLOGY ONCOLOGY</td><td>6</td><td>17</td><td>33</td><td>28</td><td>32</td><td>33</td><td>23</td><td>...</td><td>155.0</td><td>304.0</td><td>1.040268</td><td>316.241611</td><td>AC404</td></tr><tr><td>13373</td><td>92303933</td><td>SUSAN PARSONS</td><td>PEDIATRIC HEMATOLOGY ONCOLOGY</td><td>15</td><td>10</td><td>30</td><td>32</td><td>38</td><td>41</td><td>6</td><td>...</td><td>148.0</td><td>314.0</td><td>0.891566</td><td>279.951807</td><td>AC404</td></tr><tr><td>13374</td><td>53565780</td><td>Mary Simmonds</td><td>ORTHOPEDIC SURG. MUSCULOSKELETAL ONCOL</td><td>2</td><td>24</td><td>17</td><td>35</td><td>32</td><td>36</td><td>2</td><td>...</td><td>136.0</td><td>282.0</td><td>0.931507</td><td>262.684932</td><td>AC404</td></tr><tr><td>13375</td><td>36113928</td><td>CHARLES CATHCART</td><td>GYNECOLOGICAL ONCOLOGY</td><td>15</td><td>13</td><td>32</td><td>26</td><td>38</td><td>35</td><td>6</td><td>...</td><td>124.0</td><td>283.0</td><td>0.779874</td><td>220.704403</td><td>AC404</td></tr></table> <p>13376 rows x 26 columns</p>	0	12757599	RICHARD HYMAS	ORTHOPEDIC SURG. MUSCULOSKELETAL ONCOL	14	16	10	21	30	34	30	...	237.0	362.0	1.896000	686.352000	AC280	1	38117307	YING WANG	PEDIATRIC HEMATOLOGY ONCOLOGY	13	24	11	23	29	46	30	...	210.0	356.0	1.438356	512.054795	AC280	2	51982812	TRIPESH CHAUDHURY	ONCOLOGY MEDICAL	7	13	12	15	33	30	28	...	180.0	290.0	1.636364	474.545455	AC280	3	43973287	SHERMAN BAKER	RADIOLOGY ONCOLOGY	1	19	27	28	27	34	28	...	190.0	326.0	1.397059	455.441176	AC280	4	84464791	YANA GOLDBERG	PATHOLOGY, HEMATOLOGY	11	14	22	22	37	38	23	...	191.0	335.0	1.326389	444.340278	AC280	13371	50569085	LAKSHMI AGGARWAL	ORTHOPEDIC SURG. MUSCULOSKELETAL ONCOL	6	18	34	26	37	31	8	...	158.0	310.0	1.039474	322.236842	AC404	13372	48100635	KIM-ANN KRAMER	PEDIATRIC HEMATOLOGY ONCOLOGY	6	17	33	28	32	33	23	...	155.0	304.0	1.040268	316.241611	AC404	13373	92303933	SUSAN PARSONS	PEDIATRIC HEMATOLOGY ONCOLOGY	15	10	30	32	38	41	6	...	148.0	314.0	0.891566	279.951807	AC404	13374	53565780	Mary Simmonds	ORTHOPEDIC SURG. MUSCULOSKELETAL ONCOL	2	24	17	35	32	36	2	...	136.0	282.0	0.931507	262.684932	AC404	13375	36113928	CHARLES CATHCART	GYNECOLOGICAL ONCOLOGY	15	13	32	26	38	35	6	...	124.0	283.0	0.779874	220.704403	AC404																																	
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In [170]	<pre>dfnew.sort_values(by="Scope Index", ascending=False)</pre>																																																																																																																																																																																																																												
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Out[172]	<table><tr><th>Territory</th><th>Region</th><th>Total Sales</th></tr><tr><td>0</td><td>Atlanta, GA</td><td>South</td><td>58825.0</td></tr><tr><td>1</td><td>Baltimore, MD</td><td>East</td><td>59574.0</td></tr><tr><td>2</td><td>Bethesda, MD</td><td>East</td><td>80661.0</td></tr><tr><td>3</td><td>Birmingham, AL</td><td>South</td><td>73852.0</td></tr><tr><td>4</td><td>Boston, MA</td><td>East</td><td>85487.0</td></tr><tr><td>5</td><td>Buffalo, NY</td><td>East</td><td>73341.0</td></tr><tr><td>6</td><td>Charleston, SC</td><td>South</td><td>104533.0</td></tr><tr><td>7</td><td>Charlotte, NC</td><td>East</td><td>93253.0</td></tr><tr><td>8</td><td>Chicago North</td><td>West</td><td>96114.0</td></tr><tr><td>9</td><td>Chicago South</td><td>West</td><td>91000.0</td></tr><tr><td>10</td><td>Cincinnati, OH</td><td>East</td><td>46508.0</td></tr><tr><td>11</td><td>Cleveland, OH</td><td>East</td><td>79026.0</td></tr><tr><td>12</td><td>Columbus, OH</td><td>East</td><td>55724.0</td></tr><tr><td>13</td><td>Dallas, TX</td><td>South</td><td>67488.0</td></tr><tr><td>14</td><td>Denver, CO</td><td>West</td><td>99251.0</td></tr><tr><td>15</td><td>Detroit, MI</td><td>West</td><td>97041.0</td></tr><tr><td>16</td><td>Fort Worth, TX</td><td>South</td><td>83106.0</td></tr><tr><td>17</td><td>Harrisburg, PA</td><td>East</td><td>63283.0</td></tr><tr><td>18</td><td>Houston, TX</td><td>South</td><td>74209.0</td></tr><tr><td>19</td><td>Hudson Valley, NY</td><td>East</td><td>45949.0</td></tr><tr><td>20</td><td>Indiana</td><td>West</td><td>97229.0</td></tr><tr><td>21</td><td>Jacksonville, FL</td><td>South</td><td>62414.0</td></tr><tr><td>22</td><td>Kansas City, KS</td><td>South</td><td>81997.0</td></tr><tr><td>23</td><td>Kentucky</td><td>East</td><td>58390.0</td></tr><tr><td>24</td><td>Las Vegas, NV</td><td>West</td><td>91541.0</td></tr><tr><td>25</td><td>Long Island, NY</td><td>East</td><td>85890.0</td></tr><tr><td>26</td><td>Los Angeles North, CA</td><td>West</td><td>109037.0</td></tr><tr><td>27</td><td>Los Angeles South, CA</td><td>West</td><td>72317.0</td></tr><tr><td>28</td><td>Madison, WI</td><td>West</td><td>65811.0</td></tr><tr><td>29</td><td>Manhattan, NY</td><td>East</td><td>21585.0</td></tr><tr><td>30</td><td>Miami, FL</td><td>South</td><td>105219.0</td></tr><tr><td>31</td><td>Milwaukee, WI</td><td>West</td><td>83776.0</td></tr><tr><td>32</td><td>Minneapolis N, MN</td><td>West</td><td>101271.0</td></tr><tr><td>33</td><td>Minneapolis S, MN</td><td>West</td><td>39060.0</td></tr><tr><td>34</td><td>Nashville, TN</td><td>South</td><td>80290.0</td></tr><tr><td>35</td><td>New Haven, CT</td><td>East</td><td>89439.0</td></tr><tr><td>36</td><td>New Jersey N</td><td>East</td><td>152979.0</td></tr><tr><td>37</td><td>New Orleans, LA</td><td>South</td><td>68271.0</td></tr><tr><td>38</td><td>Oklahoma City, OK</td><td>South</td><td>54900.0</td></tr><tr><td>39</td><td>Orlando, FL</td><td>East</td><td>73469.0</td></tr><tr><td>40</td><td>Philadelphia, PA</td><td>East</td><td>99007.0</td></tr><tr><td>41</td><td>Phoenix, AZ</td><td>West</td><td>65930.0</td></tr><tr><td>42</td><td>Pittsburgh, PA</td><td>East</td><td>80845.0</td></tr><tr><td>43</td><td>Portland, ME</td><td>East</td><td>48161.0</td></tr><tr><td>44</td><td>Portland, OR</td><td>West</td><td>55104.0</td></tr><tr><td>45</td><td>Richmond, VA</td><td>East</td><td>60523.0</td></tr><tr><td>46</td><td>Roanoke, VA</td><td>East</td><td>67923.0</td></tr><tr><td>47</td><td>San Antonio, TX</td><td>South</td><td>109124.0</td></tr><tr><td>48</td><td>San Diego, CA</td><td>West</td><td>91466.0</td></tr><tr><td>49</td><td>San Francisco N, CA</td><td>West</td><td>97126.0</td></tr><tr><td>50</td><td>Seattle N, WA</td><td>West</td><td>41557.0</td></tr><tr><td>51</td><td>Seattle S, WA</td><td>West</td><td>53770.0</td></tr><tr><td>52</td><td>St. Louis, MO</td><td>South</td><td>75351.0</td></tr><tr><td>53</td><td>Tampa, FL</td><td>South</td><td>96735.0</td></tr></table>	Territory	Region	Total Sales	0	Atlanta, GA	South	58825.0	1	Baltimore, MD	East	59574.0	2	Bethesda, MD	East	80661.0	3	Birmingham, AL	South	73852.0	4	Boston, MA	East	85487.0	5	Buffalo, NY	East	73341.0	6	Charleston, SC	South	104533.0	7	Charlotte, NC	East	93253.0	8	Chicago North	West	96114.0	9	Chicago South	West	91000.0	10	Cincinnati, OH	East	46508.0	11	Cleveland, OH	East	79026.0	12	Columbus, OH	East	55724.0	13	Dallas, TX	South	67488.0	14	Denver, CO	West	99251.0	15	Detroit, MI	West	97041.0	16	Fort Worth, TX	South	83106.0	17	Harrisburg, PA	East	63283.0	18	Houston, TX	South	74209.0	19	Hudson Valley, NY	East	45949.0	20	Indiana	West	97229.0	21	Jacksonville, FL	South	62414.0	22	Kansas City, KS	South	81997.0	23	Kentucky	East	58390.0	24	Las Vegas, NV	West	91541.0	25	Long Island, NY	East	85890.0	26	Los Angeles North, CA	West	109037.0	27	Los Angeles South, CA	West	72317.0	28	Madison, WI	West	65811.0	29	Manhattan, NY	East	21585.0	30	Miami, FL	South	105219.0	31	Milwaukee, WI	West	83776.0	32	Minneapolis N, MN	West	101271.0	33	Minneapolis S, MN	West	39060.0	34	Nashville, TN	South	80290.0	35	New Haven, CT	East	89439.0	36	New Jersey N	East	152979.0	37	New Orleans, LA	South	68271.0	38	Oklahoma City, OK	South	54900.0	39	Orlando, FL	East	73469.0	40	Philadelphia, PA	East	99007.0	41	Phoenix, AZ	West	65930.0	42	Pittsburgh, PA	East	80845.0	43	Portland, ME	East	48161.0	44	Portland, OR	West	55104.0	45	Richmond, VA	East	60523.0	46	Roanoke, VA	East	67923.0	47	San Antonio, TX	South	109124.0	48	San Diego, CA	West	91466.0	49	San Francisco N, CA	West	97126.0	50	Seattle N, WA	West	41557.0	51	Seattle S, WA	West	53770.0	52	St. Louis, MO	South	75351.0	53	Tampa, FL	South	96735.0	
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30	Miami, FL	South	105219.0																																																																																																																																																																																																																										
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Out[173]	<table><tr><th>Territory</th><th>Region</th><th>Total Sales</th></tr><tr><td>36</td><td>New Jersey N</td><td>East</td><td>152979.0</td></tr><tr><td>47</td><td>San Antonio, TX</td><td>South</td><td>109124.0</td></tr><tr><td>26</td><td>Los Angeles North, CA</td><td>West</td><td>109037.0</td></tr><tr><td>30</td><td>Miami, FL</td><td>South</td><td>105219.0</td></tr><tr><td>6</td><td>Charleston, SC</td><td>South</td><td>104533.0</td></tr><tr><td>32</td><td>Minneapolis N, MN</td><td>West</td><td>101271.0</td></tr><tr><td>14</td><td>Denver, CO</td><td>West</td><td>99251.0</td></tr><tr><td>40</td><td>Philadelphia, PA</td><td>East</td><td>99007.0</td></tr><tr><td>20</td><td>Indiana</td><td>West</td><td>97229.0</td></tr><tr><td>49</td><td>San Francisco N, CA</td><td>West</td><td>97126.0</td></tr><tr><td>15</td><td>Detroit, MI</td><td>West</td><td>97041.0</td></tr><tr><td>53</td><td>Tampa, FL</td><td>South</td><td>96735.0</td></tr><tr><td>7</td><td>Charlotte, NC</td><td>East</td><td>93253.0</td></tr><tr><td>48</td><td>San Diego, CA</td><td>West</td><td>91466.0</td></tr><tr><td>24</td><td>Las Vegas, NV</td><td>West</td><td>91141.0</td></tr><tr><td>9</td><td>Chicago South</td><td>West</td><td>91000.0</td></tr><tr><td>35</td><td>New Haven, CT</td><td>East</td><td>89439.0</td></tr><tr><td>25</td><td>Long Island, NY</td><td>East</td><td>85890.0</td></tr><tr><td>4</td><td>Boston, MA</td><td>East</td><td>85487.0</td></tr><tr><td>31</td><td>Milwaukee, WI</td><td>West</td><td>83776.0</td></tr><tr><td>16</td><td>Fort Worth, TX</td><td>South</td><td>83106.0</td></tr><tr><td>22</td><td>Kansas City, KS</td><td>South</td><td>81997.0</td></tr><tr><td>42</td><td>Pittsburgh, PA</td><td>East</td><td>80845.0</td></tr><tr><td>2</td><td>Bethesda, MD</td><td>East</td><td>80661.0</td></tr><tr><td>34</td><td>Nashville, TN</td><td>South</td><td>80290.0</td></tr><tr><td>11</td><td>Cleveland, OH</td><td>East</td><td>79026.0</td></tr><tr><td>8</td><td>Chicago North</td><td>West</td><td>76114.0</td></tr><tr><td>52</td><td>St. Louis, MO</td><td>South</td><td>75351.0</td></tr><tr><td>18</td><td>Houston, TX</td><td>South</td><td>74209.0</td></tr><tr><td>3</td><td>Birmingham, AL</td><td>South</td><td>73852.0</td></tr><tr><td>39</td><td>Orlando, FL</td><td>South</td><td>73469.0</td></tr><tr><td>5</td><td>Buffalo, NY</td><td>East</td><td>73341.0</td></tr><tr><td>27</td><td>Los Angeles South, CA</td><td>West</td><td>72317.0</td></tr><tr><td>37</td><td>New Orleans, LA</td><td>South</td><td>68271.0</td></tr><tr><td>46</td><td>Roanoke, VA</td><td>East</td><td>67923.0</td></tr><tr><td>13</td><td>Dallas, TX</td><td>South</td><td>67488.0</td></tr><tr><td>41</td><td>Phoenix, AZ</td><td>West</td><td>65930.0</td></tr><tr><td>28</td><td>Madison, WI</td><td>West</td><td>65811.0</td></tr><tr><td>17</td><td>Harrisburg, PA</td><td>East</td><td>63283.0</td></tr><tr><td>21</td><td>Jacksonville, FL</td><td>South</td><td>62414.0</td></tr><tr><td>45</td><td>Richmond, VA</td><td>East</td><td>60523.0</td></tr><tr><td>0</td><td>Baltimore, MD</td><td>East</td><td>59574.0</td></tr><tr><td>1</td><td>Atlanta, GA</td><td>South</td><td>58825.0</td></tr><tr><td>23</td><td>Kentucky</td><td>East</td><td>58390.0</td></tr><tr><td>12</td><td>Columbus, OH</td><td>East</td><td>55724.0</td></tr><tr><td>44</td><td>Portland, OR</td><td>West</td><td>55104.0</td></tr><tr><td>38</td><td>Oklahoma City, OK</td><td>South</td><td>54900.0</td></tr><tr><td>51</td><td>Seattle S, WA</td><td>West</td><td>53770.0</td></tr><tr><td>43</td><td>Portland, ME</td><td>East</td><td>48161.0</td></tr><tr><td>19</td><td>Hudson Valley, NY</td><td>East</td><td>45949.0</td></tr><tr><td>50</td><td>Seattle N, WA</td><td>West</td><td>41557.0</td></tr><tr><td>33</td><td>Minneapolis S, MN</td><td>West</td><td>39060.0</td></tr><tr><td>29</td><td>Manhattan, NY</td><td>East</td><td>21585.0</td></tr></table>	Territory	Region	Total Sales	36	New Jersey N	East	152979.0	47	San Antonio, TX	South	109124.0	26	Los Angeles North, CA	West	109037.0	30	Miami, FL	South	105219.0	6	Charleston, SC	South	104533.0	32	Minneapolis N, MN	West	101271.0	14	Denver, CO	West	99251.0	40	Philadelphia, PA	East	99007.0	20	Indiana	West	97229.0	49	San Francisco N, CA	West	97126.0	15	Detroit, MI	West	97041.0	53	Tampa, FL	South	96735.0	7	Charlotte, NC	East	93253.0	48	San Diego, CA	West	91466.0	24	Las Vegas, NV	West	91141.0	9	Chicago South	West	91000.0	35	New Haven, CT	East	89439.0	25	Long Island, NY	East	85890.0	4	Boston, MA	East	85487.0	31	Milwaukee, WI	West	83776.0	16	Fort Worth, TX	South	83106.0	22	Kansas City, KS	South	81997.0	42	Pittsburgh, PA	East	80845.0	2	Bethesda, MD	East	80661.0	34	Nashville, TN	South	80290.0	11	Cleveland, OH	East	79026.0	8	Chicago North	West	76114.0	52	St. Louis, MO	South	75351.0	18	Houston, TX	South	74209.0	3	Birmingham, AL	South	73852.0	39	Orlando, FL	South	73469.0	5	Buffalo, NY	East	73341.0	27	Los Angeles South, CA	West	72317.0	37	New Orleans, LA	South	68271.0	46	Roanoke, VA	East	67923.0	13	Dallas, TX	South	67488.0	41	Phoenix, AZ	West	65930.0	28	Madison, WI	West	65811.0	17	Harrisburg, PA	East	63283.0	21	Jacksonville, FL	South	62414.0	45	Richmond, VA	East	60523.0	0	Baltimore, MD	East	59574.0	1	Atlanta, GA	South	58825.0	23	Kentucky	East	58390.0	12	Columbus, OH	East	55724.0	44	Portland, OR	West	55104.0	38	Oklahoma City, OK	South	54900.0	51	Seattle S, WA	West	53770.0	43	Portland, ME	East	48161.0	19	Hudson Valley, NY	East	45949.0	50	Seattle N, WA	West	41557.0	33	Minneapolis S, MN	West	39060.0	29	Manhattan, NY	East	21585.0					
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In [175]	<pre>sales['Workload Index'] = (sales['Total Sales']/total_sales)*54000 sales</pre>																																																																																																																																																																																																																												
Out[175]	<table><tr><th>Territory</th><th>Region</th><th>Total Sales</th><th>Workload Index</th></tr><tr><td>36</td><td>New Jersey N</td><td>East</td><td>1992.811673</td></tr><tr><td>47</td><td>San Antonio, TX</td><td>South</td><td>1421.525707</td></tr><tr><td>26</td><td>Los Angeles North, CA</td><td>West</td><td>1420.392384</td></tr><tr><td>30</td><td>Miami, FL</td><td>South</td><td>1370.656440</td></tr><tr><td>6</td><td>Charleston, SC</td><td>South</td><td>1361.720123</td></tr><tr><td>32</td><td>Minneapolis N, MN</td><td>West</td><td>1319.227025</td></tr><tr><td>14</td><td>Denver, CO</td><td>West</td><td>1292.913089</td></tr><tr><td>40</td><td>Philadelphia, PA</td><td>East</td><td>1289.734574</td></tr><tr><td>20</td><td>Indiana</td><td>West</td><td>1266.573100</td></tr><tr><td>49</td><td>San Francisco N, CA</td><td>West</td><td>1265.231349</td></tr><tr><td>15</td><td>Detroit, MI</td><td>West</td><td>1264.124080</td></tr><tr><td>53</td><td>Tampa, 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TN</td><td>South</td><td>1045.913813</td></tr><tr><td>11</td><td>Cleveland, OH</td><td>East</td><td>1039.448064</td></tr><tr><td>8</td><td>Chicago North</td><td>West</td><td>991.514311</td></tr><tr><td>52</td><td>St. Louis, MO</td><td>South</td><td>981.574938</td></tr><tr><td>18</td><td>Houston, TX</td><td>South</td><td>966.698445</td></tr><tr><td>3</td><td>Birmingham, AL</td><td>South</td><td>962.047913</td></tr><tr><td>39</td><td>Orlando, FL</td><td>South</td><td>957.058687</td></tr><tr><td>5</td><td>Buffalo, NY</td><td>East</td><td>955.391269</td></tr><tr><td>27</td><td>Los Angeles South, CA</td><td>West</td><td>942.051927</td></tr><tr><td>37</td><td>New Orleans, LA</td><td>South</td><td>889.345896</td></tr><tr><td>46</td><td>Roanoke, VA</td><td>East</td><td>884.812604</td></tr><tr><td>13</td><td>Dallas, TX</td><td>South</td><td>879.145989</td></tr><tr><td>41</td><td>Phoenix, AZ</td><td>West</td><td>858.850389</td></tr><tr><td>28</td><td>Madison, WI</td><td>West</td><td>857.300211</td></tr><tr><td>17</td><td>Harrisburg, PA</td><td>East</td><td>824.368712</td></tr><tr><td>21</td><td>Jacksonville, FL</td><td>South</td><td>813.048509</td></tr><tr><td>45</td><td>Richmond, VA</td><td>East</td><td>788.415017</td></tr><tr><td>1</td><td>Baltimore, MD</td><td>East</td><td>776.052678</td></tr><tr><td>0</td><td>Atlanta, GA</td><td>South</td><td>766.295679</td></tr><tr><td>23</td><td>Kentucky</td><td>East</td><td>760.629064</td></tr><tr><td>12</td><td>Columbus, OH</td><td>East</td><td>725.899880</td></tr><tr><td>44</td><td>Portland, OR</td><td>West</td><td>717.823325</td></tr><tr><td>38</td><td>Oklahoma City, OK</td><td>South</td><td>715.165876</td></tr><tr><td>51</td><td>Seattle S, WA</td><td>West</td><td>700.445706</td></tr><tr><td>43</td><td>Portland, ME</td><td>East</td><td>627.378941</td></tr><tr><td>19</td><td>Hudson Valley, NY</td><td>East</td><td>605.845804</td></tr><tr><td>50</td><td>Seattle N, 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WI	West	1091.324893	16	Fort Worth, TX	South	1082.597003	22	Kansas City, KS	South	1068.150392	42	Pittsburgh, PA	East	1053.143632	2	Bethesda, MD	East	1050.746719	34	Nashville, TN	South	1045.913813	11	Cleveland, OH	East	1039.448064	8	Chicago North	West	991.514311	52	St. Louis, MO	South	981.574938	18	Houston, TX	South	966.698445	3	Birmingham, AL	South	962.047913	39	Orlando, FL	South	957.058687	5	Buffalo, NY	East	955.391269	27	Los Angeles South, CA	West	942.051927	37	New Orleans, LA	South	889.345896	46	Roanoke, VA	East	884.812604	13	Dallas, TX	South	879.145989	41	Phoenix, AZ	West	858.850389	28	Madison, WI	West	857.300211	17	Harrisburg, PA	East	824.368712	21	Jacksonville, FL	South	813.048509	45	Richmond, VA	East	788.415017	1	Baltimore, MD	East	776.052678	0	Atlanta, GA	South	766.295679	23	Kentucky	East	760.629064	12	Columbus, OH	East	725.899880	44	Portland, OR	West	717.823325	38	Oklahoma City, OK	South	715.165876	51	Seattle S, WA	West	700.445706	43	Portland, ME	East	627.378941	19	Hudson Valley, NY	East	605.845804	50	Seattle N, WA	West	598.563879	33	Minneapolis S, MN	West	541.350608	29	Manhattan, NY	East	508.822936	29	Manhattan, NY	East	281.181338
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26	Los Angeles North, CA	West	1420.392384																																																																																																																																																																																																																										
30	Miami, FL	South	1370.656440																																																																																																																																																																																																																										
6	Charleston, SC	South	1361.720123																																																																																																																																																																																																																										
32	Minneapolis N, MN	West	1319.227025																																																																																																																																																																																																																										
14	Denver, CO	West	1292.913089																																																																																																																																																																																																																										
40	Philadelphia, PA	East	1289.734574																																																																																																																																																																																																																										
20	Indiana	West	1266.573100																																																																																																																																																																																																																										
49	San Francisco N, CA	West	1265.231349																																																																																																																																																																																																																										
15	Detroit, MI	West	1264.124080																																																																																																																																																																																																																										
53	Tampa, FL	South	1260.137909																																																																																																																																																																																																																										
7	Charlotte, NC	East	1214.778937																																																																																																																																																																																																																										
48	San Diego, CA	West	1191.500222																																																																																																																																																																																																																										
24	Las Vegas, NV	West	1187.266545																																																																																																																																																																																																																										
9	Chicago South	West	1185.423978																																																																																																																																																																																																																										
35	New Haven, CT	East	1165.095100																																																																																																																																																																																																																										
25	Long Island, NY	East	1118.863338																																																																																																																																																																																																																										
4	Boston, MA	East	1113.613578																																																																																																																																																																																																																										
31	Milwaukee, WI	West	1091.324893																																																																																																																																																																																																																										
16	Fort Worth, TX	South	1082.597003																																																																																																																																																																																																																										
22	Kansas City, KS	South	1068.150392																																																																																																																																																																																																																										
42	Pittsburgh, PA	East	1053.143632																																																																																																																																																																																																																										
2	Bethesda, MD	East	1050.746719																																																																																																																																																																																																																										
34	Nashville, TN	South	1045.913813																																																																																																																																																																																																																										
11	Cleveland, OH	East	1039.448064																																																																																																																																																																																																																										
8	Chicago North	West	991.514311																																																																																																																																																																																																																										
52	St. Louis, MO	South	981.574938																																																																																																																																																																																																																										
18	Houston, TX	South	966.698445																																																																																																																																																																																																																										
3	Birmingham, AL	South	962.047913																																																																																																																																																																																																																										
39	Orlando, FL	South	957.058687																																																																																																																																																																																																																										
5	Buffalo, NY	East	955.391269																																																																																																																																																																																																																										
27	Los Angeles South, CA	West	942.051927																																																																																																																																																																																																																										
37	New Orleans, LA	South	889.345896																																																																																																																																																																																																																										
46	Roanoke, VA	East	884.812604																																																																																																																																																																																																																										
13	Dallas, TX	South	879.145989																																																																																																																																																																																																																										
41	Phoenix, AZ	West	858.850389																																																																																																																																																																																																																										
28	Madison, WI	West	857.300211																																																																																																																																																																																																																										
17	Harrisburg, PA	East	824.368712																																																																																																																																																																																																																										
21	Jacksonville, FL	South	813.048509																																																																																																																																																																																																																										
45	Richmond, VA	East	788.415017																																																																																																																																																																																																																										
1	Baltimore, MD	East	776.052678																																																																																																																																																																																																																										
0	Atlanta, GA	South	766.295679																																																																																																																																																																																																																										
23	Kentucky	East	760.629064																																																																																																																																																																																																																										
12	Columbus, OH	East	725.899880																																																																																																																																																																																																																										
44	Portland, OR	West	717.823325																																																																																																																																																																																																																										
38	Oklahoma City, OK	South	715.165876																																																																																																																																																																																																																										
51	Seattle S, WA	West	700.445706																																																																																																																																																																																																																										
43	Portland, ME	East	627.378941																																																																																																																																																																																																																										
19	Hudson Valley, NY	East	605.845804																																																																																																																																																																																																																										
50	Seattle N, WA	West	598.563879																																																																																																																																																																																																																										
33	Minneapolis S, MN	West	541.350608																																																																																																																																																																																																																										
29	Manhattan, NY	East	508.822936																																																																																																																																																																																																																										
29	Manhattan, NY	East	281.181338																																																																																																																																																																																																																										
In [176]	<pre>bal=0 def find_bal(val): global bal if val >= 700 and val <= 1300: bal = bal + 1 for x in sales['Workload Index']: find_bal(x) print(bal)</pre>																																																																																																																																																																																																																												
Out[176]	<pre>42</pre>																																																																																																																																																																																																																												
In [177]	<pre>content = { 'status': ['Balanced', 'Unbalanced'], 'count': [42, 12] } balanced_table = pd.DataFrame(content) balanced_table</pre>																																																																																																																																																																																																																												
Out[177]	<table><tr><th>Status</th><th>Count</th></tr><tr><td>0</td><td>Balanced</td><td>42</td></tr><tr><td>1</td><td>Unbalanced</td><td>12</td></tr></table>	Status	Count	0	Balanced	42	1	Unbalanced	12																																																																																																																																																																																																																				
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1	Unbalanced	12																																																																																																																																																																																																																											
In [178]	<pre>sales2 = dfnew.groupby(['Territory', 'Region'])['Total Sales Florida'].sum().reset_index() sales2</pre>																																																																																																																																																																																																																												
Out[178]	<table><tr><th>Territory</th><th>Region</th><th>Total Sales Florida</th></tr><tr><td>0</td><td>Atlanta, GA</td><td>South</td><td>27480.0</td></tr><tr><td>1</td><td>Baltimore, MD</td><td>East</td><td>27839.0</td></tr><tr><td>2</td><td>Bethesda, MD</td><td>East</td><td>37767.0</td></tr><tr><td>3</td><td>Birmingham, AL</td><td>South</td><td>34493.0</td></tr><tr><td>4</td><td>Boston, MA</td><td>East</td><td>40017.0</td></tr><tr><td>5</td><td>Buffalo, NY</td><td>East</td><td>34381.0</td></tr><tr><td>6</td><td>Charleston, SC</td><td>South</td><td>48941.0</td></tr><tr><td>7</td><td>Charlotte, NC</td><td>East</td><td>43751.0</td></tr><tr><td>8</td><td>Chicago North</td><td>West</td><td>35647.0</td></tr><tr><td>9</td><td>Chicago South</td><td>West</td><td>42485.0</td></tr><tr><td>10</td><td>Cincinnati, OH</td><td>East</td><td>21844.0</td></tr><tr><td>11</td><td>Cleveland, OH</td><td>East</td><td>37010.0</td></tr><tr><td>12</td><td>Columbus, OH</td><td>East</td><td>26243.0</td></tr><tr><td>13</td><td>Dallas, TX</td><td>South</td><td>31488.0</td></tr><tr><td>14</td><td>Denver, CO</td><td>West</td><td>46563.0</td></tr><tr><td>15</td><td>Detroit, MI</td><td>West</td><td>44880.0</td></tr><tr><td>16</td><td>Fort Worth, TX</td><td>South</td><td>39172.0</td></tr><tr><td>17</td><td>Harrisburg, PA</td><td>East</td><td>29553.0</td></tr><tr><td>18</td><td>H</td></tr></table>	Territory	Region	Total Sales Florida	0	Atlanta, GA	South	27480.0	1	Baltimore, MD	East	27839.0	2	Bethesda, MD	East	37767.0	3	Birmingham, AL	South	34493.0	4	Boston, MA	East	40017.0	5	Buffalo, NY	East	34381.0	6	Charleston, SC	South	48941.0	7	Charlotte, NC	East	43751.0	8	Chicago North	West	35647.0	9	Chicago South	West	42485.0	10	Cincinnati, OH	East	21844.0	11	Cleveland, OH	East	37010.0	12	Columbus, OH	East	26243.0	13	Dallas, TX	South	31488.0	14	Denver, CO	West	46563.0	15	Detroit, MI	West	44880.0	16	Fort Worth, TX	South	39172.0	17	Harrisburg, PA	East	29553.0	18	H																																																																																																																																															
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2	Bethesda, MD	East	37767.0																																																																																																																																																																																																																										
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5	Buffalo, NY	East	34381.0																																																																																																																																																																																																																										
6	Charleston, SC	South	48941.0																																																																																																																																																																																																																										
7	Charlotte, NC	East	43751.0																																																																																																																																																																																																																										
8	Chicago North	West	35647.0																																																																																																																																																																																																																										
9	Chicago South	West	42485.0																																																																																																																																																																																																																										
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