

In [1]:

```
import pandas as pd
```

In [18]:

```
df=pd.read_csv("fortune1000.csv",index_col="Rank")
g=df.groupby("Sector")#groupby
df.head()
```

Out[18]:

	Company	Sector	Industry	Location	Revenue	Profits	Employees
Rank							
1	Walmart	Retailing	General Merchandisers	Bentonville, AR	482130	14694	2300000
2	Exxon Mobil	Energy	Petroleum Refining	Irving, TX	246204	16150	75600
3	Apple	Technology	Computers, Office Equipment	Cupertino, CA	233715	53394	110000
4	Berkshire Hathaway	Financials	Insurance: Property and Casualty (Stock)	Omaha, NE	210821	24083	331000
5	McKesson	Health Care	Wholesalers: Health Care	San Francisco, CA	181241	1476	70400

In [19]:

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 1000 entries, 1 to 1000
Data columns (total 7 columns):
#   Column      Non-Null Count  Dtype
---  -
0   Company     1000 non-null   object
1   Sector      1000 non-null   object
2   Industry    1000 non-null   object
3   Location    1000 non-null   object
4   Revenue     1000 non-null   int64
5   Profits     1000 non-null   int64
6   Employees   1000 non-null   int64
dtypes: int64(3), object(4)
memory usage: 62.5+ KB
```

In [20]:

```
type(g)
```

Out[20]:

pandas.core.groupby.generic.DataFrameGroupBy

In [21]:

```
type(df)
```

Out[21]:

```
pandas.core.frame.DataFrame
```

The .groupby() method

In [22]:

```
df=pd.read_csv("fortune1000.csv",index_col="Rank")
g=df.groupby("Sector")#groupby
df.head()
```

Out[22]:

	Company	Sector	Industry	Location	Revenue	Profits	Employees
Rank							
1	Walmart	Retailing	General Merchandisers	Bentonville, AR	482130	14694	2300000
2	Exxon Mobil	Energy	Petroleum Refining	Irving, TX	246204	16150	75600
3	Apple	Technology	Computers, Office Equipment	Cupertino, CA	233715	53394	110000
4	Berkshire Hathaway	Financials	Insurance: Property and Casualty (Stock)	Omaha, NE	210821	24083	331000
5	McKesson	Health Care	Wholesalers: Health Care	San Francisco, CA	181241	1476	70400

In [28]:

```
df["Sector"].unique()
```

Out[28]:

```
array(['Retailing', 'Energy', 'Technology', 'Financials', 'Health Care',
      'Food and Drug Stores', 'Motor Vehicles & Parts',
      'Telecommunications', 'Industrials', 'Aerospace & Defense',
      'Household Products', 'Food, Beverages & Tobacco',
      'Transportation', 'Media', 'Chemicals', 'Wholesalers', 'Apparel',
      'Hotels, Restaurants & Leisure', 'Materials', 'Business Services',
      'Engineering & Construction'], dtype=object)
```

In [27]:

```
df["Sector"].nunique(dropna=False)
```

Out[27]:

```
21
```

In [29]:

```
len(g)
```

Out[29]:

21

In [30]:

```
g.size()
```

Out[30]:

Sector	
Aerospace & Defense	20
Apparel	15
Business Services	51
Chemicals	30
Energy	122
Engineering & Construction	26
Financials	139
Food and Drug Stores	15
Food, Beverages & Tobacco	43
Health Care	75
Hotels, Restaurants & Leisure	25
Household Products	28
Industrials	46
Materials	43
Media	25
Motor Vehicles & Parts	24
Retailing	80
Technology	102
Telecommunications	15
Transportation	36
Wholesalers	40
dtype:	int64

In [31]:

```
df["Sector"].value_counts()
```

Out[31]:

Financials	139
Energy	122
Technology	102
Retailing	80
Health Care	75
Business Services	51
Industrials	46
Materials	43
Food, Beverages & Tobacco	43
Wholesalers	40
Transportation	36
Chemicals	30
Household Products	28
Engineering & Construction	26
Media	25
Hotels, Restaurants & Leisure	25
Motor Vehicles & Parts	24
Aerospace & Defense	20
Telecommunications	15
Apparel	15
Food and Drug Stores	15

Name: Sector, dtype: int64

In [34]:

df

Out[34]:

	Company	Sector	Industry	Location	Revenue	Profits	Employees
Rank							
1	Walmart	Retailing	General Merchandisers	Bentonville, AR	482130	14694	2300000
2	Exxon Mobil	Energy	Petroleum Refining	Irving, TX	246204	16150	75600
3	Apple	Technology	Computers, Office Equipment	Cupertino, CA	233715	53394	110000
4	Berkshire Hathaway	Financials	Insurance: Property and Casualty (Stock)	Omaha, NE	210821	24083	331000
5	McKesson	Health Care	Wholesalers: Health Care	San Francisco, CA	181241	1476	70400
...
996	New York Community Bancorp	Financials	Commercial Banks	Westbury, NY	1902	-47	3448
997	Portland General Electric	Energy	Utilities: Gas and Electric	Portland, OR	1898	172	2646
997	Portland General Electric	Energy	Utilities: Gas and Electric	Portland, OR	1898	172	2646
999	Wendy's	Hotels, Resturants & Leisure	Food Services	Dublin, OH	1896	161	21200
1000	Briggs & Stratton	Industrials	Industrial Machinery	Wauwatosa, WI	1895	46	5480

1000 rows × 7 columns

In [33]:

g.first()

Out[33]:

	Company	Industry	Location	Revenue	Profits	Employ
Sector						
Aerospace & Defense	Boeing	Aerospace and Defense	Chicago, IL	96114	5176	161
Apparel	Nike	Apparel	Beaverton, OR	30601	3273	62
Business Services	ManpowerGroup	Temporary Help	Milwaukee, WI	19330	419	27
Chemicals	Dow Chemical	Chemicals	Midland, MI	48778	7685	49
Energy	Exxon Mobil	Petroleum Refining	Irving, TX	246204	16150	75
Engineering & Construction	Fluor	Engineering, Construction	Irving, TX	18114	413	38
Financials	Berkshire Hathaway	Insurance: Property and Casualty (Stock)	Omaha, NE	210821	24083	331
Food and Drug Stores	CVS Health	Food and Drug Stores	Woonsocket, RI	153290	5237	199
Food, Beverages & Tobacco	Archer Daniels Midland	Food Production	Chicago, IL	67702	1849	32
Health Care	McKesson	Wholesalers: Health Care	San Francisco, CA	181241	1476	70
Hotels, Restaurants & Leisure	McDonald's	Food Services	Oak Brook, IL	25413	4529	420
Household Products	Procter & Gamble	Household and Personal Products	Cincinnati, OH	78756	7036	110
Industrials	General Electric	Industrial Machinery	Fairfield, CT	140389	-6126	333
Materials	Alcoa	Metals	New York, NY	22534	-322	60
Media	Disney	Entertainment	Burbank, CA	52465	8382	185
Motor Vehicles & Parts	General Motors	Motor Vehicles and Parts	Detroit, MI	152356	9687	215
Retailing	Walmart	General Merchandisers	Bentonville, AR	482130	14694	2300
Technology	Apple	Computers, Office Equipment	Cupertino, CA	233715	53394	110
Telecommunications	AT&T	Telecommunications	Dallas, TX	146801	13345	281
Transportation	UPS	Mail, Package, and Freight Delivery	Atlanta, GA	58363	4844	341
Wholesalers	Sysco	Wholesalers: Food and Grocery	Houston, TX	48681	687	51

In [35]:

g.last()

Out[35]:

	Company	Industry	Location	Revenue	Profits	Empl
Sector						
Aerospace & Defense	Delta Tucker Holdings	Aerospace and Defense	McLean, VA	1923	-133	
Apparel	Guess	Apparel	Los Angeles, CA	2204	82	
Business Services	DeVry Education Group	Education	Downers Grove, IL	1910	140	
Chemicals	H.B. Fuller	Chemicals	St. Paul, MN	2084	87	
Energy	Portland General Electric	Utilities: Gas and Electric	Portland, OR	1898	172	
Engineering & Construction	MDC Holdings	Homebuilders	Denver, CO	1909	66	
Financials	New York Community Bancorp	Commercial Banks	Westbury, NY	1902	-47	
Food and Drug Stores	Fred's	Food and Drug Stores	Memphis, TN	2151	-7	
Food, Beverages & Tobacco	Alliance One International	Tobacco	Morrisville, NC	2066	-15	
Health Care	Providence Service	Health Care: Pharmacy and Other Services	Tucson, AZ	1987	84	
Hotels, Restaurants & Leisure	Wendy's	Food Services	Dublin, OH	1896	161	
Household Products	Revlon	Household and Personal Products	New York, NY	1914	56	
Industrials	Briggs & Stratton	Industrial Machinery	Wauwatosa, WI	1895	46	
Materials	Schnitzer Steel Industries	Metals	Portland, OR	1924	-197	
Media	Cenveo	Publishing, Printing	Stamford, CT	1921	-31	
Motor Vehicles & Parts	Allison Transmission Holdings	Motor Vehicles and Parts	Indianaopolis, IN	1986	182	
Retailing	99 Cents Only Stores	Specialty Retailers: Other	Commerce, CA	1999	-232	
Technology	F5 Networks	Network and Other Communications Equipment	Seattle, WA	1920	365	
Telecommunications	Equinix	Telecommunications	Redwood City, CA	2726	188	

Company		Industry	Location	Revenue	Profits	Empl
Sector						
Transportation	Roadrunner	Transportation and Logistics	Cudahy, WI	1995	48	
	Transportation Systems					
Wholesalers	BlueLinx Holdings	Wholesalers: Diversified	Atlanta, GA	1917	-12	

In [39]:

g.groups

Out[39]:

```
{'Aerospace & Defense': [24, 45, 60, 88, 118, 120, 209, 245, 282, 378, 389,
490, 560, 605, 785, 788, 836, 903, 958, 987], 'Apparel': [91, 231, 340, 354,
448, 547, 575, 597, 683, 695, 726, 794, 877, 882, 917], 'Business Services':
[144, 186, 199, 204, 221, 248, 249, 294, 307, 312, 355, 392, 404, 440, 467,
468, 481, 485, 492, 503, 545, 626, 635, 652, 677, 694, 714, 729, 734, 735, 7
37, 744, 767, 776, 777, 783, 791, 792, 796, 801, 803, 816, 819, 820, 869, 87
0, 886, 939, 951, 952, 993], 'Chemicals': [56, 101, 182, 189, 206, 253, 262,
277, 288, 296, 316, 538, 549, 555, 566, 580, 613, 624, 654, 668, 717, 720, 7
24, 758, 761, 829, 865, 898, 934, 949], 'Energy': [2, 14, 30, 32, 42, 65, 9
0, 95, 98, 104, 115, 117, 121, 162, 163, 165, 166, 175, 178, 188, 190, 192,
193, 198, 214, 216, 217, 223, 225, 229, 243, 246, 247, 257, 272, 274, 279, 2
89, 319, 322, 324, 343, 348, 349, 350, 363, 364, 384, 387, 388, 394, 402, 40
3, 410, 425, 437, 438, 445, 458, 475, 483, 493, 507, 522, 541, 548, 556, 55
8, 569, 571, 579, 598, 600, 606, 633, 650, 656, 662, 679, 692, 696, 703, 70
3, 706, 711, 715, 732, 742, 743, 745, 754, 772, 784, 798, 802, 810, 817, 82
6, 843, 850, ...], 'Engineering & Construction': [155, 156, 235, 260, 301, 3
14, 352, 381, 433, 478, 498, 501, 516, 572, 576, 640, 719, 738, 822, 863, 87
4, 892, 929, 963, 985, 994], 'Financials': [4, 16, 23, 26, 27, 29, 35, 40, 4
3, 49, 50, 61, 69, 73, 74, 76, 78, 81, 82, 83, 85, 100, 105, 112, 114, 131,
135, 137, 152, 171, 179, 184, 205, 210, 222, 226, 227, 232, 236, 250, 252, 2
59, 264, 265, 271, 273, 275, 283, 298, 306, 311, 318, 326, 329, 332, 344, 34
7, 367, 368, 376, 382, 398, 401, 411, 421, 436, 442, 449, 453, 453, 471, 47
2, 472, 476, 479, 482, 486, 488, 494, 497, 499, 506, 509, 510, 520, 529, 53
1, 536, 540, 551, 561, 568, 573, 590, 603, 609, 611, 646, 651, 663, ...], 'F
ood and Drug Stores': [7, 17, 19, 87, 107, 160, 181, 595, 614, 631, 669, 75
6, 809, 849, 928], 'Food, Beverages & Tobacco': [41, 44, 62, 66, 84, 94, 10
6, 149, 153, 161, 176, 207, 215, 242, 266, 304, 336, 337, 362, 397, 413, 42
9, 452, 456, 460, 535, 542, 567, 574, 587, 608, 615, 636, 664, 686, 702, 77
0, 787, 795, 804, 889, 902, 954], 'Health Care': [5, 6, 12, 21, 22, 33, 39,
46, 52, 55, 63, 72, 79, 86, 123, 124, 125, 130, 138, 140, 141, 168, 172, 20
0, 201, 202, 263, 268, 278, 286, 287, 290, 291, 305, 325, 358, 359, 372, 42
0, 430, 431, 447, 457, 465, 469, 515, 527, 537, 553, 559, 583, 618, 629, 66
1, 684, 693, 697, 708, 746, 749, 766, 775, 790, 799, 815, 818, 845, 868, 88
1, 883, 935, 960, 965, 977, 978], 'Hotels, Restaurants & Leisure': [109, 146,
195, 218, 241, 254, 309, 371, 444, 466, 534, 546, 557, 562, 585, 731, 763, 7
64, 779, 797, 895, 915, 918, 941, 999], 'Household Products': [34, 151, 174,
256, 261, 328, 338, 345, 370, 434, 441, 450, 455, 533, 550, 554, 601, 665, 6
99, 716, 856, 890, 900, 907, 932, 950, 967, 992], 'Industrials': [11, 59, 7
5, 93, 97, 128, 134, 148, 211, 224, 360, 377, 396, 412, 419, 539, 544, 596,
622, 623, 630, 645, 655, 658, 666, 674, 690, 757, 782, 789, 806, 813, 823, 8
31, 832, 835, 841, 847, 866, 867, 873, 887, 942, 947, 964, 1000], 'Material
s': [126, 127, 170, 244, 251, 303, 321, 341, 356, 373, 375, 383, 417, 418, 4
26, 435, 446, 480, 489, 514, 518, 577, 586, 616, 617, 620, 625, 628, 637, 63
9, 641, 660, 667, 687, 691, 751, 774, 793, 857, 885, 911, 982, 986], 'Medi
a': [53, 96, 99, 203, 213, 255, 327, 366, 406, 414, 525, 530, 681, 705, 707,
722, 741, 752, 759, 762, 821, 913, 968, 969, 989], 'Motor Vehicles & Parts':
[8, 9, 70, 147, 154, 169, 281, 310, 334, 339, 424, 428, 470, 588, 591, 604,
647, 670, 718, 739, 811, 957, 961, 979], 'Retailing': [1, 15, 28, 38, 47, 7
1, 89, 103, 111, 132, 136, 139, 143, 145, 177, 180, 191, 196, 197, 228, 234,
237, 238, 240, 258, 267, 269, 280, 293, 297, 299, 302, 330, 342, 346, 361, 3
65, 374, 379, 380, 393, 415, 427, 439, 495, 500, 502, 511, 512, 517, 523, 58
2, 592, 602, 607, 610, 621, 643, 644, 648, 657, 675, 689, 721, 748, 771, 77
3, 807, 812, 824, 825, 827, 840, 876, 894, 899, 922, 937, 940, 973], 'Techno
logy': [3, 18, 20, 25, 31, 36, 51, 54, 77, 110, 113, 133, 150, 157, 158, 16
4, 173, 194, 219, 220, 230, 233, 284, 295, 300, 308, 313, 331, 385, 386, 40
```

```
0, 408, 409, 422, 451, 462, 464, 487, 491, 504, 505, 508, 513, 519, 524, 53
2, 543, 552, 563, 565, 584, 589, 593, 594, 612, 632, 634, 638, 649, 659, 67
3, 676, 678, 682, 688, 700, 725, 733, 736, 753, 760, 769, 778, 805, 830, 83
4, 842, 854, 864, 871, 888, 891, 893, 896, 904, 905, 906, 909, 912, 914, 91
9, 927, 931, 943, 944, 946, 956, 970, 971, 975, ...], 'Telecommunications':
[10, 13, 37, 116, 159, 187, 292, 333, 399, 443, 461, 496, 526, 619, 786], 'T
ransportation': [48, 58, 67, 68, 80, 129, 142, 208, 239, 270, 353, 390, 395,
405, 407, 416, 432, 459, 521, 528, 570, 578, 642, 672, 709, 713, 740, 800, 8
14, 858, 884, 930, 933, 945, 972, 974], 'Wholesalers': [57, 64, 92, 102, 10
8, 119, 122, 167, 183, 185, 212, 276, 285, 315, 317, 320, 323, 335, 351, 35
7, 369, 391, 423, 463, 474, 477, 484, 564, 581, 599, 627, 653, 685, 727, 74
7, 780, 808, 837, 875, 991]]}
```

In [46]:

```
df.query("Sector=='Aerospace & Defense'")#verification
```

Out[46]:

	Company	Sector	Industry	Location	Revenue	Profits	Employees
Rank							
24	Boeing	Aerospace & Defense	Aerospace and Defense	Chicago, IL	96114	5176	161400
45	United Technologies	Aerospace & Defense	Aerospace and Defense	Farmington, CT	61047	7608	197200
60	Lockheed Martin	Aerospace & Defense	Aerospace and Defense	Bethesda, MD	46132	3605	126000
88	General Dynamics	Aerospace & Defense	Aerospace and Defense	Falls Church, VA	31469	2965	99900
118	Northrop Grumman	Aerospace & Defense	Aerospace and Defense	Falls Church, VA	23526	1990	65000
120	Raytheon	Aerospace & Defense	Aerospace and Defense	Waltham, MA	23247	2074	61000
209	Textron	Aerospace & Defense	Aerospace and Defense	Providence, RI	13423	697	35000
245	L-3 Communications	Aerospace & Defense	Aerospace and Defense	New York, NY	11554	-240	38000
282	Precision Castparts	Aerospace & Defense	Aerospace and Defense	Portland, OR	10056	1530	30106
378	Huntington Ingalls Industries	Aerospace & Defense	Aerospace and Defense	Newport News, VA	7020	404	35995
389	Spirit AeroSystems Holdings	Aerospace & Defense	Aerospace and Defense	Wichita, KS	6644	789	15200
490	Rockwell Collins	Aerospace & Defense	Aerospace and Defense	Cedar Rapids, IA	5262	686	19500
560	Orbital ATK	Aerospace & Defense	Aerospace and Defense	Dulles, VA	4369	159	12300
605	Triumph Group	Aerospace & Defense	Aerospace and Defense	Berwyn, PA	3889	239	15153
785	B/E Aerospace	Aerospace & Defense	Aerospace and Defense	Wellington, FL	2730	286	10057
788	TransDigm Group	Aerospace & Defense	Aerospace and Defense	Cleveland, OH	2707	447	8200

	Company	Sector	Industry	Location	Revenue	Profits	Employees
Rank							
836	Moog	Aerospace & Defense	Aerospace and Defense	Elma, NY	2526	132	10691
903	Curtiss-Wright	Aerospace & Defense	Aerospace and Defense	Charlotte, NC	2264	146	8400
958	Woodward	Aerospace & Defense	Aerospace and Defense	Fort Collins, CO	2038	182	6955
987	Delta Tucker Holdings	Aerospace & Defense	Aerospace and Defense	McLean, VA	1923	-133	12000

Retrieve a group with .get_group()

In [47]:

```
df=pd.read_csv("fortune1000.csv",index_col="Rank")
g=df.groupby("Sector")#groupby
df.head()
```

Out[47]:

	Company	Sector	Industry	Location	Revenue	Profits	Employees
Rank							
1	Walmart	Retailing	General Merchandisers	Bentonville, AR	482130	14694	2300000
2	Exxon Mobil	Energy	Petroleum Refining	Irving, TX	246204	16150	75600
3	Apple	Technology	Computers, Office Equipment	Cupertino, CA	233715	53394	110000
4	Berkshire Hathaway	Financials	Insurance: Property and Casualty (Stock)	Omaha, NE	210821	24083	331000
5	McKesson	Health Care	Wholesalers: Health Care	San Francisco, CA	181241	1476	70400

In [52]:

```
g.get_group("Energy")
g.get_group("Technology")#getting group
g.get_group("Apparel")
```

Out[52]:

	Company	Sector	Industry	Location	Revenue	Profits	Employees
Rank							
91	Nike	Apparel	Apparel	Beaverton, OR	30601	3273	62600
231	VF	Apparel	Apparel	Greensboro, NC	12377	1232	64000
340	PVH	Apparel	Apparel	New York, NY	8020	572	26200
354	Ralph Lauren	Apparel	Apparel	New York, NY	7620	702	20000
448	Hanesbrands	Apparel	Apparel	Winston-Salem, NC	5732	429	65300
547	Levi Strauss	Apparel	Apparel	San Francisco, CA	4495	209	12500
575	Coach	Apparel	Apparel	New York, NY	4192	402	12950
597	Under Armour	Apparel	Apparel	Baltimore, MD	3963	233	9600
683	Fossil Group	Apparel	Apparel	Richardson, TX	3229	221	15100
695	Skechers U.S.A.	Apparel	Apparel	Manhattan Beach, CA	3159	232	6400
726	Carter's	Apparel	Apparel	Atlanta, GA	3014	238	16800
794	Wolverine World Wide	Apparel	Apparel	Rockford, MI	2692	123	6550
877	G-III Apparel Group	Apparel	Apparel	New York, NY	2344	114	8919
882	Columbia Sportswear	Apparel	Apparel	Portland, OR	2326	174	5978
917	Guess	Apparel	Apparel	Los Angeles, CA	2204	82	13500

In [55]:

```
df[df["Sector"]=="Apparel"]#old way
```

Out[55]:

	Company	Sector	Industry	Location	Revenue	Profits	Employees
Rank							
91	Nike	Apparel	Apparel	Beaverton, OR	30601	3273	62600
231	VF	Apparel	Apparel	Greensboro, NC	12377	1232	64000
340	PVH	Apparel	Apparel	New York, NY	8020	572	26200
354	Ralph Lauren	Apparel	Apparel	New York, NY	7620	702	20000
448	Hanesbrands	Apparel	Apparel	Winston-Salem, NC	5732	429	65300
547	Levi Strauss	Apparel	Apparel	San Francisco, CA	4495	209	12500
575	Coach	Apparel	Apparel	New York, NY	4192	402	12950
597	Under Armour	Apparel	Apparel	Baltimore, MD	3963	233	9600
683	Fossil Group	Apparel	Apparel	Richardson, TX	3229	221	15100
695	Skechers U.S.A.	Apparel	Apparel	Manhattan Beach, CA	3159	232	6400
726	Carter's	Apparel	Apparel	Atlanta, GA	3014	238	16800
794	Wolverine World Wide	Apparel	Apparel	Rockford, MI	2692	123	6550
877	G-III Apparel Group	Apparel	Apparel	New York, NY	2344	114	8919
882	Columbia Sportswear	Apparel	Apparel	Portland, OR	2326	174	5978
917	Guess	Apparel	Apparel	Los Angeles, CA	2204	82	13500

Methods on groupby object and dataframe columns

In [56]:

```
df=pd.read_csv("fortune1000.csv",index_col="Rank")
g=df.groupby("Sector")#groupby
df.head()
```

Out[56]:

	Company	Sector	Industry	Location	Revenue	Profits	Employees
Rank							
1	Walmart	Retailing	General Merchandisers	Bentonville, AR	482130	14694	2300000
2	Exxon Mobil	Energy	Petroleum Refining	Irving, TX	246204	16150	75600
3	Apple	Technology	Computers, Office Equipment	Cupertino, CA	233715	53394	110000
4	Berkshire Hathaway	Financials	Insurance: Property and Casualty (Stock)	Omaha, NE	210821	24083	331000
5	McKesson	Health Care	Wholesalers: Health Care	San Francisco, CA	181241	1476	70400

In [61]:

```
g.max()
g.min()
g.sum()
```

Out[61]:

	Revenue	Profits	Employees
Sector			
Aerospace & Defense	357940	28742	968057
Apparel	95968	8236	346397
Business Services	272195	28227	1361050
Chemicals	243897	22628	463651
Energy	1517809	-73447	1188927
Engineering & Construction	153983	5304	406708
Financials	2217159	260209	3359948
Food and Drug Stores	483769	16759	1395398
Food, Beverages & Tobacco	555967	51417	1211632
Health Care	1614707	106114	2678289

In [69]:

```
g.max()#based on first column
```

Out[69]:

	Company	Industry	Location	Revenue	Profits	Employee
Sector						
Aerospace & Defense	Woodward	Aerospace and Defense	Wichita, KS	96114	7608	1972
Apparel	Wolverine World Wide	Apparel	Winston-Salem, NC	30601	3273	653
Business Services	Western Union	Waste Management	Troy, MI	19330	6328	2165
Chemicals	Westlake Chemical	Chemicals	Wilmington, DE	48778	7685	520
Energy	Xcel Energy	Utilities: Gas and Electric	Washington, DC	246204	16150	756
Engineering & Construction	Tutor Perini	Homebuilders	Watsonville, CA	18114	803	920
Financials	Zions Bancorp.	Securities	Worcester, MA	210821	24442	3310
Food and Drug Stores	Whole Foods Market	Food and Drug Stores	Woonsocket, RI	153290	5237	4310
Food, Beverages & Tobacco	WhiteWave Foods	Tobacco	Winston-Salem, NC	67702	7351	2630
Health Care	inVentiv Health	Wholesalers: Health Care	York, PA	181241	18108	2035
Hotels, Restaurants & Leisure	Yum Brands	Hotels, Casinos, Resorts	Wyomissing, PA	25413	5920	5050
Household Products	Vista Outdoor	Miscellaneous	Zeeland, MI	78756	7036	1100
Industrials	Zebra Technologies	Miscellaneous	Wilmerding, PA	140389	4833	3330
Materials	Worthington Industries	Packaging, Containers	Wyomissing, PA	22534	991	600
Media	iHeartMedia	Publishing, Printing	Sussex, WI	52465	8382	1850
Motor Vehicles & Parts	Wabash National	Motor Vehicles and Parts	Van Buren Township, MI	152356	9687	2150
Retailing	hhgregg	Specialty Retailers: Other	York, PA	482130	14694	23000
Technology	salesforce.com	Semiconductors and Other Electronic Components	Woburn, MA	233715	53394	4117
Telecommunications	Windstream Holdings	Telecommunications	Stamford, CT	146801	17879	2814
Transportation	YRC Worldwide	Trucking, Truck Leasing	Thomasville, NC	58363	7610	3412
Wholesalers	World Fuel Services	Wholesalers: Food and Grocery	Waltham, MA	48681	1472	785

In [65]:

```
g.get_group("Apparel")["Revenue"].sum()#verification
```

Out[65]:

95968

In [66]:

```
g.get_group("Apparel")["Profits"].sum()#verification
```

Out[66]:

8236

In [67]:

```
g.mean()
```

Out[67]:

	Revenue	Profits	Employees
Sector			
Aerospace & Defense	17897.000000	1437.100000	48402.850000
Apparel	6397.866667	549.066667	23093.133333
Business Services	5337.156863	553.470588	26687.254902
Chemicals	8129.900000	754.266667	15455.033333
Energy	12441.057377	-602.024590	9745.303279
Engineering & Construction	5922.423077	204.000000	15642.615385
Financials	15950.784173	1872.007194	24172.287770
Food and Drug Stores	32251.266667	1117.266667	93026.533333
Food, Beverages & Tobacco	12929.465116	1195.744186	28177.488372
Health Care	21529.426667	1414.853333	35710.520000
Hotels, Restaurants & Leisure	6781.840000	827.880000	99369.800000
Household Products	8383.464286	515.285714	23072.785714
Industrials	10816.978261	451.391304	33591.934783
Materials	6026.627907	102.976744	14840.069767
Media	8830.560000	973.880000	22012.560000
Motor Vehicles & Parts	20105.833333	1079.083333	45106.666667
Retailing	18313.450000	597.875000	77845.362500
Technology	13505.882353	1769.343137	35087.735294
Telecommunications	30788.933333	3242.466667	55497.866667
Transportation	11347.444444	1226.916667	42688.694444
Wholesalers	11120.000000	205.825000	13139.925000

In [70]:

```
g["Revenue"].mean()
```

Out[70]:

Sector	
Aerospace & Defense	17897.000000
Apparel	6397.866667
Business Services	5337.156863
Chemicals	8129.900000
Energy	12441.057377
Engineering & Construction	5922.423077
Financials	15950.784173
Food and Drug Stores	32251.266667
Food, Beverages & Tobacco	12929.465116
Health Care	21529.426667
Hotels, Restaurants & Leisure	6781.840000
Household Products	8383.464286
Industrials	10816.978261
Materials	6026.627907
Media	8830.560000
Motor Vehicles & Parts	20105.833333
Retailing	18313.450000
Technology	13505.882353
Telecommunications	30788.933333
Transportation	11347.444444
Wholesalers	11120.000000

Name: Revenue, dtype: float64

In [73]:

```
g["Profits"].max()#to check performance of company in particular sector
```

Out[73]:

Sector	
Aerospace & Defense	7608
Apparel	3273
Business Services	6328
Chemicals	7685
Energy	16150
Engineering & Construction	803
Financials	24442
Food and Drug Stores	5237
Food, Beverages & Tobacco	7351
Health Care	18108
Hotels, Restaurants & Leisure	5920
Household Products	7036
Industrials	4833
Materials	991
Media	8382
Motor Vehicles & Parts	9687
Retailing	14694
Technology	53394
Telecommunications	17879
Transportation	7610
Wholesalers	1472

Name: Profits, dtype: int64

In [75]:

```
g["Profits"].min()#Losses
```

Out[75]:

Sector	
Aerospace & Defense	-240
Apparel	82
Business Services	-1481
Chemicals	-816
Energy	-23119
Engineering & Construction	-155
Financials	-1194
Food and Drug Stores	-62
Food, Beverages & Tobacco	-253
Health Care	-458
Hotels, Restaurants & Leisure	-1394
Household Products	-1149
Industrials	-6126
Materials	-1642
Media	-881
Motor Vehicles & Parts	-889
Retailing	-1243
Technology	-4359
Telecommunications	-271
Transportation	-191
Wholesalers	-502

Name: Profits, dtype: int64

In [76]:

```
g[["Revenue", "Profits"]].sum()
```

Out[76]:

	Revenue	Profits
Sector		
Aerospace & Defense	357940	28742
Apparel	95968	8236
Business Services	272195	28227
Chemicals	243897	22628
Energy	1517809	-73447
Engineering & Construction	153983	5304
Financials	2217159	260209
Food and Drug Stores	483769	16759
Food, Beverages & Tobacco	555967	51417
Health Care	1614707	106114
Hotels, Restaurants & Leisure	169546	20697
Household Products	234737	14428
Industrials	497581	20764
Materials	259145	4428
Media	220764	24347
Motor Vehicles & Parts	482540	25898
Retailing	1465076	47830
Technology	1377600	180473
Telecommunications	461834	48637
Transportation	408508	44169
Wholesalers	444800	8233

Group by multiple columns`

In [80]:

```
df=pd.read_csv("fortune1000.csv",index_col=["Rank"])
g=df.groupby(["Sector","Industry"])#groupby
df.head()
```

Out[80]:

	Company	Sector	Industry	Location	Revenue	Profits	Employees
Rank							
1	Walmart	Retailing	General Merchandisers	Bentonville, AR	482130	14694	2300000
2	Exxon Mobil	Energy	Petroleum Refining	Irving, TX	246204	16150	75600
3	Apple	Technology	Computers, Office Equipment	Cupertino, CA	233715	53394	110000
4	Berkshire Hathaway	Financials	Insurance: Property and Casualty (Stock)	Omaha, NE	210821	24083	331000
5	McKesson	Health Care	Wholesalers: Health Care	San Francisco, CA	181241	1476	70400

In [83]:

```
g.first().head()
```

Out[83]:

		Company	Location	Revenue	Profits	Employees
Sector	Industry					
Aerospace & Defense	Aerospace and Defense	Boeing	Chicago, IL	96114	5176	161400
Apparel	Apparel	Nike	Beaverton, OR	30601	3273	62600
	Advertising, marketing	Omnicom Group	New York, NY	15134	1094	74900
Business Services	Diversified Outsourcing Services	Aramark	Philadelphia, PA	14329	236	216500
	Education	Graham Holdings	Arlington, VA	2984	-101	11585

In [84]:

```
g.first().tail()
```

Out[84]:

		Company	Location	Revenue	Profits	Employees
Sector	Industry					
Transportation	Trucking, Truck Leasing	Ryder System	Miami, FL	6572	305	33100
	Miscellaneous	Univar	Downers Grove, IL	8982	17	9200
Wholesalers	Wholesalers: Diversified	World Fuel Services	Miami, FL	30380	187	4700
	Wholesalers: Electronics and Office Equipment	Ingram Micro	Irvine, CA	43026	215	27700
	Wholesalers: Food and Grocery	Sysco	Houston, TX	48681	687	51700

In [89]:

```
g.size()
```

Out[89]:

Sector	Industry	
Aerospace & Defense	Aerospace and Defense	20
	Apparel	15
	Advertising, marketing	2
	Diversified Outsourcing Services	14
	Education	3
		..
Transportation	Trucking, Truck Leasing	9
Wholesalers	Miscellaneous	1
	Wholesalers: Diversified	25
	Wholesalers: Electronics and Office Equipment	8
	Wholesalers: Food and Grocery	6
Length: 79, dtype: int64		

In [90]:

```
g.sum()
```

Out[90]:

		Revenue	Profits	Employees
Sector	Industry			
Aerospace & Defense	Aerospace and Defense	357940	28742	968057
Apparel	Apparel	95968	8236	346397
	Advertising, marketing	22748	1549	124100
Business Services	Diversified Outsourcing Services	64829	4305	708330
	Education	7485	69	46755
...
Transportation	Trucking, Truck Leasing	35950	1910	170456
	Miscellaneous	8982	17	9200
Wholesalers	Wholesalers: Diversified	176138	5193	233831
	Wholesalers: Electronics and Office Equipment	147906	1857	166661
	Wholesalers: Food and Grocery	111774	1166	115905

79 rows × 3 columns

In [93]:

```
g["Revenue"].sum()
```

Out[93]:

Sector	Industry	
Aerospace & Defense	Aerospace and Defense	357940
Apparel	Apparel	95968
Business Services	Advertising, marketing	22748
	Diversified Outsourcing Services	64829
	Education	7485
	...	
Transportation	Trucking, Truck Leasing	35950
Wholesalers	Miscellaneous	8982
	Wholesalers: Diversified	176138
	Wholesalers: Electronics and Office Equipment	147906
	Wholesalers: Food and Grocery	111774
Name: Revenue, Length: 79, dtype: int64		

In [94]:

```
g["Employees"].mean()
```

Out[94]:

Sector	Industry	
Aerospace & Defense 850000	Aerospace and Defense	48402.
Apparel 133333	Apparel	23093.
Business Services 000000	Advertising, marketing	62050.
	Diversified Outsourcing Services	50595.
000000	Education	15585.
000000		
...		
Transportation 555556	Trucking, Truck Leasing	18939.
Wholesalers 000000	Miscellaneous	9200.
	Wholesalers: Diversified	9353.
240000	Wholesalers: Electronics and Office Equipment	20832.
625000	Wholesalers: Food and Grocery	19317.
500000		
Name: Employees, Length: 79, dtype: float64		

In [95]:

```
g["Employees", "Profits"].mean()
```

<ipython-input-95-f6910bb946d3>:1: FutureWarning: Indexing with multiple keys (implicitly converted to a tuple of keys) will be deprecated, use a list instead.

```
g["Employees", "Profits"].mean()
```

Out[95]:

		Employees	Profits
Sector	Industry		
Aerospace & Defense	Aerospace and Defense	48402.850000	1437.100000
	Apparel	23093.133333	549.066667
Business Services	Advertising, marketing	62050.000000	774.500000
	Diversified Outsourcing Services	50595.000000	307.500000
	Education	15585.000000	23.000000
...
Transportation	Trucking, Truck Leasing	18939.555556	212.222222
	Miscellaneous	9200.000000	17.000000
Wholesalers	Wholesalers: Diversified	9353.240000	207.720000
	Wholesalers: Electronics and Office Equipment	20832.625000	232.125000
	Wholesalers: Food and Grocery	19317.500000	194.333333

79 rows × 2 columns

In [96]:

```
g.mean()
```

Out[96]:

		Revenue	Profits	Employees
Sector	Industry			
Aerospace & Defense	Aerospace and Defense	17897.000000	1437.100000	48402.850000
Apparel	Apparel	6397.866667	549.066667	23093.133333
	Advertising, marketing	11374.000000	774.500000	62050.000000
Business Services	Diversified Outsourcing Services	4630.642857	307.500000	50595.000000
	Education	2495.000000	23.000000	15585.000000
...
Transportation	Trucking, Truck Leasing	3994.444444	212.222222	18939.555556
	Miscellaneous	8982.000000	17.000000	9200.000000
Wholesalers	Wholesalers: Diversified	7045.520000	207.720000	9353.240000
	Wholesalers: Electronics and Office Equipment	18488.250000	232.125000	20832.625000
	Wholesalers: Food and Grocery	18629.000000	194.333333	19317.500000

79 rows × 3 columns

The .agg() method

In [97]:

```
df=pd.read_csv("fortune1000.csv",index_col=["Rank"])
g=df.groupby(["Sector"])#groupby
df.head()
```

Out[97]:

	Company	Sector	Industry	Location	Revenue	Profits	Employees
Rank							
1	Walmart	Retailing	General Merchandisers	Bentonville, AR	482130	14694	2300000
2	Exxon Mobil	Energy	Petroleum Refining	Irving, TX	246204	16150	75600
3	Apple	Technology	Computers, Office Equipment	Cupertino, CA	233715	53394	110000
4	Berkshire Hathaway	Financials	Insurance: Property and Casualty (Stock)	Omaha, NE	210821	24083	331000
5	McKesson	Health Care	Wholesalers: Health Care	San Francisco, CA	181241	1476	70400

In [98]:

g.mean()

Out[98]:

	Revenue	Profits	Employees
Sector			
Aerospace & Defense	17897.000000	1437.100000	48402.850000
Apparel	6397.866667	549.066667	23093.133333
Business Services	5337.156863	553.470588	26687.254902
Chemicals	8129.900000	754.266667	15455.033333
Energy	12441.057377	-602.024590	9745.303279
Engineering & Construction	5922.423077	204.000000	15642.615385
Financials	15950.784173	1872.007194	24172.287770
Food and Drug Stores	32251.266667	1117.266667	93026.533333
Food, Beverages & Tobacco	12929.465116	1195.744186	28177.488372
Health Care	21529.426667	1414.853333	35710.520000
Hotels, Restaurants & Leisure	6781.840000	827.880000	99369.800000
Household Products	8383.464286	515.285714	23072.785714
Industrials	10816.978261	451.391304	33591.934783
Materials	6026.627907	102.976744	14840.069767
Media	8830.560000	973.880000	22012.560000
Motor Vehicles & Parts	20105.833333	1079.083333	45106.666667
Retailing	18313.450000	597.875000	77845.362500
Technology	13505.882353	1769.343137	35087.735294
Telecommunications	30788.933333	3242.466667	55497.866667
Transportation	11347.444444	1226.916667	42688.694444
Wholesalers	11120.000000	205.825000	13139.925000

In [103]:

```
g.agg({"Revenue": "sum",
      "Profits": "sum",
      "Employees": "mean"})#####to perform various operations on various columns
```

Out[103]:

	Revenue	Profits	Employees
Sector			
Aerospace & Defense	357940	28742	48402.850000
Apparel	95968	8236	23093.133333
Business Services	272195	28227	26687.254902
Chemicals	243897	22628	15455.033333
Energy	1517809	-73447	9745.303279
Engineering & Construction	153983	5304	15642.615385
Financials	2217159	260209	24172.287770
Food and Drug Stores	483769	16759	93026.533333
Food, Beverages & Tobacco	555967	51417	28177.488372
Health Care	1614707	106114	35710.520000
Hotels, Restaurants & Leisure	169546	20697	99369.800000
Household Products	234737	14428	23072.785714
Industrials	497581	20764	33591.934783
Materials	259145	4428	14840.069767
Media	220764	24347	22012.560000
Motor Vehicles & Parts	482540	25898	45106.666667
Retailing	1465076	47830	77845.362500
Technology	1377600	180473	35087.735294
Telecommunications	461834	48637	55497.866667
Transportation	408508	44169	42688.694444
Wholesalers	444800	8233	13139.925000

In [102]:

```
g.sum()
```

Out[102]:

	Revenue	Profits	Employees
Sector			
Aerospace & Defense	357940	28742	968057
Apparel	95968	8236	346397
Business Services	272195	28227	1361050
Chemicals	243897	22628	463651
Energy	1517809	-73447	1188927
Engineering & Construction	153983	5304	406708
Financials	2217159	260209	3359948
Food and Drug Stores	483769	16759	1395398
Food, Beverages & Tobacco	555967	51417	1211632
Health Care	1614707	106114	2678289
Hotels, Restaurants & Leisure	169546	20697	2484245
Household Products	234737	14428	646038
Industrials	497581	20764	1545229
Materials	259145	4428	638123
Media	220764	24347	550314
Motor Vehicles & Parts	482540	25898	1082560
Retailing	1465076	47830	6227629
Technology	1377600	180473	3578949
Telecommunications	461834	48637	832468
Transportation	408508	44169	1536793
Wholesalers	444800	8233	525597

In [106]:

```
g.agg(["size","sum","mean"])###multile opns on all colms
```

Out[106]:

Sector	Revenue			Profits		
	size	sum	mean	size	sum	mean
Aerospace & Defense	20	357940	17897.000000	20	28742	1437.100000
Apparel	15	95968	6397.866667	15	8236	549.066667
Business Services	51	272195	5337.156863	51	28227	553.470588
Chemicals	30	243897	8129.900000	30	22628	754.266667
Energy	122	1517809	12441.057377	122	-73447	-602.024590
Engineering & Construction	26	153983	5922.423077	26	5304	204.000000
Financials	139	2217159	15950.784173	139	260209	1872.007194
Food and Drug Stores	15	483769	32251.266667	15	16759	1117.266667
Food, Beverages & Tobacco	43	555967	12929.465116	43	51417	1195.744186
Health Care	75	1614707	21529.426667	75	106114	1414.853333
Hotels, Resturants & Leisure	25	169546	6781.840000	25	20697	827.880000
Household Products	28	234737	8383.464286	28	14428	515.285714
Industrials	46	497581	10816.978261	46	20764	451.391304
Materials	43	259145	6026.627907	43	4428	102.976744
Media	25	220764	8830.560000	25	24347	973.880000
Motor Vehicles & Parts	24	482540	20105.833333	24	25898	1079.083333
Retailing	80	1465076	18313.450000	80	47830	597.875000
Technology	102	1377600	13505.882353	102	180473	1769.343137
Telecommunications	15	461834	30788.933333	15	48637	3242.466667
Transportation	36	408508	11347.444444	36	44169	1226.916667
Wholesalers	40	444800	11120.000000	40	8233	205.825000

In [105]:

```
g.agg({"Revenue":["sum","mean"],
      "Profits":"sum",
      "Employees":"mean"})#####to perform multiple operations on various columns
```

Out[105]:

		Revenue	Profits	Employees
	sum	mean	sum	mean
Sector				
Aerospace & Defense	357940	17897.000000	28742	48402.850000
Apparel	95968	6397.866667	8236	23093.133333
Business Services	272195	5337.156863	28227	26687.254902
Chemicals	243897	8129.900000	22628	15455.033333
Energy	1517809	12441.057377	-73447	9745.303279
Engineering & Construction	153983	5922.423077	5304	15642.615385
Financials	2217159	15950.784173	260209	24172.287770
Food and Drug Stores	483769	32251.266667	16759	93026.533333
Food, Beverages & Tobacco	555967	12929.465116	51417	28177.488372
Health Care	1614707	21529.426667	106114	35710.520000
Hotels, Resturants & Leisure	169546	6781.840000	20697	99369.800000
Household Products	234737	8383.464286	14428	23072.785714
Industrials	497581	10816.978261	20764	33591.934783
Materials	259145	6026.627907	4428	14840.069767
Media	220764	8830.560000	24347	22012.560000
Motor Vehicles & Parts	482540	20105.833333	25898	45106.666667
Retailing	1465076	18313.450000	47830	77845.362500
Technology	1377600	13505.882353	180473	35087.735294
Telecommunications	461834	30788.933333	48637	55497.866667
Transportation	408508	11347.444444	44169	42688.694444
Wholesalers	444800	11120.000000	8233	13139.925000

Iterating thriug a groups in group obj

In [107]:

```
df=pd.read_csv("fortune1000.csv",index_col=["Rank"])
g=df.groupby(["Sector"])#groupby
df.head()
```

Out[107]:

	Company	Sector	Industry	Location	Revenue	Profits	Employees
Rank							
1	Walmart	Retailing	General Merchandisers	Bentonville, AR	482130	14694	2300000
2	Exxon Mobil	Energy	Petroleum Refining	Irving, TX	246204	16150	75600
3	Apple	Technology	Computers, Office Equipment	Cupertino, CA	233715	53394	110000
4	Berkshire Hathaway	Financials	Insurance: Property and Casualty (Stock)	Omaha, NE	210821	24083	331000
5	McKesson	Health Care	Wholesalers: Health Care	San Francisco, CA	181241	1476	70400

In [109]:

```
g["Profits"].max()#no entire row is showing
```

Out[109]:

```
Sector
Aerospace & Defense      7608
Apparel                  3273
Business Services       6328
Chemicals                7685
Energy                  16150
Engineering & Construction    803
Financials              24442
Food and Drug Stores     5237
Food, Beverages & Tobacco    7351
Health Care             18108
Hotels, Resturants & Leisure  5920
Household Products       7036
Industrials             4833
Materials                991
Media                   8382
Motor Vehicles & Parts     9687
Retailing               14694
Technology              53394
Telecommunications      17879
Transportation           7610
Wholesalers             1472
Name: Profits, dtype: int64
```

In [127]:

```
opn=pd.DataFrame(columns=df.columns)#creating empty DF to store max or min values and their
opn
```

Out[127]:

Company	Sector	Industry	Location	Revenue	Profits	Employees
---------	--------	----------	----------	---------	---------	-----------

In [130]:

```
g=df.groupby(["Sector"])#groupby
for sector,data in g:
    output=data.nlargest(1,"Revenue")
    opn=opn.append(output)
```

In [126]:

opn

Out[126]:

	Company	Sector	Industry	Location	Revenue	Profits	Emp
24	Boeing	Aerospace & Defense	Aerospace and Defense	Chicago, IL	96114	5176	
91	Nike	Apparel	Apparel	Beaverton, OR	30601	3273	
144	ManpowerGroup	Business Services	Temporary Help	Milwaukee, WI	19330	419	
56	Dow Chemical	Chemicals	Chemicals	Midland, MI	48778	7685	
2	Exxon Mobil	Energy	Petroleum Refining	Irving, TX	246204	16150	
...	
1	Walmart	Retailing	General Merchandisers	Bentonville, AR	482130	14694	2:
3	Apple	Technology	Computers, Office Equipment	Cupertino, CA	233715	53394	
10	AT&T	Telecommunications	Telecommunications	Dallas, TX	146801	13345	:
48	UPS	Transportation	Mail, Package, and Freight Delivery	Atlanta, GA	58363	4844	:
57	Sysco	Wholesalers	Wholesalers: Food and Grocery	Houston, TX	48681	687	

189 rows × 7 columns

In [148]:

```
opn2=pd.DataFrame(columns=df.columns)#creating empty DF to store max or min values and thei
opn2
```

Out[148]:

Company	Sector	Industry	Location	Revenue	Profits	Employees
---------	--------	----------	----------	---------	---------	-----------

In [149]:

```
g2=df.groupby(["Location"])#groupby Loc
for city,data2 in g2:
    output2=data2.nlargest(2,"Revenue")
    opn2=opn2.append(output2)#####process is finding first row in each location groupe
```

In [156]:

```
opn2.sort_values(by="Location")
```

Out[156]:

	Company	Sector	Industry	Location	Revenue	Profits	Employees
138	Abbott Laboratories	Health Care	Medical Products and Equipment	Abbott Park, IL	20661	4423	74000
169	Goodyear Tire & Rubber	Motor Vehicles & Parts	Motor Vehicles and Parts	Akron, OH	16443	307	66000
188	FirstEnergy	Energy	Utilities: Gas and Electric	Akron, OH	15026	578	15781
288	Air Products & Chemicals	Chemicals	Chemicals	Allentown, PA	9895	1278	19550
350	PPL	Energy	Utilities: Gas and Electric	Allentown, PA	7669	682	12799
...
764	Penn National Gaming	Hotels, Restaurants & Leisure	Hotels, Casinos, Resorts	Wyomissing, PA	2838	1	18204
911	Carpenter Technology	Materials	Metals	Wyomissing, PA	2227	59	4900
773	Bon-Ton Stores	Retailing	General Merchandisers	York, PA	2790	-57	24100
799	Dentsply Sirona	Health Care	Medical Products and Equipment	York, PA	2674	251	11400
932	Herman Miller	Household Products	Home Equipment, Furnishings	Zeeland, MI	2142	98	7510

560 rows × 7 columns

In [152]:

```
type(opn2)
```

Out[152]:

pandas.core.frame.DataFrame

In [142]:

```
g2.max()
```

Out[142]:

	Company	Sector	Industry	Revenue	Profits	Employees
Location						
Abbott Park, IL	Abbott Laboratories	Health Care	Medical Products and Equipment	20661	4423	74000
Akron, OH	Goodyear Tire & Rubber	Motor Vehicles & Parts	Utilities: Gas and Electric	16443	578	66000
Allentown, PA	Talen Energy	Energy	Utilities: Gas and Electric	9895	1278	19550
Angleton, TX	Benchmark Electronics	Technology	Semiconductors and Other Electronic Components	2541	95	10500
Ankeny, IA	Casey's General Stores	Retailing	Specialty Retailers: Other	7052	181	22408
...
Woonsocket, RI	CVS Health	Food and Drug Stores	Food and Drug Stores	153290	5237	199000
Worcester, MA	Hanover Insurance Group	Financials	Insurance: Property and Casualty (Stock)	5034	332	4800
Wyomissing, PA	Penn National Gaming	Materials	Metals	2838	59	18204
York, PA	Dentsply Sirona	Retailing	Medical Products and Equipment	2790	251	24100
Zeeland, MI	Herman Miller	Household Products	Home Equipment, Furnishings	2142	98	7510

416 rows × 6 columns