import pandas as pd

import numpy as np

import collections

%matplotlib inline

from collections import Counter

import matplotlib.pyplot as plt

**import** pandas **as** pd

**import** numpy **as** np

**import** collections

**%**matplotlib inline

**from** collections **import** Counter

**import** matplotlib.pyplot **as** plt

​

users **=** pd.read\_table('https://raw.githubusercontent.com/justmarkham/DAT8/master/data/u.user', sep**=**'|', index\_col**=**'user\_id')

​

​

In [5]:

users.shape [0]

users.shape [0]

Out[5]:

943

In [7]:

n

users.columns

Out[7]:

Index(['age', 'gender', 'occupation', 'zip\_code'], dtype='object')

================

8.

:

users.info()

<class 'pandas.core.frame.DataFrame'>  
Int64Index: 943 entries, 1 to 943  
Data columns (total 4 columns):  
age 943 non-null int64  
gender 943 non-null object  
occupation 943 non-null object  
zip\_code 943 non-null object  
dtypes: int64(1), object(3)  
memory usage: 36.8+ KB

9.

users.occupation.value\_counts().count()

Out[13]:

21

Users.info

In [14]:

users.info----------

==========================

users.info

Out[14]:

<bound method DataFrame.info of age gender occupation zip\_code  
user\_id   
1 24 M technician 85711  
2 53 F other 94043  
3 23 M writer 32067  
4 24 M technician 43537  
5 33 F other 15213  
6 42 M executive 98101  
7 57 M administrator 91344  
8 36 M administrator 05201  
9 29 M student 01002  
10 53 M lawyer 90703  
11 39 F other 30329  
12 28 F other 06405  
13 47 M educator 29206  
14 45 M scientist 55106  
15 49 F educator 97301  
16 21 M entertainment 10309  
17 30 M programmer 06355  
18 35 F other 37212  
19 40 M librarian 02138  
20 42 F homemaker 95660  
21 26 M writer 30068  
22 25 M writer 40206  
23 30 F artist 48197  
24 21 F artist 94533  
25 39 M engineer 55107  
26 49 M engineer 21044  
27 40 F librarian 30030  
28 32 M writer 55369  
29 41 M programmer 94043  
30 7 M student 55436  
... ... ... ... ...  
914 44 F other 08105  
915 50 M entertainment 60614  
916 27 M engineer N2L5N  
917 22 F student 20006  
918 40 M scientist 70116  
919 25 M other 14216  
920 30 F artist 90008  
921 20 F student 98801  
922 29 F administrator 21114  
923 21 M student E2E3R  
924 29 M other 11753  
925 18 F salesman 49036  
926 49 M entertainment 01701  
927 23 M programmer 55428  
928 21 M student 55408  
929 44 M scientist 53711  
930 28 F scientist 07310  
931 60 M educator 33556  
932 58 M educator 06437  
933 28 M student 48105  
934 61 M engineer 22902  
935 42 M doctor 66221  
936 24 M other 32789  
937 48 M educator 98072  
938 38 F technician 55038  
939 26 F student 33319  
940 32 M administrator 02215  
941 20 M student 97229  
942 48 F librarian 78209  
943 22 M student 77841

[943 rows x 4 columns]>

=================================

Summarize only the age column:

Users.describe()

Out[15]:

|  |  |
| --- | --- |
|  | **age** |
| **count** | 943.000000 |
| **mean** | 34.051962 |
| **std** | 12.192740 |
| **min** | 7.000000 |
| **25%** | 25.000000 |
| **50%** | 31.000000 |
| **75%** | 43.000000 |
| **max** | 73.000000 |

==========================================



print (users.describe(include=['object']))

gender occupation zip\_code  
count 943 943 943  
unique 2 21 795  
top M student 55414  
freq 670 196 9

*From <*[*http://localhost:8888/notebooks/Untitled9.ipynb?kernel\_name=python3*](http://localhost:8888/notebooks/Untitled9.ipynb?kernel_name=python3)*>*

1. Age is done and rest is done summarize but need to sum all o fthem together.

print (users.describe(include=['object', 'number']))

age gender occupation zip\_code  
count 943.000000 943 943 943  
unique NaN 2 21 795  
top NaN M student 55414  
freq NaN 670 196 9  
mean 34.051962 NaN NaN NaN  
std 12.192740 NaN NaN NaN  
min 7.000000 NaN NaN NaN  
25% 25.000000 NaN NaN NaN  
50% 31.000000 NaN NaN NaN  
75% 43.000000 NaN NaN NaN  
max 73.000000 NaN NaN NaN

*From <*[*http://localhost:8888/notebooks/Untitled9.ipynb?kernel\_name=python3*](http://localhost:8888/notebooks/Untitled9.ipynb?kernel_name=python3)*>*

1. Summ only the occupation column.

users.occupation.describe()

Out[19]:

count 943

unique 21

top student

freq 196

Name: occupation, dtype: object

1. Mean age

Users.age.mean()

34.05388393939

Type users.age. --> .and then press tab see options.

1. Age with least occarrence

users.age.value\_counts()

30 39

25 38

22 37

11 1

10 1

73 1

66 1

7 1

Name: age, Length: 61, dtype: int64



Jupytar:

import pandas as pd

import numpy as np

import collections

%matplotlib inline

from collections import Counter

import matplotlib.pyplot as plt

url = '<https://raw.githubusercontent.com/justmarkham/DAT8/master/data/chipotle.tsv>'

chipo = pd.read\_csv(url, sep = '\t')

x = chipo. item_name 
letter_counts = Counter(x) 
df = pd. orient=• Index ) 
df = df[e] . = True) [45:se] 
df. bar ) 
plt . xlabel( • Items ' ) 
plt .ylabel( •price 
plt . ordered ChipotIeVs Items') 
plt. show() 
Most ordered Chipotle•s Items 

x = chipo.item\_name

letter\_counts = Counter(x)

df = pd.DataFrame.from\_dict(letter\_counts, orient='index')

df = df[0].sort\_values(ascending = True)[45:50]

df.plot(kind='bar')

plt.xlabel('Items')

plt.ylabel('Price')

plt.title('Most ordered Chipotle\'s Items')

plt.show()

import pandas as pd

import numpy as np

import collections

%matplotlib inline

from collections import Counter

import matplotlib.pyplot as plt

users = pd.read\_table('https://raw.githubusercontent.com/justmarkham/DAT8/master/data/u.user', sep='|', index\_col='user\_id')

In 
out[7]: 
In [12]: 
import pandas as pd 
import numpy as np 
import collections 
Xmatplotlib inline 
from collections import Counter 
import Etplotlib.pyplot as PI t 
users = pd.read_tabIe('https://raw.githubusercontent.cc•/justmarkham/OAT8/master/data,'u.user', 
' user_id • ) 
users. shape [e] 
users. col 
'gender', 
users. info() 
' occupation ' , 
zip_code 
dtype= ' object ) 
(class •pandas. core. frame. DataFrame'> 
ntE41ndex: 943 entries, 1 to 943 
Data columns (total 4 columns): 
gender 
occupation 
zip_code 
943 non-null intE4 
943 non-null object 
943 non-null object 
943 non-null object 
dtypes: inté4(1), object(S) 
memory usage: 36.8+ KB 
users. occupations. value_counts . count() 

In [13]: 
out[13]: 
out[14]: 
users. occupation . . count() 
users. info 
(bound rthod DataFrar.info of 
age gender 
85711 
94343 
32067 
43537 
15213 
98101 
91344 
eszøl 
el 002 
3B 29 
29208 
ssløs 
97301 
lay 09 
essss 
37212 
e2138 
9ssse 
see 68 
gazes 
48197 
94533 
SSI 07 
21044 
see ye 
ss369 
94343 
5543 s 
88105 
sa614 
occupation zip_code 
user id 
M 
M 
M 
M 
technician 
other 
writer 
technician 
other 
executive 
administrator 
administrator 
student 
lawyer 
other 
other 
educator 
scientist 
educator 
entertaimænt 
programmer 
other 
librarian 
homemaker 
writer 
writer 
artist 
artist 
engineer 
engineer 
librarian 
writer 
programer 
student 
other 
entertaimænt 

Checkpoint 7 rmrs.go 
File 
Edt 
In [IS]: 
outas]: 
In [17]: 
In [19]: 
out[19]: 
Ir—-t 
[943 x 4 
H Run 
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C » code 
other 
educator 
technician 
student 
administrator 
student 
librarian 
student 
32789 
98072 
sse38 
33319 
8221s 
97229 
78209 
77841 
std 
print 
count 
unique 
f req 
sers. describe() 
g 43ccccoo 
12102740 
7 ccccoo 
25 ccccoo 
31 ccccco 
43 ccccoo 
73 coxco 
(users. 'object ' l)) 
gender occupation zip_code 
student 
SS414 
sers. occupation . describe() 
count 

print (users.describe(include=['object']))

users.occupation.describe()

print (users.describe(include=['object', 'number']))

a = users.groupby ('age')

a.age.value\_counts()

J 7 rmrs.go (y.t—d) 
File 
Edt 
In [19]: 
out[19]: 
In [21]: 
In [22]: 
out[22]: 
In [33]: 
Ir—-t 
H Run 
Code 
freq 
sers. occupation . describe() 
count 
unique 
student 
f req 
Nne: occupation, dtype: object 
print •nnber'])) 
age gender occupation zip_code 
count 
unique 
f req 
943. eøøøea 
Nan 
34. es1962 
12.1927% 
7. eøøoea 
25. eøø.ea 
31. eøøoea 
43. eøøoea 
73. eøøøea 
943 
student 
s 7e 
NaN 
s 5414 
users. age. mean() 
34. es196182396se7 
a = users.groupby ( •age') 
a. age. 

J Læt 7 rmrs.go 
File 
Edt 
In [37]: 
out[37]: 
"Run • 
C » code 
self. levels 
] . renar(name, inpIace=True) 
ValueError: Duplicated level name: 
"age", assigned to level 1, 
sers. age. value_counts 
is already used for level e. 
30 
25 
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21 
2e 
18 
13 
12 
11 

**CARS dataset:**

[41] : 
out[41]: 
Nne: age, Length: 61, 
import pandas as pd 
import numpy as np 
carsl = pd.read_csv ("https://rn.githubusercontent.cn'guipsamora/pandas_exercises/master/æ_merge/Auto_MPG/cars1.csv 
carsl. head 
(bound method MDFrarne.head of 
dtype : int" 
18.a 
12.8 
Is.a 
11.5 
18.8 
16.8 
17.8 
le.s 
Is.a 
le.a 
14.a 
14.8 
14.8 
le.a 
Is.a 
Is.a 
le.a 
14.8 
Is.a 
14.8 
le.a 
24.8 
Is.a 
22.8 
18.8 
16.8 
mpg 
cylinders displacement horsepower 
weight 
acceleration 
model 
10 
14 
185 
Ise 
198 
228 
21S 
225 
Ise 
17a 
183 
95 
95 
85 
3693 
3438 
3433 
3449 
4341 
4312 
4425 
38se 
3583 
3781 
2372 
2833 
2774 
2587 
cars2 = 
carsl = 
pd.read_csv ("https://rn.githubusercontent.cæ/guipsamora/pandas_exercises/master/es_merge/Auto_MPG/cars2.csv 
carsl.loc[:, "mpg": "car' ] 
carsl. head() 

import pandas as pd

import numpy as np

cars1 = pd.read\_csv ("<https://raw.githubusercontent.com/guipsamora/pandas_exercises/master/05_Merge/Auto_MPG/cars1.csv>")

cars1.head

cars2 = pd.read\_csv ("<https://raw.githubusercontent.com/guipsamora/pandas_exercises/master/05_Merge/Auto_MPG/cars2.csv>")

cars1 = cars1.loc[:,"mpg":"car"]

cars1.head()

File 
J Læt 7 rmrs.go 
displacement 
Edt 
In [52]: 
In [44]: 
In [49]: 
In [53]: 
In [54]: 
out[S4]: 
H Run 
18.8 
Code 
85 
2774 
2587 
16.8 
cars 2 
carsl = 
pd.read_csv ("https://rn.githubusercontent.cn'guipsamora/pandas_exercises/master/es_merge/Auto_MPG/cars2.csv") 
carsl.loc[:, "mpg": "car' ] 
carsl. head() 
mpg displacement 
180 
150 
180 
100 
170 
print(carsl. shape) 
print(Cars2. shape) 
(198, 
cars = 
cars 
9) 
carsl. append(cars2) 
mpg 
180 
150 
180 
cylin 
130 
150 
150 
140 
130 
150 
ght 
3504 
3436 
3433 
344g 
ght 
3504 
saga 
3436 
malibu 
skylark 320 
rebel "t 
tuick skyM 320 

nr\_owners = np.random.randint(15000, high=73001, size=398, dtype='l')

nr\_owners

File 
Edt 
In [El]: 
out[E1]: 
Ir—-t 
H Run 
190 
191 
192 
193 
195 
196 
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198 
199 
260 
220 
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36 c 
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440 
320 
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» Căe 
72 
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52 
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2665 
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2130 
2295 
2625 
tayota gt 
2.2 
fMd m stang 
398 x 9 columns 
— np.randcm.randint(łseea, high=733B1, 
nr awners — 
nr awners 
size=Y98, dtype='ľ ) 
22358, 
54151, 
72588, 
48158, 
63976, 
51314, 
45112, 
67886, 
31517, 
47938, 
58897, 
49224, 
15992, 
69335, 
33219, 
2274e , 
46331, 
2a297, 
52873, 
ss92e, 
32274, 
7264, 
284a9 , 
71155, 
29535, 
58714, 
se774, 
61295, 
4e17s, 
634as, 
65384, 
45712, 
sse12, 
sseas , 
38512, 
1 se74, 
22882, 
34173, 
yss;s, 
62334, 
51429, 
48311, 
sas14, 
52294, 
55458, 
51267, 
45254, 
25617 , 
89628, 
72727, 
4911, 
23188, 
5028, 
53318, 
54069, 
41267, 
54739 , 
57329, 
17664, 
34397 , 
33854, 
26783, 
4073, 
4*83, 
yes 64, 
52258, 
17981, 
61228, 
35929, 
48233, 
€4309, 
23732, 
33179, 
2Ba48 , 
seee2 , 
46986, 
54995, 
65811, 
1720 , 
20912, 
2*75, 
30542, 
57715, 
33192, 
63673, 
729es, 
51354, 
69115, 
52835, 
23227, 
21986, 
72329, 
sssgs, 
23558, 
61771, 
2380, 
57335, 
SI 692, 
36792, 
69225, 
68747, 
48489, 
42595, 
61415, 
27325, 
69629, 
54436, 
57913, 
41549 , 
42663, 
sełys, 
52583, 
62978, 
28123, 
1503, 
33336, 
28233, 
88937, 
61893, 
28582, 
2egs2, 
31429, 
sgsss, 
482%, 
17486, 
49841 , 
40277, 
732", 
2104, 
39881, 
s€7es, 
64442 , 
s 9424, 
23381 , 
57228, 
29212, 
45712 , 
47882 , 
42387, 
674Es, 
53175, 
62421 , 
34974, 
67343, 
62422 , 
ss33e, 
478", 
68067 , 
42677, 
34875, 
33728, 
25733, 
51822, 
29071, 
22132, 
42539 , 
17013, 
4595, 
34478 , 44949 
64149 , 
22453, 
15410, 
38674, 
66717, 
71524, 
63253, 
35838, 
31120, 
5012, 
19952, 
48894, 
31236, 
71414, 
62170, 
68474, 
58652, 
29120, 
28821 , 
72849, 

cars['owners'] = nr\_owners

cars.tail()

import pandas as pd

import numpy as np

s1 = pd.Series(np.random.randint(1, high=5, size= 100, dtype='l'))

s2 = pd.Series(np.random.randint(1, high=4, size= 100, dtype='l'))

s3 = pd.Series(np.random.randint(10000, high=30001, size= 100, dtype='l'))

print(s1,s2,s3)

File 
J 7 rmrs.go 
displacement 
sl = 
s2 = 
Edt 
In [63]: 
out[63]: 
Ir—-t 
72346 , 
19849, 
72657 , 
87237, 
35211, 
cars C owners ' ] 
cars. tail ( ) 
H Run 
58325, 
63836, 
57796, 
sisal, 
648921) 
24677 , 
25022, 
36133, 
26798, 
29797, 
42731, 
56591, 
Code 
47177, 
31628, 
15443, 
66457, 
37658, 
62385, 
28976, 
231B, 
ght 
2130 
22g5 
2625 
5682, 
41259, 
29321, 
44584, 
432se, 
48502, 
43532, 
51482 , 
54353, 
7&a4e , 
18933, 
18ess , 
owners 
195 
197 
198 
198 
mpg 
270 
320 
280 
310 
52 
84 
fud g I 
pickup 
dodge 
Wd ranger 
445-84 
51482 
18035 
0402 
In 
[69] : 
import pandas as pd 
import numpy as np 
pd . Series(np. random. randint(l, 
pd . Series(np. random. randint(l, 
high -S, 
high 4 , 
s Ize= 
s Ize= 
dtype='l')) 
dtype='l')) 
pd. high=3eee1, size= lee, dtype='l')) 
print(sl, 52, 53) 
83 
86 
90 
94 
18316 
le7ø2 
28277 
18825 
18429 
Issss 
18453 
14670 
1417? 
2747 s 

housemkt = pd.concat([s1, s2, s3], axis=1)

housemkt.head()

type(s1): Series

housemkt.rename(columns = {0: 'beds', 1: 'bathrs', 2: 'price\_sqr\_meter'}, inplace=True)

housemkt.head()

File 
J 7 rmrs.go (y.t—d) 
'beds', 1: 'bathrs', 2 
Edt 
In [72]: 
out[72]: 
In [73]: 
In [76]: 
out[76]: 
94 
97 
Ir—-t 
14173 
2747 s 
19273 
19874 
22939 
11743 
25841 
H Run 
53], 
Code 
axis-I) 
Length: lat, dtype: int32 
housemkt = 52, 
housemkt. head ( ) 
15523 
12102 
21745 
2 21857 
type ( sl) : Series 
File line 1 
type(sl): Series 
SyntaxError: illegal target for annotation 
housemkt. 
housemkt. head ( ) 
beds 
15523 
105gt 
' pri ' } , 
in place=True) 

bigcolumn = pd.concat([s1, s2, s3], axis=0)

bigcolumn = bigcolumn.to\_frame()

print (type(bigcolumn))

bigcolumn

File 
Edt 
In [78]: 
out[78] : 
Ir—-t 
H Run 
Code 
bigcolu• — 
bigcolu• = 
21857 
pd. 52, 53], 
bigcol mn . to_frne 
axis —e) 
print (type(bigcolnn)) 
bigcolu• 
(class 
• pandas. core. frame. DataFrame ' 

Læt 7 rmrs.go 
File 
Edt 
In [79]: 
out[79] : 
H Run 
C 
89 
so 
91 
92 
93 
94 
95 
98 
98 
98 
18453 
14070 
14173 
170% 
27475 
10273 
1.874 
11743 
25841 
300 rows x I columns 
bigcolu• . 
bigcolu• 
Code 
inpIace=True) 

bigcolumn.reset\_index(drop=True, inplace=True)

bigcolumn

J 7 rmrs.go (y.t—d) 
File 
Edt 
H Run 
286 
298 
298 
10874 
11743 
25841 
In [1%]: 
out[1e4]: 
300 rows x I columns 
import pandas as pd 
import numpy as np 
= pd. 
state_name = 
Code 
State 
state_name 
10 
13 
Name 
Annie 
Elsie 
Ruth 
Annie 
EliEt*th 
Iglo 
Iglo 
Iglo 
Iglo 
Iglo 
Iglo 
Iglo 
Iglo 
Igll 
Igll 
Igll 
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import pandas as pd

import numpy as np

national\_name = pd.read\_csv("F:/Work/Python/22-9/us-baby-names/NationalNames.csv")

state\_name = pd.read\_csv("F:/Work/Python/22-9/us-baby-names/StateNames.csv")

state\_name

File 
Ida 1880 
Edt 
In [1%]: 
In [lie]: 
out[lle] : 
In [113]: 
In [les]: 
out[les]: 
5647422 
5647423 
5647424 
5647425 
Ir—-t 
"47423 
"47424 
"47425 
"47428 
H Run 
Code 
5647426 rows x 6 columns 
state_name. drop( ' State ' , 
nars = national_nne. 
nars. head (la) 
Mary 1880 
1880 
1880 
1880 
Mir-nie 1880 
1880 
10 
1880 
nars. drop( 'Id' , 
name 
state 
axis = 1, 
Name 
2014 
2014 
2014 
2014 
axis inpIace=True) 
7065 
2604 
1 gag 
1746 
1578 
1472 
1414 
1320 
1288 
in place—True 
State 
Iglo 

File 
J 7 rmrs.go (y.t—d) 
Anna Iglo 
Elsie Ig12 
Edt 
Ir—-t 
H Run 
1880 
In [113]: 
In [les]: 
out[les]: 
10 
nars. drop( 'Id' , 
state name 
10 
13 
17 
20 
axis = 1, 
Name 
Annie 
Elsie 
Ruth 
Annie 
EliEt*th 
Anna 
C » code 
1320 
1288 
in place—True 
State 
Iglo 
Iglo 
1010 
Iglo 
1010 
Iglo 
Iglo 
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Igll 
Igll 
Igll 
Ig12 
Ig12 
Ig12 
Ig12 
Ig12 
Ig12 

File 
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Anna Iglo 
Edt 
Ir—-t 
"47421 
"47422 
"47423 
"47424 
"47425 
"47428 
H Run 
Seth 
Code 
*47420 
5647421 
5647422 
5647423 
5647424 
5647425 
5647426 rows x 6 columns 
In [le7]: 
out[1e7]: 
state name 
10 
13 
Name 
Annie 
Elsie 
Ruth 
Annie 
EliEt*th 
2014 
2014 
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2014 
2014 
Iglo 
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Iglo 
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Igll 
Igll 
Igll 
Ig12 

「 三 3g0 
Edit 
V— In 三 Cell n V 2 He• 
*Run • 
0 code 
5E47424 47425 「 2c14 
47425 t54742 Waylm 2c14 
5647426 丨 x 5 columns 
In 【 114 〕 : 
Out 【 11 : 
C | 3 1880 
188c 

File 
Edt 
5647417 
5647418 
5647419 
5647420 
5647421 
5647422 
5647423 
5647424 
5647425 
Ir—-t 
Pam-I 
Raymmd 
Rich ud 
Seth 
H Run 
2014 
2014 
2014 
2014 
2014 
2014 
2014 
2014 
2014 
Code 
In [IIS]: 
In [118]: 
In [119]: 
In [12e]: 
out[12e] : 
7472859 rows 
x 4 columns 
males count = 
naræs[names .Gender = 
(males_rows, 
shape 
females count = 
( fema les_rcws , 
females_count.shape 
print females_rows) 
3237167 4235692 
nars= national_name. append (state_name 
nars 
Name 
Anna 
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1880 
1880 

males\_count = names[names.Gender == 'M']

(males\_rows, males\_columns)= males\_count.shape

females\_count = names[names.Gender == 'F']

(females\_rows, females\_columns)= females\_count.shape

Læt Checkpoint 7 rmrs.go 
File 
Edt 
5647419 
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H Run 
Richard 
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In [122]: 
out[122]: 
In [123]: 
out[123]: 
In [124]: 
out[124]: 
In [125]: 
In [126]: 
out[126]: 
7472859 rows x S columns 
nars.groupby( • Name • , 
(pandas. core.groupby.groupby.DataFrameGroup8y object at exøøæø1C6S4SE33S8> 
nars. shape 
(7472859, s) 
nars. size 
37364295 
nars. drop( •year , 
nars 
axi 5=1, 
Name 
Minnie 
inpl a ce=True ) 
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File 
J 7 rmrs.go (y.t—d) 
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H Run 
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Waylm 
Code 
7472859 rows x 4 columns 
In [127]: 
out[127]: 
In ] 
nars. describe 
std 
1.58477„06 
1 cccccc—oo 
g 34108-2—05 
3770212+06 
7921519+02 
5 ccccco—oo 
7 ccccco—oo 
3 acccco—01 
g gd8cco—04 