

```
In [1]: ##### DOG AGE VERSUS SUBSCRIPTION RATE #####  
import matplotlib as plt  
import pandas as pd  
import numpy as num  
%matplotlib inline
```

```
In [2]: path = "/Users/yarkingazi/Desktop/dognition_data_no_aggregation_with_zip_co
data = pd.read_excel(path)
print(data)
```

	Created_at	Updated_at	
0	2013-05-13 16:17:00	2013-05-13 16:17:00	
1	2013-05-22 18:54:00	2013-05-22 18:54:00	
2	2013-05-22 18:55:00	2013-05-22 18:55:00	
3	2013-05-22 18:56:00	2013-05-22 18:56:00	
4	2013-05-22 18:58:00	2013-05-22 18:58:00	
...	
177476	2013-05-14 08:45:00	2013-05-14 08:45:00	
177477	2013-05-14 08:50:00	2013-05-14 08:50:00	
177478	2013-05-14 08:54:00	2013-05-14 08:54:00	
177479	2013-05-19 04:45:00	2013-05-19 04:45:00	
177480	2013-05-19 05:05:00	2013-05-19 05:05:00	

	User_ID	
0	ce134a78-7144-11e5-ba71-058fbc01cf0b	
1	ce134a78-7144-11e5-ba71-058fbc01cf0b	
2	ce134a78-7144-11e5-ba71-058fbc01cf0b	
3	ce134a78-7144-11e5-ba71-058fbc01cf0b	
4	ce134a78-7144-11e5-ba71-058fbc01cf0b	
...	...	
177476	ce2777e6-7144-11e5-ba71-058fbc01cf0b	
177477	ce2777e6-7144-11e5-ba71-058fbc01cf0b	
177478	ce2777e6-7144-11e5-ba71-058fbc01cf0b	
177479	ce2777e6-7144-11e5-ba71-058fbc01cf0b	
177480	ce2777e6-7144-11e5-ba71-058fbc01cf0b	

	Dog_ID	Test_name	
0	fd3d1b44-7144-11e5-ba71-058fbc01cf0b	Yawn Warm-up	
1	fd3d1b44-7144-11e5-ba71-058fbc01cf0b	Yawn Game	
2	fd3d1b44-7144-11e5-ba71-058fbc01cf0b	Eye Contact Warm-up	
3	fd3d1b44-7144-11e5-ba71-058fbc01cf0b	Eye Contact Game	
4	fd3d1b44-7144-11e5-ba71-058fbc01cf0b	Treat Warm-up	
...	
177476	fd444202-7144-11e5-ba71-058fbc01cf0b	One Cup Warm-up	
177477	fd444202-7144-11e5-ba71-058fbc01cf0b	Two Cup Warm-up	
177478	fd444202-7144-11e5-ba71-058fbc01cf0b	Memory versus Pointing	
177479	fd444202-7144-11e5-ba71-058fbc01cf0b	Memory versus Smell	
177480	fd444202-7144-11e5-ba71-058fbc01cf0b	Delayed Cup Game	

	Subcategory_name	Gender	Birthday	Breed	
0	Empathy	male	2009	Shih Tzu	
1	Empathy	male	2009	Shih Tzu	
2	Empathy	male	2009	Shih Tzu	
3	Empathy	male	2009	Shih Tzu	
4	Communication	male	2009	Shih Tzu	
...	
177476	Memory	male	2012	Mixed	
177477	Memory	male	2012	Mixed	
177478	Memory	male	2012	Mixed	
177479	Memory	male	2012	Mixed	
177480	Memory	male	2012	Mixed	

	Breed_Type	...	State	Zip	Country	Exc
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lude \
0          Pure Breed ... NC 27701 US
1
1          Pure Breed ... NC 27701 US
1
2          Pure Breed ... NC 27701 US
1
3          Pure Breed ... NC 27701 US
1
4          Pure Breed ... NC 27701 US
1
...          ... ... ...
...
177476 Mixed Breed/ Other/ I Don't Know ... NaN 466311 SG
NaN
177477 Mixed Breed/ Other/ I Don't Know ... NaN 466311 SG
NaN
177478 Mixed Breed/ Other/ I Don't Know ... NaN 466311 SG
NaN
177479 Mixed Breed/ Other/ I Don't Know ... NaN 466311 SG
NaN
177480 Mixed Breed/ Other/ I Don't Know ... NaN 466311 SG
NaN

      Free_Start_User      Last_Active_At  Membership_Type  Rating \
0          0 2015-02-23 13:39:00          2      NaN
1          0 2015-02-23 13:39:00          2      NaN
2          0 2015-02-23 13:39:00          2      NaN
3          0 2015-02-23 13:39:00          2      NaN
4          0 2015-02-23 13:39:00          2      NaN
...          ...          ...          ...
177476      NaN 2014-04-28 01:18:00          1      NaN
177477      NaN 2014-04-28 01:18:00          1      NaN
177478      NaN 2014-04-28 01:18:00          1      NaN
177479      NaN 2014-04-28 01:18:00          1      NaN
177480      NaN 2014-04-28 01:18:00          1      NaN

      Rank_by_UserID Rank_by_DogID
0          1.0          1.0
1          2.0          2.0
2          3.0          3.0
3          4.0          4.0
4          5.0          5.0
...          ...          ...
177476      12.0         12.0
177477      13.0         13.0
177478      14.0         14.0
177479      15.0         15.0
177480      16.0         16.0


[177481 rows x 30 columns]

```

```
In [3]: uniqueValues = data['Birthday'].nunique()  
print('Number of unique values in column "Birthday" of the dataframe : ')  
print(uniqueValues)  
##I wanted to have a look at the range of the ages among dogs.
```

Number of unique values in column "Birthday" of the dataframe :
26

```
In [4]: dataframe0 = pd.read_excel("/Users/yarkingazi/Desktop/dognition_data_no_agg  
dataframe1 = pd.DataFrame(dataframe0)  
print(dataframe0['Birthday'])
```



0	2009
1	2009
2	2009
3	2009
4	2009
	...
177476	2012
177477	2012
177478	2012
177479	2012
177480	2012

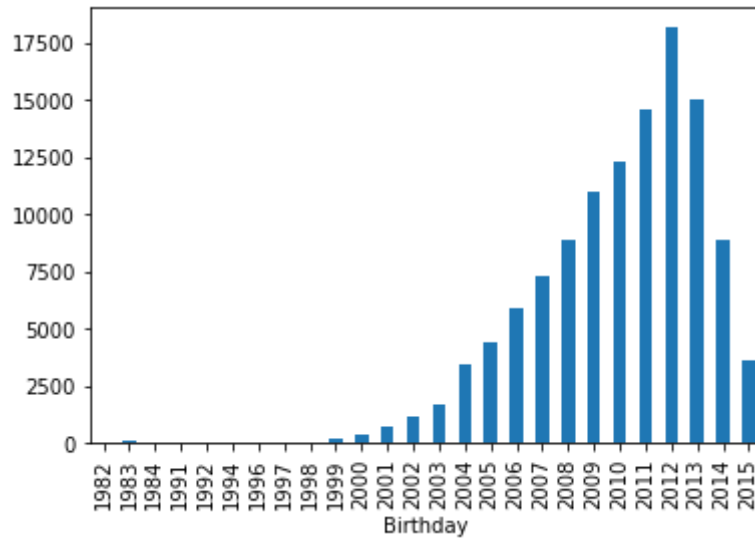
Name: Birthday, Length: 177481, dtype: int64

```
In [5]: dataframe2 = dataframe0.groupby( 'Birthday' )[ 'Subscribed' ].sum( )  
        print(dataframe2)  
##We can observe that older dog owners are actually not the majority among
```

```
Birthday  
1982      27  
1983      99  
1984       0  
1991       0  
1992       0  
1994       4  
1996      20  
1997      33  
1998      26  
1999     162  
2000     351  
2001     706  
2002    1170  
2003    1731  
2004    3473  
2005    4413  
2006    5910  
2007    7320  
2008    8879  
2009   11032  
2010   12347  
2011   14573  
2012   18174  
2013   15073  
2014    8879  
2015    3657  
Name: Subscribed, dtype: int64
```

```
In [6]:  
# plotting the points  
dataframe2.plot(kind='bar',x='name',y='age')
```

Out[6]: <AxesSubplot:xlabel='Birthday'>



In []: