In [197]:

```
import pandas as pd
import os
import numpy as np
import matplotlib as plt
%matplotlib inline
```

Скачал данные с https://github.com/wesm/pydata-book/tree/2nd-edition/datasets/babynames)

План такой:

- 1) Получить названия директорий откуда пандас будет считывать файлы,
- 2) Путем танцев с бубнами, костылями и пандасами создать датафрейм,
- 3) Вытащить из названий файлов Год анализа,
- 4) Понять, что это даже не начало задания на визуализацию

In [170]:

```
yourpath = r'C:\Users\a.dikov\OTUS\5\datasets\babynames'

directory = []

for root, dirs, files in os.walk(yourpath, topdown=False):
    for name in files:
        directory.append(os.path.join(root, name))
        print(os.path.join(root, name))
#1 часть готова
```

```
C:\Users\a.dikov\OTUS\5\datasets\babynames\NationalReadMe.pdf
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1880.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1881.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1882.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1883.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1884.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1885.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1886.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1887.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1888.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1889.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1890.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1891.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1892.txt
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C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1897.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1898.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1899.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1900.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1901.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1902.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1903.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1904.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1905.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1906.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1907.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1908.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1909.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1910.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1911.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1912.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1913.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1914.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1915.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1916.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1917.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1918.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1919.txt
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C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1933.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1934.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1935.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1936.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1937.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1938.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1939.txt
```

```
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1940.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1941.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1942.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1943.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1944.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1945.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1946.txt
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C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1951.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1952.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1953.txt
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C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1961.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1962.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1963.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1964.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1965.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1966.txt
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C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1971.txt
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C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1981.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1982.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1983.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1984.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1985.txt
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C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1987.txt
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C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1990.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1991.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1992.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1993.txt
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C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1996.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1997.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1998.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob1999.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob2000.txt
```

```
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob2001.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob2002.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob2003.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob2004.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob2005.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob2006.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob2007.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob2008.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob2009.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob2009.txt
C:\Users\a.dikov\OTUS\5\datasets\babynames\yob2010.txt
```

In [172]:

directory = directory[1:] directory #обрезаем для удобства

Out[172]:

```
['C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1880.txt',
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1881.txt',
 C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1882.txt',
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1883.txt
 C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1884.txt',
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1885.txt',
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1886.txt',
 C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1887.txt'
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1888.txt',
 C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1889.txt',
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1890.txt
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1891.txt',
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1892.txt',
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1893.txt',
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 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1900.txt',
 C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1901.txt'
 C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1902.txt',
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1903.txt',
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 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1905.txt
 C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1906.txt'
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1907.txt',
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1908.txt',
 C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1909.txt'
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 C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1912.txt'
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 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1916.txt\
 C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1917.txt',
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1918.txt',
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1919.txt
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 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1922.txt',
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1923.txt
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1924.txt',
 C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1925.txt',
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1926.txt',
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 C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1928.txt',
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1929.txt',
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1930.txt'
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 C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1932.txt',
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1933.txt',
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1934.txt
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1935.txt',
 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1936.txt',
 C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1937.txt',
 C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1938.txt',
```

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C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1939.txt',
'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1940.txt',
C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1941.txt'
C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1942.txt',
C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1943.txt',
C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1944.txt'
C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1945.txt',
'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1946.txt',
'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1947.txt',
C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1948.txt'
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'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1954.txt',
'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1955.txt'
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'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1958.txt',
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'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1961.txt',
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C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1963.txt'
'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1964.txt',
'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1965.txt',
'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1966.txt
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'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1969.txt',
'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1970.txt'
'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1971.txt',
C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1972.txt',
'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1973.txt',
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'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1980.txt',
C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1981.txt'
'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1982.txt',
'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1983.txt',
'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1984.txt',
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C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1986.txt',
C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1987.txt',
C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1988.txt'
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'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1997.txt',
'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1998.txt',
C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob1999.txt',
```

```
'C:\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob2000.txt', 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob2001.txt', 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob2002.txt', 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob2003.txt', 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob2004.txt', 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob2005.txt', 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob2006.txt', 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob2007.txt', 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob2008.txt', 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob2009.txt', 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob2009.txt', 'C:\\Users\\a.dikov\\OTUS\\5\\datasets\\babynames\\yob2010.txt']
```

In [210]:

```
dfc = pd.DataFrame(columns=['Name','Sex','Amount','Year'])

for i in directory:
    df = pd.read_csv(i,names=['Name','Sex','Amount'], delimiter=',')
    df['Year'] = i
    df['Year'] = df['Year'].map(lambda x: x.lstrip(r'C:\Users\a.dikov\OTUS\5\datasets\b
abynames\yob').rstrip('.txt'))
    dfc = dfc.append(df)

# 2 u 3 часть готовы
```

In [211]:

dfc

Out[211]:

	Name	Sex	Amount	Year
0	Mary	F	7065	1880
1	Anna	F	2604	1880
2	Emma	F	2003	1880
3	Elizabeth	F	1939	1880
4	Minnie	F	1746	1880
5	Margaret	F	1578	1880
6	Ida	F	1472	1880
7	Alice	F	1414	1880
8	Bertha	F	1320	1880
9	Sarah	F	1288	1880
10	Annie	F	1258	1880
11	Clara	F	1226	1880
12	Ella	F	1156	1880
13	Florence	F	1063	1880
14	Cora	F	1045	1880
15	Martha	F	1040	1880
16	Laura	F	1012	1880
17	Nellie	F	995	1880
18	Grace	F	982	1880
19	Carrie	F	949	1880
20	Maude	F	858	1880
21	Mabel	F	808	1880
22	Bessie	F	794	1880
23	Jennie	F	793	1880
24	Gertrude	F	787	1880
25	Julia	F	783	1880
26	Hattie	F	769	1880
27	Edith	F	768	1880
28	Mattie	F	704	1880
29	Rose	F	700	1880
33808	Zaviyon	М	5	2010
33809	Zaybrien	М	5	2010
33810	Zayshawn	М	5	2010
33811	Zayyan	М	5	2010
33812	Zeal	М	5	2010
33813	Zealan	М	5	2010

	Name	Sex	Amount	Year
33814	Zecharia	М	5	2010
33815	Zeferino	М	5	2010
33816	Zekariah	М	5	2010
33817	Zeki	М	5	2010
33818	Zeriah	М	5	2010
33819	Zeshan	М	5	2010
33820	Zhyier	М	5	2010
33821	Zildjian	М	5	2010
33822	Zinn	М	5	2010
33823	Zishan	М	5	2010
33824	Ziven	М	5	2010
33825	Zmari	М	5	2010
33826	Zoren	М	5	2010
33827	Zuhaib	М	5	2010
33828	Zyeire	М	5	2010
33829	Zygmunt	М	5	2010
33830	Zykerion	М	5	2010
33831	Zylar	М	5	2010
33832	Zylin	М	5	2010
33833	Zymaire	М	5	2010
33834	Zyonne	М	5	2010
33835	Zyquarius	М	5	2010
33836	Zyran	М	5	2010
33837	Zzyzx	М	5	2010

1690784 rows × 4 columns

ЗАДАНИЕ 1: Сгруппируйте данные по полу и году и визуализируйте общую динамику рождаемости обоих полов

In []: