**Московский государственный технический**

**университет им. Н.Э. Баумана**

Факультет «Информатика и системы управления»
Кафедра ИУ5 «Системы обработки информации и управления»

Курс «Технологии машинного обучения»

РК №1. Вариант 17.

Выполнил:                                          Проверил:
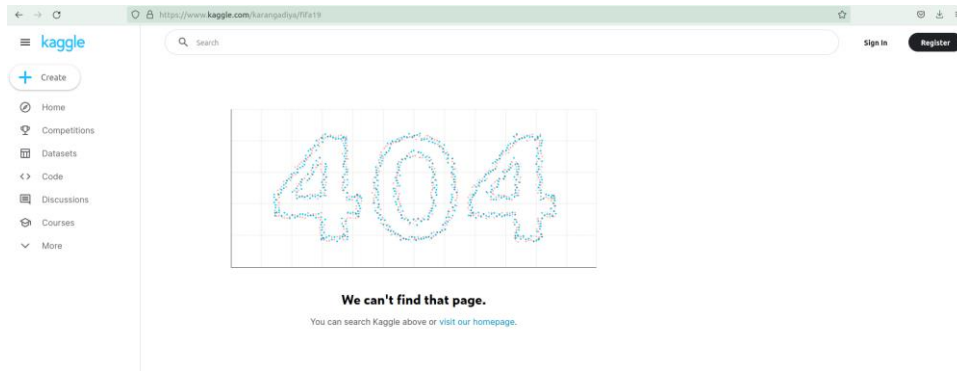
студент ИУ5-63Б                        преподаватель каф. ИУ5

Рыбина А.Д.                                    Гапанюк Ю.Е.

Москва, 2022 г.

## Задача №3.

Для заданного набора данных произведите масштабирование данных (для одного признака) и преобразование категориальных признаков в количественные двумя способами (label encoding, one hot encoding) для одного признака. Какие методы Вы использовали для решения задачи и почему?

https://www.kaggle.com/karangadiya/fifa19



По причине отсутствия датасета на сайте был выбран другой

https://www.kaggle.com/fivethirtyeight/fivethirtyeight-comic-characters-dataset (файл dc-wikia-data.csv)

```python
import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
```

```python
df = pd.read_csv('dc-wikia-data.csv', sep=',')
```

```python
df.head()
```

Out[4]:

| | page_id | name | urlslug | ID | ALIGN | EYE | HAIR | SEX | GSM | ALIVE | APPEARANCES | APPE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1422 | Batman (Bruce Wayne) | \/wiki\/Batman_(Bruce_Wayne) | Secret Identity | Good Characters | Blue Eyes | Black Hair | Male Characters | NaN | Living Characters | 3093.0 | 1 |
| 1 | 23387 | Superman (Clark Kent) | \/wiki\/Superman_(Clark_Kent) | Secret Identity | Good Characters | Blue Eyes | Black Hair | Male Characters | NaN | Living Characters | 2496.0 | 1986 |
| 2 | 1458 | Green Lantern (Hal Jordan) | \/wiki\/Green_Lantern_(Hal_Jordan) | Secret Identity | Good Characters | Brown Eyes | Brown Hair | Male Characters | NaN | Living Characters | 1565.0 | 1959 |
| 3 | 1659 | James Gordon (New Earth) | \/wiki\/James_Gordon_(New_Earth) | Public Identity | Good Characters | Brown Eyes | White Hair | Male Characters | NaN | Living Characters | 1316.0 | 1987, |
| 4 | 1576 | Richard Grayson (New Earth) | \/wiki\/Richard_Grayson_(New_Earth) | Secret Identity | Good Characters | Blue Eyes | Black Hair | Male Characters | NaN | Living Characters | 1237.0 | 1 |

```python
df.shape
```

Out[5]: (6896, 13)

```python
df.dtypes
```

Out[6]:
```
page_id              int64
name                object
urlslug             object
ID                  object
ALIGN               object
EYE                 object
HAIR                object
SEX                 object
GSM                 object
ALIVE               object
APPEARANCES        float64
FIRST APPEARANCE    object
YEAR               float64
dtype: object
```

```python
#поиск пропусков
for col in df.columns:
    is_missing = np.mean(df[col].isnull())
    print('{} - {}%'.format(col, round(is_missing*100)))
```

```
page_id - 0%
name - 0%
urlslug - 0%
ID - 29%
ALIGN - 9%
EYE - 53%
HAIR - 33%
SEX - 2%
GSM - 99%
ALIVE - 0%
APPEARANCES - 5%
FIRST APPEARANCE - 1%
YEAR - 1%
```

Целочисленными значениями будем кодировать признак name (пропусков нет). Машабировать - признак Appearances (есть пропуски).

```python
df['APPEARANCES'].unique()
```

```
array([3.093e+03, 2.496e+03, 1.565e+03, 1.316e+03, 1.237e+03, 1.231e+03,
       1.121e+03, 1.095e+03, 1.075e+03, 1.028e+03, 9.690e+02, 9.510e+02,
       9.340e+02, 9.300e+02, 8.030e+02, 7.160e+02, 7.060e+02, 6.770e+02,
       6.540e+02, 6.350e+02, 6.050e+02, 5.950e+02, 5.930e+02, 5.840e+02,
       5.600e+02, 5.580e+02, 5.570e+02, 5.490e+02, 5.170e+02, 4.920e+02,
       4.870e+02, 4.700e+02, 4.390e+02, 4.360e+02, 4.290e+02, 4.270e+02,
       4.230e+02, 4.220e+02, 4.130e+02, 3.990e+02, 3.930e+02, 3.910e+02,
       3.880e+02, 3.860e+02, 3.740e+02, 3.710e+02, 3.700e+02, 3.610e+02,
       3.560e+02, 3.530e+02, 3.500e+02, 3.450e+02, 3.440e+02, 3.360e+02,
       3.350e+02, 3.250e+02, 3.210e+02, 3.190e+02, 3.140e+02, 3.110e+02,
       3.090e+02, 3.080e+02, 3.060e+02, 3.050e+02, 3.010e+02, 3.000e+02,
       2.990e+02, 2.970e+02, 2.910e+02, 2.880e+02, 2.860e+02, 2.840e+02,
       2.820e+02, 2.680e+02, 2.660e+02, 2.620e+02, 2.610e+02, 2.560e+02,
       2.540e+02, 2.530e+02, 2.520e+02, 2.500e+02, 2.450e+02, 2.410e+02,
       2.390e+02, 2.370e+02, 2.350e+02, 2.340e+02, 2.310e+02, 2.290e+02,
       2.280e+02, 2.270e+02, 2.260e+02, 2.250e+02, 2.240e+02, 2.220e+02,
       2.190e+02, 2.180e+02, 2.160e+02, 2.140e+02, 2.130e+02, 2.120e+02,
       2.080e+02, 2.070e+02, 2.060e+02, 1.990e+02, 1.980e+02, 1.920e+02,
       1.910e+02, 1.890e+02, 1.880e+02, 1.840e+02, 1.830e+02, 1.820e+02,
       1.810e+02, 1.800e+02, 1.790e+02, 1.770e+02, 1.760e+02, 1.750e+02,
       1.740e+02, 1.730e+02, 1.710e+02, 1.700e+02, 1.680e+02, 1.670e+02,
       1.660e+02, 1.650e+02, 1.640e+02, 1.630e+02, 1.620e+02, 1.610e+02,
       1.600e+02, 1.590e+02, 1.580e+02, 1.570e+02, 1.550e+02, 1.540e+02,
       1.530e+02, 1.520e+02, 1.510e+02, 1.480e+02, 1.470e+02, 1.430e+02,
       1.420e+02, 1.410e+02, 1.400e+02, 1.390e+02, 1.380e+02, 1.370e+02,
       1.360e+02, 1.340e+02, 1.330e+02, 1.320e+02, 1.310e+02, 1.300e+02,
       1.290e+02, 1.280e+02, 1.270e+02, 1.260e+02, 1.250e+02, 1.240e+02,
       1.230e+02, 1.220e+02, 1.210e+02, 1.200e+02, 1.180e+02, 1.160e+02,
       1.150e+02, 1.140e+02, 1.130e+02, 1.110e+02, 1.100e+02, 1.090e+02,
       1.080e+02, 1.070e+02, 1.060e+02, 1.050e+02, 1.040e+02, 1.030e+02,
       1.020e+02, 1.010e+02, 1.000e+02, 9.900e+01, 9.800e+01, 9.700e+01,
       9.600e+01, 9.500e+01, 9.400e+01, 9.300e+01, 9.200e+01, 9.100e+01,
       9.000e+01, 8.900e+01, 8.800e+01, 8.700e+01, 8.600e+01, 8.500e+01,
       8.400e+01, 8.300e+01, 8.200e+01, 8.100e+01, 8.000e+01, 7.900e+01,
       7.800e+01, 7.700e+01, 7.600e+01, 7.500e+01, 7.400e+01, 7.300e+01,
       7.200e+01, 7.100e+01, 7.000e+01, 6.900e+01, 6.800e+01, 6.700e+01,
       6.600e+01, 6.500e+01, 6.400e+01, 6.300e+01, 6.200e+01, 6.100e+01,
       6.000e+01, 5.900e+01, 5.800e+01, 5.700e+01, 5.600e+01, 5.500e+01,
       5.400e+01, 5.300e+01, 5.200e+01, 5.100e+01, 5.000e+01, 4.900e+01,
       4.800e+01, 4.700e+01, 4.600e+01, 4.500e+01, 4.400e+01, 4.300e+01,
       4.200e+01, 4.100e+01, 4.000e+01, 3.900e+01, 3.800e+01, 3.700e+01,
       3.600e+01, 3.500e+01, 3.400e+01, 3.300e+01, 3.200e+01, 3.100e+01,
       3.000e+01, 2.900e+01, 2.800e+01, 2.700e+01, 2.600e+01, 2.500e+01,
       2.400e+01, 2.300e+01, 2.200e+01, 2.100e+01, 2.000e+01, 1.900e+01,
       1.800e+01, 1.700e+01, 1.600e+01, 1.500e+01, 1.400e+01, 1.300e+01,
       1.200e+01, 1.100e+01, 1.000e+01, 9.000e+00, 8.000e+00, 7.000e+00,
       6.000e+00, 5.000e+00, 4.000e+00, 3.000e+00, 2.000e+00, 1.000e+00,
          nan])
```
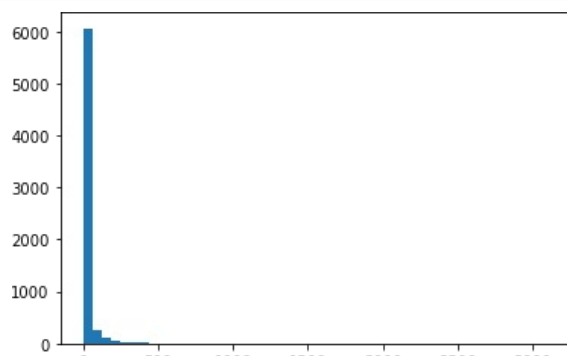
```python
#заполним пропуски медианой
from sklearn.impute import SimpleImputer
imp1 = SimpleImputer(missing_values=np.nan, strategy='most_frequent')
data1 = imp1.fit_transform(df[['APPEARANCES']])
pd.isnull(data1).sum()
```

```
0
```

```python
plt.hist(df['APPEARANCES'], 50)
plt.xlabel('APPEARANCES')
plt.show()
```
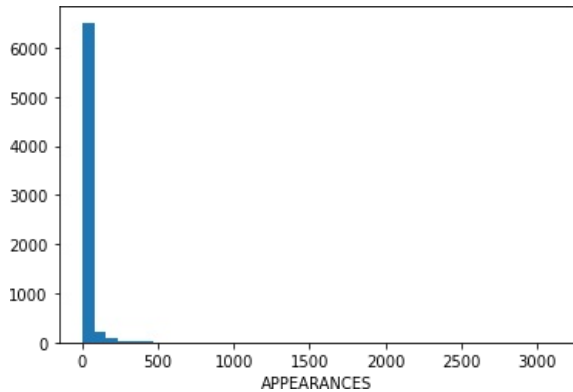
Пропусков в столбце APPEARANCES не осталось
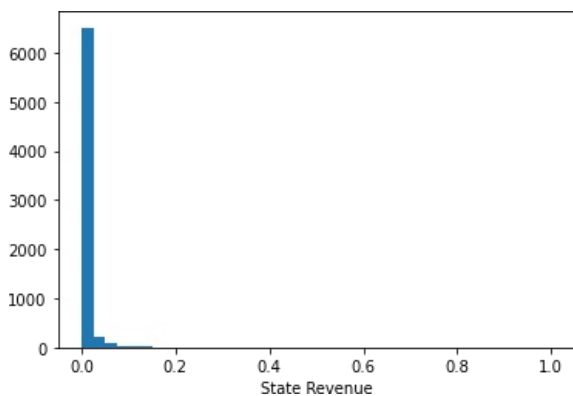
## Масштабирование данных

In [18]:
```python
plt.hist(data1, 40)
plt.xlabel('APPEARANCES')
plt.show()
```



In [23]:
```python
from sklearn.preprocessing import MinMaxScaler
```

In [24]:
```python
sc1 = MinMaxScaler()
sc1_data = sc1.fit_transform(data1)
```

In [25]:
```python
plt.hist(sc1_data, 40)
plt.xlabel('State Revenue')
plt.show()
```



## Преобразование категориальных признаков в количественные

In [28]:
```python
from sklearn.preprocessing import LabelEncoder, OneHotEncoder
```

In [29]:
```python
df['name']
```

Out[29]:
```
0                Batman (Bruce Wayne)
1              Superman  (Clark  Kent)
2           Green Lantern (Hal Jordan)
3            James Gordon (New Earth)
4          Richard Grayson (New Earth)
                   ...
6891          Nadine West (New Earth)
6892        Warren Harding (New Earth)
6893       William Harrison (New Earth)
6894       William McKinley (New Earth)
6895              Mookie (New Earth)
```

```
Name: name, Length: 6896, dtype: object
```

```
df['name'].unique()
```

```
array(['Batman (Bruce Wayne)', 'Superman (Clark Kent)',
       'Green Lantern (Hal Jordan)', ..., 'William Harrison (New Earth)',
       'William McKinley (New Earth)', 'Mookie (New Earth)'], dtype=object)
```

```
#преобразование
le1 = LabelEncoder()
le1.fit_transform(df['name'])
```

```
array([ 597, 6007, 2487, ..., 6708, 6723, 4466])
```

```
list(le1.classes_)
```

```
['3g4 (New Earth)',
 '500-ZQ (New Earth)',
 "A'Hwiirdh-Paan'A (New Earth)",
 "A'monn A'mokk (New Earth)",
 "A'morr (New Earth)",
 'A-Mortal (New Earth)',
 'A.J. (New Earth)',
 'AR-N-O-Q (New Earth)',
 'AWOL (New Earth)',
 'Aa (New Earth)',
 'Aarden (New Earth)',
 'Aaron Babcock (New Earth)',
 'Aaron Cash (New Earth)',
 'Aaron Hayley (New Earth)',
 'Aaron Helzinger (New Earth)',
 'Aaron Jase (New Earth)',
 'Aaron Langstrom (New Earth)',
 'Abdul Smith (New Earth)',
 'Abe Crane (New Earth)',
 'Abednego Danner (New Earth)',
 'Abel (New Earth)',
 'Abel Tarrant (New Earth)',
 'Abigail Arcane (New Earth)',
 'Abigail Hunkel (New Earth)',
 'Abigail Moorland (New Earth)',
 'Abin Sur (New Earth)',
 'Able Crown (New Earth)',
 'Abnegazar (New Earth)',
 'Abner Girdler (New Earth)',
 'Abner Krill (New Earth)',
 'Abraham Arlington (New Earth)',
 'Abraham Lincoln (New Earth)',
 'Abraham Pointe (New Earth)',
 'Abraxis (New Earth)',
 'Abu-Gita (New Earth)',
 'Abyss (New Earth)',
 'Abyssma (New Earth)',
 'Acantha (New Earth)',
 'Acarinus (New Earth)',
 'Ace Arn (New Earth)',
 'Ace Atchinson (New Earth)',
 'Ace Chance (New Earth)',
 'Ace High (New Earth)',
 'Ace of Clubs (Arcana) (New Earth)',
 'Ace of Clubs III (New Earth)',
 'Ace of Diamonds (Arcana) (New Earth)',
 'Ace of Diamonds II (New Earth)',
 'Ace of Hearts (Arcana) (New Earth)',
 'Ace of Hearts II (New Earth)',
 'Ace of Spades (Arcana) (New Earth)',
 'Ace of Spades I (New Earth)',
 'Ace of Spades V (New Earth)',
 'Ace of Spades VI (New Earth)',
 'Ace of Spades VII (New Earth)',
 'Ace the Bat-Hound (New Earth)',
 'Acheron (New Earth)',
 'Achille Destinee (New Earth)',
 'Achilles  (New  Earth)',
 'Achilles Milo (New Earth)',
 'Achilles Warkiller (New Earth)',
 'Acidia (New Earth)',
 'Acolyte (New Earth)',
 'Actuary (New Earth)',
```

```
'Ada LaBostrie (New Earth)',
'Adam (New Earth)',
'Adam Blake (New Earth)',
'Adam Bomb (New Earth)',
'Adam Cray (New Earth)',
'Adam Fells (New Earth)',
'Adam Grant (New Earth)',
'Adam Kroft (New Earth)',
'Adam Sharp (New Earth)',
'Adam Strange (New Earth)',
'Adam Winterbourne (New Earth)',
'Adam, Sector 1055 (New Earth)',
'Adara (Entity) (New Earth)',
'Adara (New Earth)',
'Adder (New  Earth)',
'Adele Drew (New Earth)',
'Adeline Kane (New Earth)',
'Adeline Prescott (New Earth)',
'Adellca (New Earth)',
'Adept (New  Earth)',
'Adolf Hitler (New Earth)',
'Adolf Hitler Clone (New Earth)',
'Adrasteia (New Earth)',
'Adrian Chase (New Earth)',
'Adrian Paratino (New Earth)',
'Adrian Wentworth (New Earth)',
'Adrian Zapruder (New Earth)',
'Adrianna Tomaz (New Earth)',
'Aella  (New  Earth)',
'Aftermath (New Earth)',
"Aga'po  (New  Earth)",
'Agamemno (New Earth)',
'Agamemnon (New Earth)',
'Agantha (New Earth)',
'Agatha Wayne (New Earth)',
'Agent ! (New Earth)',
'Agent Axis (New Earth)',
'Agent Liberty II (New Earth)',
'Agent Orange (New Earth)',
'Agni (New Earth)',
'Agogg  (New  Earth)',
'Agrippe (New Earth)',
'Agrippina (New Earth)',
'Agua Sin Gaaz (New Earth)',
'Ahk-Ton  (New  Earth)',
'Ahmed Samsarra (New Earth)',
'Ahpuch (New Earth)',
"Ahri'ahn (New Earth)",
'Ahriman (New Earth)',
'Ahti  (New  Earth)',
'Ahtier (New Earth)',
'Ahura-Mazda (New Earth)',
'Aimee DeWitt (New Earth)',
'Airam Sappal (New Earth)',
'Ak-Var (New Earth)',
'Akahara (New Earth)',
'Akarl (New Earth)',
'Akhlut (New Earth)',
'Akila (New Earth)',
'Akisha (New Earth)',
'Al Bizarro (New  Earth)',
'Alan Armstrong (New Earth)',
'Alan Barnes (New Earth)',
'Alan Hallman (New Earth)',
'Alan Markham (New Earth)',
'Alan Scott (New  Earth)',
'Alan Wayne (New  Earth)',
'Alan Welles (New Earth)',
'Alan Witherspoon (New Earth)',
'Alan von Neumann, Jr. (New Earth)',
'Alana Dominguez (New Earth)',
'Alanna Strange (New Earth)',
'Albart (New Earth)',
'Albert Davis (New Earth)',
'Albert Desmond (New Earth)',
'Albert Hollerer (New Earth)',
'Albert Michaels (New Earth)',
'Albert Nedal (New Earth)',
'Albert Pratt (New Earth)',
'Albert Rothstein (New Earth)',
'Albert Tyler (New Earth)',
'Alberto Falcone (New Earth)',
'Alberto Reyes (New Earth)',
'Albrecht Krieger (New Earth)',
'Albrecht Raines (New Earth)',
'Albrecht von Mannheim (New Earth)',
'Alcinoe (New Earth)',
'Alcmaeon (New Earth)',
'Ale (New Earth)',
```

```
'Alec Holland (New Earth)',
'Alec Rois (New Earth)',
'Alecto   (New   Earth)',
'Aleea Strange (New Earth)',
'Aleister Golden (New Earth)',
'Aleister Hook (New Earth)',
'Alejandro Sanchez (New Earth)',
'Aleksandr Creote (New Earth)',
'Alera (New Earth)',
'Alesandra Taracon (New Earth)',
'Alessio Morandi (New Earth)',
'Alex  Merkel  (New   Earth)',
'Alex Olsen (New Earth)',
'Alexander Allston (New Earth)',
'Alexander Burgess (New Earth)',
'Alexander Ferguson (New Earth)',
'Alexander Luthor (New Earth)',
'Alexander Montez (New Earth)',
'Alexander Nero (New Earth)',
'Alexander Petrov (New Earth)',
'Alexander Sartorius (New Earth)',
'Alexander Trent (New Earth)',
'Alexander Tuttle (New Earth)',
'Alexander Wyvern (New Earth)',
'Alexandra Allston (New Earth)',
'Alexandra DeWitt (New Earth)',
'Alexandra Gianopoulos (New Earth)',
'Alexandra Kosov (New Earth)',
'Alexi Kronsky  (New   Earth)',
'Alexis (New Earth)',
'Alfred Pennyworth (New Earth)',
'Alfred Twidgett (New Earth)',
'Ali Ben Khadir (New Earth)',
'Ali-Ka Zoom (New Earth)',
'Alia (New Earth)',
'Alianna Hubbard (New Earth)',
'Alias the Blur (New Earth)',
'Aliaza (New Earth)',
'Alice Cohen I (New Earth)',
'Alice Cohen II (New Earth)',
'Alice Spencer (New Earth)',
'Alice, Daily Planet (New Earth)',
'Alicia Collins (New Earth)',
'Aliki Marceau (New Earth)',
'Alina (New Earth)',
'Alisa Adams (New Earth)',
"Alisand'r (New Earth)",
'Alix Harrower (New Earth)',
'Alkistis (New Earth)',
'Alkyone (New Earth)',
'All-Beard (New Earth)',
'All-Widow (New Earth)',
'Allegra Garcia (New Earth)',
'Allen Barr (New Earth)',
'Allison Addison (New Earth)',
'Alloroc   (New    Earth)',
'Alonzo Dulak (New Earth)',
'Alonzo Malrey (New Earth)',
'Aloysius Clarke (New Earth)',
'Alpheus Hyatt (New Earth)',
'Alphonso Giovanni (New Earth)',
'Althea (New Earth)',
'Althesia (New Earth)',
"Altin Ad'Ms (New Earth)",
'Altman   (New   Earth)',
'Alton Janus (New Earth)',
'Aluminum (New Earth)',
'Alura In-Ze (New Earth)',
'Alvin Desmond (New Earth)',
'Alvin Pierce (New Earth)',
'Alvin Rusch (New Earth)',
'Alvin Tanner (New Earth)',
'Alyce Sinner (New Earth)',
'Alysha Grant (New Earth)',
'Amadeus Arkham (New Earth)',
'Amanda Beckett (New Earth)',
'Amanda McCoy (New Earth)',
'Amanda Spence (New Earth)',
'Amanda Turner (New Earth)',
'Amanda Waller (New Earth)',
'Amanita  (New   Earth)',
'Amaya  (New  Earth)',
'Amazing Grace (New Earth)',
'Amazing Ronnie (New Earth)',
'Amazo (New Earth)',
'Amber (New Earth)',
'Amber II (New Earth)',
'Ambrose Bierce (New Earth)',
'Amelia Hunkel (New Earth)',
```

```
'Amelinda Lopez (New Earth)',
'Amentep (New Earth)',
'Americommando II (New Earth)',
'Amina Franklin (New Earth)',
'Ammon-Ra (New Earth)',
'Amnee Pree (New Earth)',
'Amnon Silverstein (Dakotaverse)',
'Amok (New Earth)',
'Amon   (New   Earth)',
'Amon Hakk (New Earth)',
'Amon Sur (New Earth)',
'Amon Tomaz (New Earth)',
'Amos Fortune (New Earth)',
'Amos Monroe (New Earth)',
'Amos Sharkey (New Earth)',
'Ampa Nnn (New Earth)',
'Amparo Cardenas (New Earth)',
'Amsel Reiniger (New Earth)',
'Amunet Black (New Earth)',
'Amy Allen (New Earth)',
'Amy Beitermann (New Earth)',
'Amy Rohrbach (New Earth)',
'Amy Winston (New Earth)',
'Ana\\u00efs Arcane (New Earth)',
'Anaea (New Earth)',
'Anahid  (New   Earth)',
'Anais Guillot (New Earth)',
'Anann  (New   Earth)',
'Anansa (New Earth)',
'Anatoli Kalunnin (New Earth)',
'Anatoli Knyazev (New Earth)',
'Anaya (New Earth)',
'Andi Kasinsky (New Earth)',
'Andonis Bal  (New   Earth)',
'Andre Blanc-Dumont (New Earth)',
'Andre Chavard (New Earth)',
'Andre Sinclair (New Earth)',
'Andre Twist  (New   Earth)',
'Andre de Sevigne (New Earth)',
'Andrea Martinez (New Earth)',
'Andrea Rojas (New Earth)',
'Andreas Havoc (New Earth)',
'Andrew Bennett (New Earth)',
'Andrew Draper (New Earth)',
'Andrew Flint (New Earth)',
'Andrew Franklin (New Earth)',
'Andrew Greenwald (New Earth)',
'Andrew Grubs (New Earth)',
'Andrew Haskell (New Earth)',
'Andrew Howe (New Earth)',
'Andrew Johnson (New Earth)',
'Andrew Lopez (New Earth)',
'Andrew McFee (New Earth)',
'Andrew Van Horn (New Earth)',
'Andrew Vinson (Earth-Two)',
'Andrew Zagarian (New Earth)',
'Andromeda Strange (New Earth)',
"Angel Beatrix O'Day (New Earth)",
'Angel Devlin (New Earth)',
'Angela Adam (New Earth)',
'Angela Hawkins III (New Earth)',
'Angela Margolin (New Earth)',
'Angela Revere (New Earth)',
'Angela Roth (New Earth)',
'Angela St. Grace (New Earth)',
'Angela Wainwright (New Earth)',
'Angelica Smith (New Earth)',
'Angelica Wallis (New Earth)',
'Angelika Bal (New Earth)',
'Angelo Bend (New Earth)',
'Angelo Mirti (New Earth)',
'Angon (New Earth)',
'Angora Lapin (New Earth)',
'Angry Charlie (New Earth)',
'Angst (New Earth)',
'Anica Balcescu (New Earth)',
'Aniela Arcane (New Earth)',
'Anissa Pierce (New Earth)',
'Anita Fite (New Earth)',
'Anjeli Singh (New Earth)',
'Ann Preston (New Earth)',
'Anna Fortune (New Earth)',
'Anna Resik (New Earth)',
'Anne Carver (New Earth)',
'Anne Fletcher (New Earth)',
'Anne Pasquale (New Earth)',
'Anne-Marie Brogan (New Earth)',
'Annie Bonelli (New Earth)',
'Annie Palmer (New Earth)',
```

```
'Anointed One (New Earth)',
'Antaeus (New Earth)',
'Antagon (New Earth)',
'Anthony Angelo, Jr. (New Earth)',
'Anthony Burke (New Earth)',
'Anthony Dunn (New Earth)',
'Anthony Gallo (New Earth)',
'Anthony Gambi (New Earth)',
'Anthony Hartzell (New Earth)',
'Anthony Ivo  (New  Earth)',
'Anthony Lupus (New Earth)',
'Anthony Mantegna (New Earth)',
'Anthony Marchetti (New Earth)',
'Anthony Monetti (New Earth)',
'Anthony Rodriguez I (New Earth)',
'Anthony Rodriguez II (New Earth)',
'Anthony Scarapelli (New Earth)',
'Anthony Woodward (New Earth)',
'Anthony Zucco (New Earth)',
'Anthor Stoneaxe (New Earth)',
'Anthro (New Earth)',
'Anti-Hero (New Earth)',
'Antino\\u00f6s (New Earth)',
'Antinus (New Earth)',
'Antiope (New Earth)',
'Antipathy (New Earth)',
'Antiphon (New Earth)',
'Antithesis (New Earth)',
'Antoine  (New   Earth)',
'Anton Allegro (New Earth)',
'Anton Arcane (New Earth)',
'Anton Geist (New Earth)',
'Anton Knight (Earth-One)',
'Anton Lamont (New Earth)',
'Anton Schott (New Earth)',
'Antonia (New Earth)',
'Antonia Monetti (New Earth)',
'Antonio Ramirez (Earth-One)',
'Antonio Silencio (New Earth)',
'Anubis (New Earth)',
'Anubis of the Dogpound (New Earth)',
'Anya Savenlovich (New Earth)',
'Apalala (New Earth)',
'Aphrodite (New Earth)',
'Apollo (Roman God) (New Earth)',
'Appa Ali Apsa (New Earth)',
'April Clarkson (New Earth)',
"April O'Rourke (New Earth)",
'Apros (New Earth)',
'Aquaman  (Arthur  Curry)',
'Arak Red-Hand (New Earth)',
'Arak Wind-Walker (New Earth)',
'Aram Al Ashir (New Earth)',
'Arani Desai (New Earth)',
'Arashi Ohashi (New Earth)',
'Arbee Stoneham (New Earth)',
'Arch (New Earth)',
'Archer (New Earth)',
'Archer Braun (New Earth)',
'Archer of Angelsport (New Earth)',
'Archibald Asher (New Earth)',
'Archibald Tipple (New Earth)',
"Archon Z'gmora (New Earth)",
'Ard Rennat (New Earth)',
'Arel  (New   Earth)',
'Ares (New Earth)',
'Argus (New Olympians) (New Earth)',
'Ariadne Persakis (New Earth)',
'Ariadne Pinxit (New Earth)',
'Ariadne of Knossos (New Earth)',
'Ariadne of the Blue Guard (New Earth)',
'Ariana Dzerchenko (New Earth)',
'Ariella Kent (New Earth)',
'Arin Sur (New Earth)',
'Arisia Rrab (New Earth)',
'Aristides Demetrios (New Earth)',
'Aristotle Rodor (New Earth)',
'Arizona (New Earth)',
'Arkillo  (New   Earth)',
'Arkkis Chummuck (New Earth)',
'Armageddon (New Earth)',
'Armand Krol (New Earth)',
'Armand Lydecker (New Earth)',
'Armando Ramone (New Earth)',
'Armek (New Earth)',
'Armitage Hawsley (New Earth)',
'Armless Master (New Earth)',
'Armory (New Earth)',
'Arnicus Wolfram (New Earth)',
```

'Arnold Beck (New Earth)',
'Arnold Burnsteel (New Earth)',
'Arnold Etchinson (New Earth)',
'Arnold Flass (New Earth)',
'Arnold Kaua (New Earth)',
'Arnold Locane (New Earth)',
'Arnold Munro (New Earth)',
'Arnold Pruett (New Earth)',
'Arnold Wesker (New Earth)',
'Aron Abromowitz (New Earth)',
'Arrakhat  (New  Earth)',
'Arsala (New Earth)',
'Arsenal (clone) (Earth-One)',
'Artemio Villareal (New Earth)',
'Artemis (Female Furies) (New Earth)',
'Artemis Crock (New Earth)',
'Artemis Freeker (New  Earth)',
'Artemis of Bana-Mighdall (New Earth)',
'Artemis, Goddess of the Hunt (New Earth)',
'Arthur Brown (New Earth)',
'Arthur Curry, Jr. (New Earth)',
'Arthur Gordon Pym (New Earth)',
'Arthur Hall  (New  Earth)',
'Arthur Joseph Curry (New Earth)',
'Arthur Light (New Earth)',
'Arthur Pemberton (New Earth)',
'Arthur Pendragon (New Earth)',
'Arthur Reeves (New Earth)',
'Artin (New Earth)',
'Artis Chep (New Earth)',
'Artois (New Earth)',
'Arturo Rodriguez (New Earth)',
'Aruna Shende (New Earth)',
'Arvin Halliday (New Earth)',
'Arx (New Earth)',
'Arzaz (New Earth)',
'Asane Kanemoto (New Earth)',
'Asano Nitobe (New Earth)',
'Ash-Pak-Glif (New Earth)',
'Asha Del-Nar (New Earth)',
'Ashbury Armstrong (New Earth)',
'Ashel Sabian Formanta (New Earth)',
'Ashiya (New Earth)',
'Ashley Mavis Powell (New Earth)',
'Ashley Zolomon (New Earth)',
'Ashok Desai (New Earth)',
'Asmodeus (New Earth)',
'Asmund Lindel (New Earth)',
'Assyra (New Earth)',
'Astarte (New Earth)',
'Asteroth (New Earth)',
'Astorr  (New  Earth)',
'Astra Logue (New Earth)',
'Astrild Storm-Daughter (New Earth)',
'Aten (New Earth)',
'Athena Tremor (New Earth)',
'Athyns (New Earth)',
'Atinai  (New  Earth)',
'Atlan (New Earth)',
'Atlanna (New Earth)',
'Atlas (New Earth)',
'Atlas, Titans of Myth (New Earth)',
'Atlee (New Earth)',
'Aton (New Earth)',
'Atrocitus (New Earth)',
'Aubrey Sparks (New Earth)',
'Auctioneer (New Earth)',
'Auctioneer II (New Earth)',
'Audrey Lee (New Earth)',
'Audrey Spears (New Earth)',
'Auerbach (New Earth)',
'August Davezak (New Earth)',
'August Durant (New Earth)',
'Augustus Freeman (Dakotaverse)',
'Aurakles (New Earth)',
'Auralie (New Earth)',
'Auron (New Earth)',
'Aurora (Earth-One)',
'Ausiin Snow (New Earth)',
'Austin Bowie (New Earth)',
'Avery Carlton Sunderland (New Earth)',
'Avery Twombey (New Earth)',
'Avia (New Earth)',
'Avir (New Earth)',
'Aviva Weinberg (New Earth)',
'Avruiskin of Pokolistan (New Earth)',
'Axe-Man (New Earth)',
'Axel Baines (New Earth)',
'Axel Storm (New Earth)',

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'Axel Walker (New Earth)',
'Axis (New Earth)',
'Aya (New Earth)',
'Aym (New Earth)',
'Ayrn (New Earth)',
'Az-Rel (New Earth)',
'Azar (New Earth)',
'Azmodus (New Earth)',
'Azrael (New Earth)',
'Azraeuz (New Earth)',
'Aztar (New Earth)',
'Azure (New Earth)',
'Azzarene (New Earth)',
"B'Shi (New Earth)",
"B'aad (New Earth)",
"B'dg (New Earth)",
"B'ox (New Earth)",
"B'rr (New Earth)",
'Babe Tanaka (New Earth)',
'Baby Boom  (New  Earth)',
'Baby Wildebeest (New Earth)',
'Backlash (New Earth)',
'Backslash (New Earth)',
'Backstabber (New Earth)',
'Bad Blood (New Earth)',
'Bad Grrl (New Earth)',
'Badb (New Earth)',
'Badlands (New Earth)',
'Badmouth (New Earth)',
'Bagman (New Earth)',
'Balder (New Earth)',
'Bamboo Monkey (New Earth)',
'Bananas (New Earth)',
'Bandage People',
'Bane (New Earth)',
'Bane of Apokolips (New Earth)',
'Bang Bang  (New  Earth)',
'Banner (New Earth)',
'Barack  Obama  (New   Earth)',
'Baran Flinders (New Earth)',
'Barbara Ann Minerva (New Earth)',
'Barbara Eileen Gordon (New Earth)',
'Barbara Gordon (New Earth)',
'Barbara Gordon (Zero Hour)',
'Barbara Kowaleski (New Earth)',
'Barbara Lane  (New  Earth)',
'Barbara Whitmore (New Earth)',
'Barbarian (New Earth)',
'Barbie (New Earth)',
'Barin (New Earth)',
'Barin Char (New Earth)',
'Barium (New Earth)',
'Barnabus (New Earth)',
'Barnard Blaine (New Earth)',
'Barney Ling  (New  Earth)',
'Barney Sands  (New  Earth)',
'Baron Bedlam II (New Earth)',
'Baron Blitzkrieg (New Earth)',
'Baron Gestapo (New Earth)',
'Baron Sunday  (New  Earth)',
'Baron Tyrano  (New  Earth)',
'Baron Winters (New Earth)',
'Baroness Blitzkrieg (New Earth)',
'Barracuda (New Earth)',
'Barrage II (New Earth)',
'Barreer Wot (New Earth)',
'Barricade (New Earth)',
'Barro Cruzz (New Earth)',
'Barry LeSabre (New Earth)',
'Barry Locatelli (New Earth)',
'Barry Long (New Earth)',
"Barry O'Dare (New Earth)",
'Barry Pierce (New Earth)',
'Barry Quinzel (New Earth)',
'Barry Stein (New Earth)',
'Barter (New Earth)',
'Bartholomew Allen II (New Earth)',
'Bartholomew Higgins (New Earth)',
'Bartholomew Lash (New Earth)',
'Bartholomew Magan (New Earth)',
'Bartle (New Earth)',
'Bashira (New Earth)',
'Basil Karlo (New Earth)',
'Basil Nurblin (New Earth)',
'Basketcase (New Earth)',
'Basqat (New Earth)',
'Bast (New Earth)',
'Bat-Mite (New Earth)',
'Batiri (New Earth)',
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'Batman (Bruce Wayne)',
'Batman Jones (New Earth)',
'Batrok (New Earth)',
'Battleax (New Earth)',
'Batzarro (New Earth)',
'Baud (New Earth)',
'Bayfrentos (New Earth)',
'Baytor (New Earth)',
'Bazil (New Earth)',
'Bazooka (New Earth)',
'Bazooka Joan (New Earth)',
'Beaki (New Earth)',
'Bear Boy (New Earth)',
'Beast (New Earth)',
'Beast With No Name (New Earth)',
'Beatriz (New Earth)',
'Beatriz da Costa (New Earth)',
'Beau Tyler (New Earth)',
'Beaumont  (New  Earth)',
'Beautia Sivana (New Earth)',
'Beautiful Dreamer (New Earth)',
'Becky Albright (New Earth)',
'Bedbug (New Earth)',
'Bedivere (New Earth)',
'Bedlam (New Earth)',
'Bedovian (New Earth)',
'Beelzebub (New Earth)',
'Bekka (New Earth)',
'Belial (New Earth)',
'Belina Pushkin (New Earth)',
'Belizar  (New  Earth)',
'Belle Jackson (New Earth)',
'Bellona (New Earth)',
'Belphegor (New Earth)',
'Belthera (New Earth)',
'Belyllioth (New Earth)',
'Ben Lo (New Earth)',
'Benedict Rundstrom (New Earth)',
'Beni Sholin (New Earth)',
'Benito Gallo (New Earth)',
'Benito Mussolini (New Earth)',
'Benjamin Addison (New Earth)',
'Benjamin Asplin (New Earth)',
'Benjamin Cox (New Earth)',
'Benjamin Gruener (New Earth)',
'Benjamin Harrison Hayes (New Earth)',
'Benjamin Hecht (New Earth)',
'Benjamin Hubbard (New Earth)',
'Benjamin Hunter (New Earth)',
'Benjamin Krullen (New Earth)',
'Benjamin Lindgren (New Earth)',
'Benjamin Lockwood (New Earth)',
'Benjamin Love  (New  Earth)',
'Benjamin Nakashima (New Earth)',
'Benjamin Newton (New Earth)',
'Benjamin Stoner (New Earth)',
'Benjamin Stryker (New Earth)',
'Benjamin Turner (New Earth)',
'Benjamin Vitale (New Earth)',
'Beowulf (New Earth)',
'Berelda (New Earth)',
'Bernadeth (New Earth)',
'Bernal Rojas (New Earth)',
'Bernard Bonner (New Earth)',
'Bernard Dowd (New Earth)',
'Bernard Emil Morlock (New Earth)',
'Bernard Ferguson (New Earth)',
'Bernard Venton (New Earth)',
'Bernell Jones (New Earth)',
'Bernhard Baker (New Earth)',
'Bertram Larvan (New Earth)',
'Bertron (New Earth)',
'Bertron Diib (New Earth)',
'Beryl Hutchinson (New Earth)',
'Bes (New Earth)',
'Bess Lynn (New Earth)',
'Beta Tos  (New  Earth)',
'Beth Zahar (New Earth)',
'Bethany Keele (New Earth)',
'Bethany Lee (New Earth)',
'Bethany McCade (New Earth)',
'Bethany Snow (New Earth)',
'Bette Noir (New Earth)',
'Bette Sans Souci (New Earth)',
'Bettie Reynolds (New Earth)',
'Beulah Bleak (New Earth)',
'Beverly Lewis (New Earth)',
'Bianca Reyes (New Earth)',
'Bibbo Bibbowski (New Earth)',
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'Biff Bailey (New Earth)',
'Biff Bradley (New Earth)',
'Big Atomic Lantern Boy (New Earth)',
'Big Barda (New Earth)',
'Big Bear (New Earth)',
'Big Breeda (New Earth)',
'Big Don Drummond (New Earth)',
'Big Game (New Earth)',
'Big Jim (New Earth)',
'Big Mummy (New Earth)',
'Big Thunder (New Earth)',
'Big Top (New Earth)',
'Bigfoot (New Earth)',
'Bilal Asselah (New Earth)',
'Billy (New Earth)',
'Billy the Girl (New Earth)',
'Bird (New Earth)',
'Birgit Eisenmann (New Earth)',
'Birthday Girl (New Earth)',
'Bison-Black-As-Midnight-Sky (New Earth)',
'Bito Wladon (Imposter) (New Earth)',
'Bito Wladon (New Earth)',
'Bitter Ruth (New Earth)',
'Bivvix (New Earth)',
'Bixby Rhodes (New Earth)',
'Bizarro (New Earth)',
'Bizarro Aquaman (New Earth)',
'Bizarro Batman (New Earth)',
'Bizarro Blue Beetle (New Earth)',
'Bizarro Booster Gold (New Earth)',
'Bizarro Brainiac (New Earth)',
'Bizarro Captain Marvel (New Earth)',
'Bizarro Doomsday (New Earth)',
'Bizarro Fire (New Earth)',
'Bizarro Firestorm (New Earth)',
'Bizarro Flash (New Earth)',
'Bizarro Green Arrow (New Earth)',
'Bizarro Green Lantern (New Earth)',
'Bizarro Hawkgirl (New Earth)',
'Bizarro Hawkman (New Earth)',
'Bizarro I (New Earth)',
'Bizarro II  (New  Earth)',
'Bizarro Jimmy Olsen (New Earth)',
'Bizarro Joker (New Earth)',
'Bizarro Lex Luthor (New Earth)',
'Bizarro Lois Lane (New Earth)',
'Bizarro Martian Manhunter (New Earth)',
'Bizarro Mxyzptlk  (New  Earth)',
'Bizarro Perry White (New Earth)',
'Bizarro Power Girl (New Earth)',
'Bizarro Robin (New Earth)',
'Bizarro Supergirl (New Earth)',
'Bizarro Toyman (New Earth)',
'Bizarro Wonder Woman (New Earth)',
'Bizarro-Girl (New Earth)',
'Black Assassin (Earth-Two)',
'Black Barax (New Earth)',
'Black Commando (New Earth)',
'Black Flash (New Earth)',
'Black Lightning the Horse (New Earth)',
'Black Manta (New Earth)',
'Black Python (New Earth)',
'Black Spider IV (New Earth)',
'Black Wolf (New Earth)',
'Black Zero (New Earth)',
'Black-Cloud-In-Morning (New Earth)',
'Blackbriar Thorn (New Earth)',
'Blackfang (New Earth)',
'Blackjack Jorgis (New Earth)',
'Blackjack McCullough (New Earth)',
'Blacksmyth (New Earth)',
'Blacksnake (New Earth)',
'Blade  (New  Earth)',
'Blade Master (New Earth)',
'Blake (New  Earth)',
'Blanca (New  Earth)',
'Blank Slate (New Earth)',
'Blaster (New Earth)',
'Blathoxi (New Earth)',
'Blaze  (New  Earth)',
'Bleez  (New  Earth)',
'Blind Faith (New Earth)',
'Blind Fury (New Earth)',
'Blinder (New Earth)',
'Blindside (New Earth)',
'Blindspot (New Earth)',
'Blinky Boylan (New Earth)',
'Blish Rrab (New Earth)',
'Blithe (New Earth)',

'Blitzkrieg (New Earth)',
'Blizzard (New Earth)',
'Blockade (New Earth)',
'Blockbuster IV (New Earth)',
'Blockhouse I (New Earth)',
'Blockhouse II (New Earth)',
'Bloobert Cob (New Earth)',
'Bloodclaw (New Earth)',
'Bloodhound (New Earth)',
'Bloodmoney (New Earth)',
'Bloodsport III (New Earth)',
'Bloodthirst (New Earth)',
'Bloodtype (New Earth)',
'Bloodwynd (New Earth)',
'Bloque (New Earth)',
'Blowdart (New Earth)',
'Blowhard (New Earth)',
'Blowout (New Earth)',
'Bludhound  (New  Earth)',
'Blue Damsel Fly (New Earth)',
'Blue Ice (New Earth)',
'Blue Moon (New Earth)',
'Blue of the Rainbow Raiders (New Earth)',
'Blume (New Earth)',
'Blur (New Earth)',
'Blutwurst (New Earth)',
'Blynde (New Earth)',
'Blythe Bonner (New Earth)',
'Bobbie Stephenson (New Earth)',
'Bobby Gazzo (New Earth)',
'Bobo T. Chimpanzee (New Earth)',
'Bocor (New Earth)',
'Body Count (New Earth)',
'Bog Venus (New Earth)',
'Bogeyman (New Earth)',
'Bogosar (New Earth)',
'Boka (New Earth)',
'Boleslaw Uminski (New Earth)',
'Bolphunga (New Earth)',
'Bolshoi (New Earth)',
'Bombburst (New Earth)',
'Bomber (New Earth)',
'Boneblaster (New Earth)',
'Bonehead (New Earth)',
'Bonfire (New Earth)',
'Bonita (New Earth)',
'Bonnie Baxter (New Earth)',
'Bonnie King (New Earth)',
'Bonnie Robinson (New Earth)',
'Bonny Hoffman (New Earth)',
'Boodikka (New Earth)',
'Bookworm III (New Earth)',
'Boone (New Earth)',
'Borb Borbb (New Earth)',
'Boreas (New Earth)',
'Borialosaurus (New Earth)',
'Boris Dhumov (New Earth)',
'Boris Dmitravich Razumihin (New Earth)',
'Boris Ulyanov (New Earth)',
'Bors (New Earth)',
'Boss Bishonen (New Earth)',
'Bossworth (New Earth)',
'Boston Brand (New Earth)',
'Bottom Feeder (New Earth)',
'Bouncer (New Earth)',
'Bounder (New Earth)',
'Bounty (New Earth)',
'Bounty Hunter (New Earth)',
'Bounty II (New Earth)',
'Bous3dra  (New  Earth)',
'Boy Blue (New Earth)',
'Braach (New Earth)',
'Bradford Sackett (New Earth)',
'Bradford Thorne (New Earth)',
'Bragi (New Earth)',
'Brahma (New Earth)',
'Brain (New Earth)',
'Brain-Bandit (New Earth)',
'Brainiac 13 (New Earth)',
'Brainiac 4 (Post-Zero Hour)',
'Brainiac 8 (New Earth)',
'Brains (New Earth)',
'Brains Beldon (Earth-One)',
'Brains II (New Earth)',
'Braka  (New  Earth)',
'Branca  (New  Earth)',
'Brand (New Earth)',
'Branden (Earth-31)',
'Branden (New Earth)',

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'Brane  (New  Earth)',
'Brane Taylor (New Earth)',
'Branwilla (New Earth)',
'Bratwurst (New Earth)',
'Brave Bow (New Earth)',
'Brawl  (New  Earth)',
'Brazen Man (New Earth)',
'Breathtaker I (New Earth)',
'Breathtaker II (New Earth)',
"Bree'mill (New Earth)",
'Brenda Del Vecchio (New Earth)',
'Brenda Forest (New Earth)',
'Brenda Ruskin (New Earth)',
'Brenda Valentine (New Earth)',
'Brendt Sorensen (New Earth)',
'Brian Arsala (New Earth)',
'Brian Bryan  (New  Earth)',
'Brian Durlin (New Earth)',
'Brian Elliot (New Earth)',
'Brian Kent (New Earth)',
'Brian Nudocerdo (New Earth)',
'Brian Savage (New Earth)',
'Bride (New Earth)',
'Bridget  (New  Earth)',
'Bridget Clancy (New Earth)',
"Bridgette D'Arbo (New Earth)",
'Bridgewater (New Earth)',
'Brigadoom (New Earth)',
'Brighteyes  (New  Earth)',
'Brik (New Earth)',
'Brimstone (New Earth)',
'Brin (New Earth)',
'Brion Markov (New Earth)',
'Briscoe  (New  Earth)',
'British Bulldog (New Earth)',
'Brittany Brandon (New Earth)',
'Britton  (New  Earth)',
"Bro'Dee Walker (New Earth)",
'Broderick  (New  Earth)',
'Brokk (New Earth)',
'Brola (New Earth)',
'Bromwell Stikk (New Earth)',
'Brontes (New Earth)',
'Brother Drive (New Earth)',
'Brother Flay (New Earth)',
'Brother Power (New Earth)',
'Brother Think (New Earth)',
'Brown Recluse (New Earth)',
'Bruce Gordon (New Earth)',
'Bruce Wayne Clone (New Earth)',
'Bruks (New Earth)',
'Brunhilde (New Earth)',
'Bruno   (New    Earth)',
'Bruno George (New Earth)',
'Bruno Hogan (New Earth)',
'Bruno Mannheim (New Earth)',
'Brunt (New Earth)',
'Brute (New Earth)',
'Brute III (New Earth)',
'Brute IV (New Earth)',
'Brute of the Dreaming (New Earth)',
'Bryony (New Earth)',
'Buck Samson (New Earth)',
'Buck Wargo (New Earth)',
'Buckeye (New Earth)',
'Bud and Lou the Hyenas (New Earth)',
'Buddy Blank (New Earth)',
'Buddy Pierce (New Earth)',
'Buddy Smith (New Earth)',
'Bueno Excellente (New Earth)',
'Bug Baron (New Earth)',
'Bug II (New Earth)',
'Bug-Eyed Bandit II (New Earth)',
'Bugg (New Earth)',
'Bulldozer (New Earth)',
'Bulldozer Nichols (New Earth)',
'Bulldozer Smith (New Earth)',
'Bulletdog (New Earth)',
'Bullfinch (New Earth)',
'Buna (New Earth)',
'Bunny (New Earth)',
'Bunny (The Elite)',
"Bur'Gunza (New Earth)",
'Burkett (New Earth)',
'Burn (New Earth)',
'Burt Weston (New Earth)',
'Burton Thompson (New Earth)',
'Buster  (New  Earth)',
'Butcher (New Earth)',
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    'Buzz Cohen (New Earth)',
    'Buzzword (New Earth)',
    'Byakko (New Earth)',
    'Bynai Bruun (New Earth)',
    'Byrna Brilyant (New Earth)',
    'Byron Shelley (New Earth)',
    'Byron Stark (New Earth)',
    'Byron Williams (New Earth)',
    'Byth Rok  (New  Earth)',
    'Bzzd  (New  Earth)',
    'C.A.P.D. (New Earth)',
    'C.C. Haly (New Earth)',
    'Cableman (New Earth)',
    'Cachiru (New Earth)',
    'Caellich (New Earth)',
    'Caesar Lopez (New Earth)',
    'Cain (New Earth)',
    'Cairo DeFrey (New Earth)',
    'Caitiff   (New   Earth)',
    'Cal Usjak (New Earth)',
    'Calamari (New Earth)',
    'Calcium (New Earth)',
    'Calculha (New Earth)',
    'Caldwell Dayzl (New Earth)',
    'Caleb Skinner (New Earth)',
    'Caliber (New Earth)',
    'Callie Evans (New Earth)',
    'Calliope (New Earth)',
    'Callisto (New Earth)',
    'Calvin Broderick (New Earth)',
    'Calvin Carson (New Earth)',
    'Calvin Coolidge (New Earth)',
    'Calvin Durham (New Earth)',
    'Calyce (New Earth)',
    'Cambodian (New Earth)',
    'Cameron Begay (New Earth)',
    'Cameron Chase (New Earth)',
    'Cameron Hammer (New Earth)',
    'Cameron Kane (New Earth)',
    'Cameron Mahkent (New Earth)',
    'Camilla Malone (New Earth)',
    'Camilla Ortin (New Earth)',
    'Camille Sly (New Earth)',
    'Camorouge (New Earth)',
    'Canary (New Earth)',
    'Cancero, the Electrical Crab Man (New Earth)',
    'Candace Jean Gennaro (New Earth)',
    ...]
```

Закодировали признак name целочисленными значениями методом label encoding

```python
enc1 = OneHotEncoder(handle_unknown='ignore')
state_enc = enc1.fit_transform(df[['name']])
state_enc.toarray()[0:7]
```

```
array([[0., 0., 0., ..., 0., 0., 0.],
       [0., 0., 0., ..., 0., 0., 0.],
       [0., 0., 0., ..., 0., 0., 0.],
       ...,
       [0., 0., 0., ..., 0., 0., 0.],
       [0., 0., 0., ..., 0., 0., 0.],
       [0., 0., 0., ..., 0., 0., 0.]])
```

```python
enc1.categories_
```

```
[array(['3g4 (New Earth)', '500-ZQ (New Earth)',
        "A'Hwiirdh-Paan'A (New Earth)", ..., 'Zyklon (New Earth)',
        'Zyn (New Earth)', 'Zzlrrrzzzm (New Earth)'], dtype=object)]
```

Закодировали признак name целочисленными значениями методом one hot encoding. В данном случае предпочтительнее метод label encoding, так как в кодируемом столбце много уникальных значений, а значит большой размер матрицы при one hot encoding.

## Гистограмма

```python
#гистограмма, позволяющаяоценить плотность вероятности распределения
```
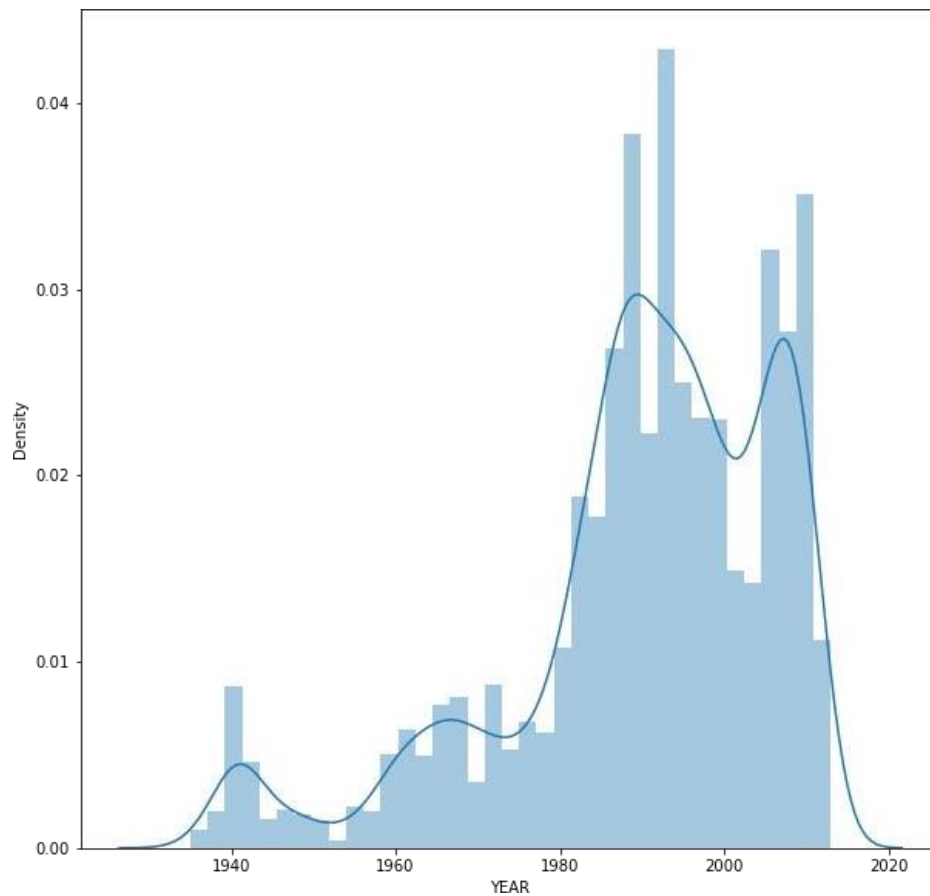
```
fig, ax = plt.subplots(figsize=(10,10))
sns.distplot(df['YEAR'])
```

Out[38]: <AxesSubplot:xlabel='YEAR', ylabel='Density'>



```
sns.histplot(df['YEAR'])
```

Out[39]: <AxesSubplot:xlabel='YEAR', ylabel='Count'>



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