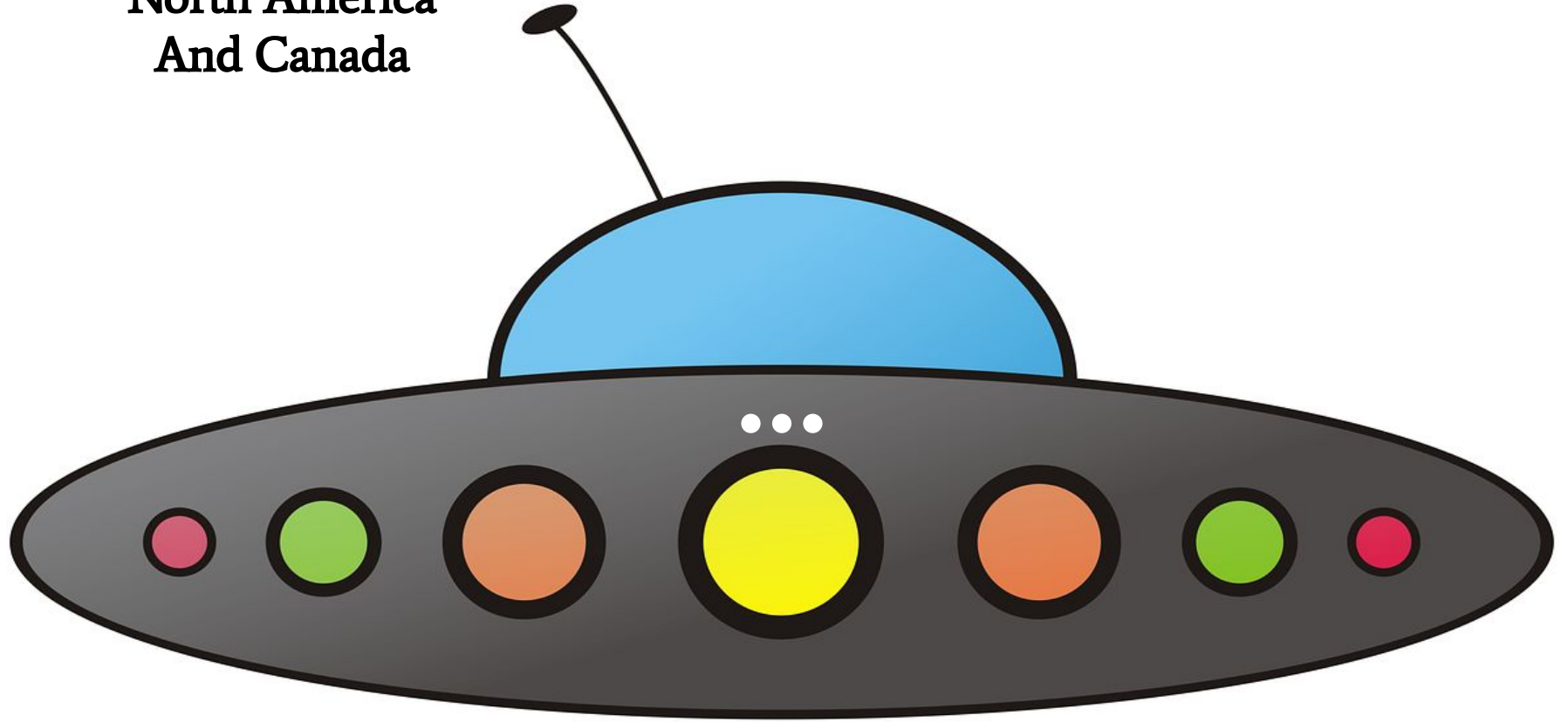


UFO Sightings in North America And Canada



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Data

- Dataset was obtained from Kaggle:
<https://www.kaggle.com/datasets/utkarshx27/ufo-sights-2016-us-and-canada>
- Data of 5,177 UFO sightings reports were collected from the United States and Canada from January 1st 2016 to December 21 2016
 - Description of UFO, latitude, longitude, time, and date were collected
- Our goals:
 - Map where each sighting occurred on the map
 - Determine where the most UFO sightings were located
 - Which months had the most sightings
 - Which UFO shapes were the most frequent

Data Cleaning

- SQL requires a primary key for analysis
 - Report ID was created to track each individual report
- Nine rows of data were missing values in the 'Time' column ('NaN')
 - Dataset needed to drop these values in order to insert it into SQL

ID Creation

```
In [6]: #First, making a series
ids = pd.Series(np.arange(len(ufo_df)))

#Second, insert series into the dataframe
ufo_df['Report_ID'] = ids
ufo_df
```

Out[6]:

	Date	Time	Country	City	State	Shape	Summary	lat	lng	Report_ID
0	12/21/2016	19:15	USA	Waynesboro	VA	Sphere	Bright round object hovering in sky.	38.065229	-78.905888	0
1	12/21/2016	0:00	USA	Louisville	KY	Unknown	Multiple craft ascending from north of Shelbyv...	38.254238	-85.759407	1
2	12/20/2016	22:30	USA	Santa Rosa	CA	Sphere	Bright orange planet-like object sighted near ...	38.440467	-122.714431	2
3	12/20/2016	19:00	USA	Fresno	CA	Circle	Twelve orange globes in formation over Fresno	36.729529	-119.708861	3
4	12/19/2016	21:53	USA	Reymert	AZ	Circle	While camping in the Cottonwood canyon Rd., al...	33.229779	-111.209290	4
...
5172	1/1/2016	12:00	USA	Elk Grove	CA	Light	6-7 peach-colored craft moving easterly direct...	38.408799	-121.371618	5172
5173	1/1/2016	12:00	USA	Anchorage	AK	Circle	New Years yellow objects.	61.216313	-149.894852	5173
5174	1/1/2016	12:00	USA	Sodaville	OR	Sphere	Two balls of orange light seen above the trees...	44.483395	-122.869982	5174
5175	1/1/2016	12:00	USA	Arnold	MO	Triangle	Triangle obj. moving W to SE from my position....	38.432832	-90.377619	5175
5176	1/1/2016	12:00	USA	Vernon	CT	Sphere	Red sphere in the sky.	36.092946	-80.149628	5176

5177 rows x 10 columns

Null Value Deletion

In [8]: *#Checking for any null values in the dataframe*

```
ufo_df.isnull().values.any()
```

Out[8]: True

In [9]: *#Getting a sum of how many null values exist in the dataframe and which columns contain them*

```
ufo_df.isnull().sum()
```

Out[9]:

Report_ID	0
Date	0
Time	9
Country	0
City	0
State	0
Shape	0
Summary	0
lat	0
lng	0
dtype:	int64

Null Value Deletion

In [10]: *#Creating another dataframe to show the rows of each null value for the 'Time' column (since 'Time' is the only column that contains null values)*

```
bool_series = pd.isnull(ufo_df["Time"])
ufo_df[bool_series]
```

Out[10]:

	Report_ID	Date	Time	Country	City	State	Shape	Summary	lat	lng
417	417	11/13/2016	NaN	USA	Stockton	CA	Disk	2 disk shaped objects drop from the skyline ve...	37.957702	-121.290779
887	887	10/15/2016	NaN	USA	Waterbury	CT	Triangle	Under the clear sky this morning as I was driv...	39.733739	-82.637120
1934	1934	8/14/2016	NaN	USA	Buford	GA	Triangle	Large triangle. Only objects visible could hav...	34.120656	-84.004351
2411	2411	7/24/2016	NaN	USA	Vacaville	CA	Circle	Looked like star that started moving SE slowly...	38.356577	-121.987744
2898	2898	6/27/2016	NaN	USA	Guilford	ME	Fireball	My husband and I were in our garage, and my hu...	45.168968	-69.384842
3633	3633	4/28/2016	NaN	USA	Camp Verde	AZ	Circle	Round black object in the sky by Camp Verde, A...	34.563636	-111.854318
3996	3996	3/30/2016	NaN	USA	Winston-Salem	NC	Fireball	Very large firecolor came from the trees and m...	36.099813	-80.244052
4181	4181	3/15/2016	NaN	CANADA	St. Albert	AB	Unknown	Large, twin-prop plane flying very low and ver...	53.633239	-113.628845
4436	4436	2/26/2016	NaN	USA	Lompoc	CA	Light	Mysterious light activity observed during rock...	34.639150	-120.457941

Null Value Deletion

In [11]: *#Dropping all 9 null values in the dataset*

```
ufo_df.dropna(inplace=True)
ufo_df
```

C:\Users\Asher\AppData\Local\Temp\ipykernel_948\1743119096.py:3: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-copy
ufo_df.dropna(inplace=True)

Out[11]:

	Report_ID	Date	Time	Country	City	State	Shape		Summary	lat	lng
0	0	12/21/2016	19:15	USA	Waynesboro	VA	Sphere		Bright round object hovering in sky.	38.065229	-78.905888
1	1	12/21/2016	0:00	USA	Louisville	KY	Unknown		Multiple craft ascending from north of Shelbyv...	38.254238	-85.759407
2	2	12/20/2016	22:30	USA	Santa Rosa	CA	Sphere		Bright orange planet-like object sighted near ...	38.440467	-122.714431
3	3	12/20/2016	19:00	USA	Fresno	CA	Circle		Twelve orange globes in formation over Fresno	36.729529	-119.708861
4	4	12/19/2016	21:53	USA	Reymert	AZ	Circle		While camping in the Cottonwood canyon Rd., al...	33.229779	-111.209290
...
5172	5172	1/1/2016	12:00	USA	Elk Grove	CA	Light		6-7 peach-colored craft moving easterly direct...	38.408799	-121.371618
5173	5173	1/1/2016	12:00	USA	Anchorage	AK	Circle		New Years yellow objects.	61.216313	-149.894852
5174	5174	1/1/2016	12:00	USA	Sodaville	OR	Sphere		Two balls of orange light seen above the trees...	44.483395	-122.869982
5175	5175	1/1/2016	12:00	USA	Arnold	MO	Triangle		Triangle obj. moving W to SE from my position....	38.432832	-90.377619
5176	5176	1/1/2016	12:00	USA	Vernon	CT	Sphere		Red sphere in the sky.	36.092946	-80.149628

5168 rows × 10 columns

In [12]: *#Checking if any values are still null*

```
ufo_df.isnull().values.any()
```

Out[12]: False

In [13]: *#Exporting dataframe locally for SQL upload*

```
ufo_df.to_csv('data/cleaned_data/UFO_CSV_Cleaned.csv', index=False)
```

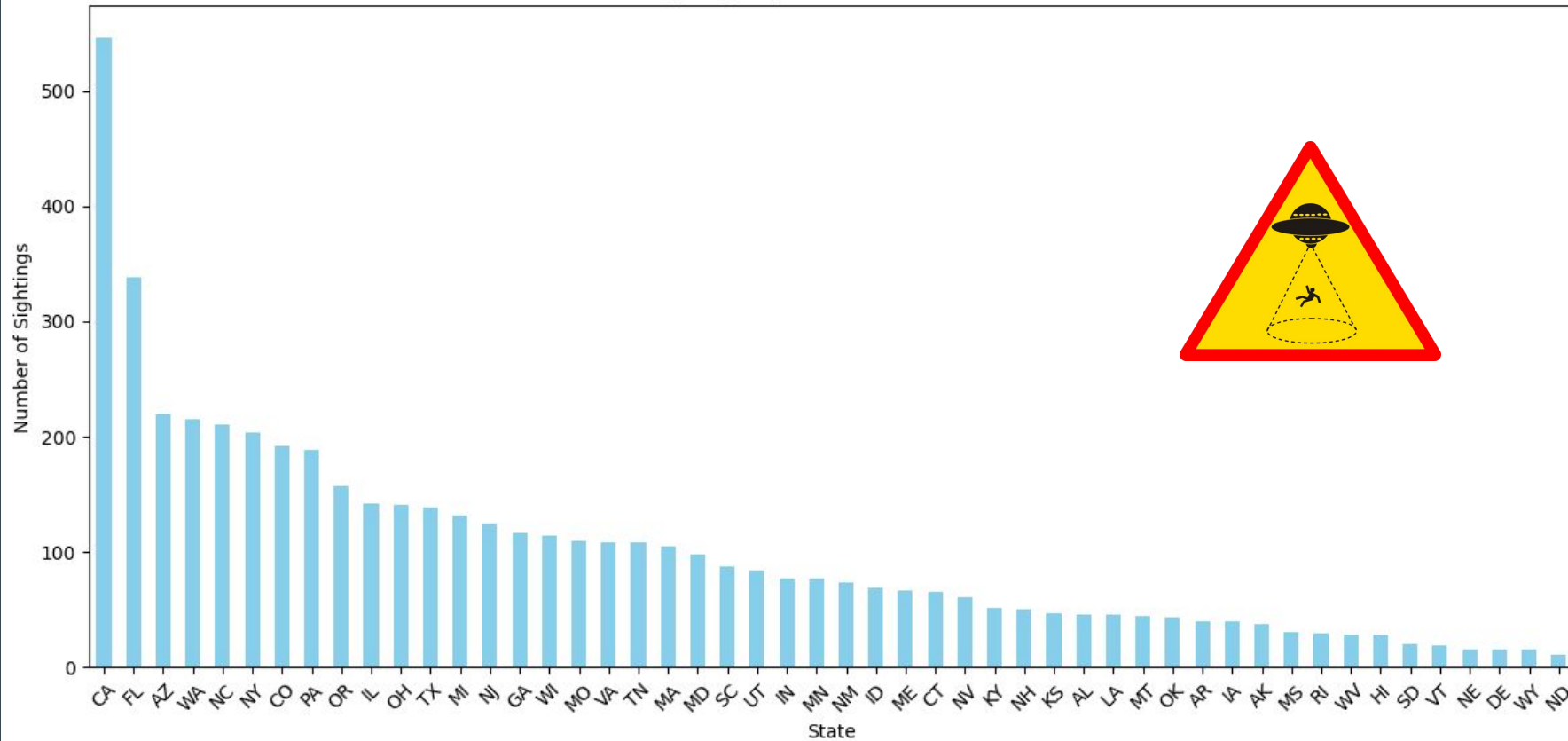
SQL Database

- Data were house in a SQL database
- Primary key was created by altering the table
 - Primary key was assigned to the Reporting ID
- Data were inserted into the table with the website Konbert:
“<https://konbert.com/convert/csv/to/sql>”

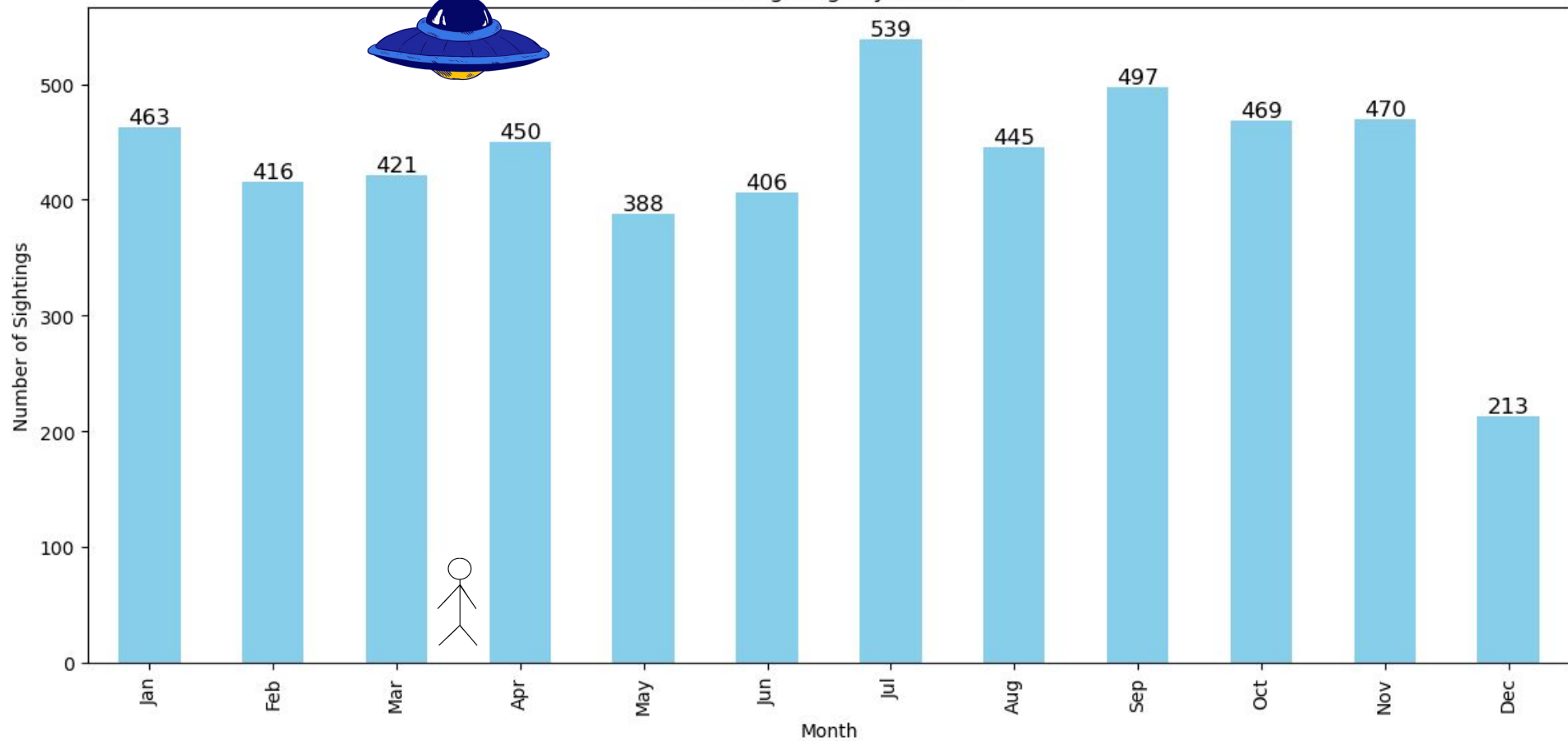
Table Creation and Data Insertion

```
Query  Query History
1  --DROP TABLE UFO_DATA
2
3  --Creating table
4  CREATE TABLE UFO_DATA (
5      reporting_id VARCHAR(500) NOT NULL,
6      dt DATE,
7      time_of_day TIME,
8      country VARCHAR(10) NOT NULL,
9      city_of_report VARCHAR(100) NOT NULL,
10     state_of_report VARCHAR(10) NOT NULL,
11     shape VARCHAR(20) NOT NULL,
12     summary VARCHAR(500) NOT NULL,
13     latitude DECIMAL(11, 8) NOT NULL,
14     longitude DECIMAL(11, 8) NOT NULL
15
16 );
17
18 --Adding primary key to reporting_id
19 ALTER TABLE UFO_DATA
20 ADD CONSTRAINT reporting_id PRIMARY KEY (reporting_id);
21
22 --Inserting values into the table created above
23 INSERT INTO UFO_DATA VALUES
24 (0,'12/21/2016','19:15','USA','Waynesboro','VA','Sphere','Bright round object hovering in sky.','3
25 (1,'12/21/2016','0:00','USA','Louisville','KY','Unknown','Multiple craft ascending from north of S
26 very quiet in comparison to passenger planes seen in the sky a','38.2542376','-85.7594069'),
27 (2,'12/20/2016','22:30','USA','Santa Rosa','CA','Sphere','Bright orange planet-like object sighted
28 (3,'12/20/2016','19:00','USA','Fresno','CA','Circle','Twelve orange globes in formation over Fresn
29 (4,'12/19/2016','21:53','USA','Reymert','AZ','Circle','While camping in the Cottonwood canyon Rd.,
```

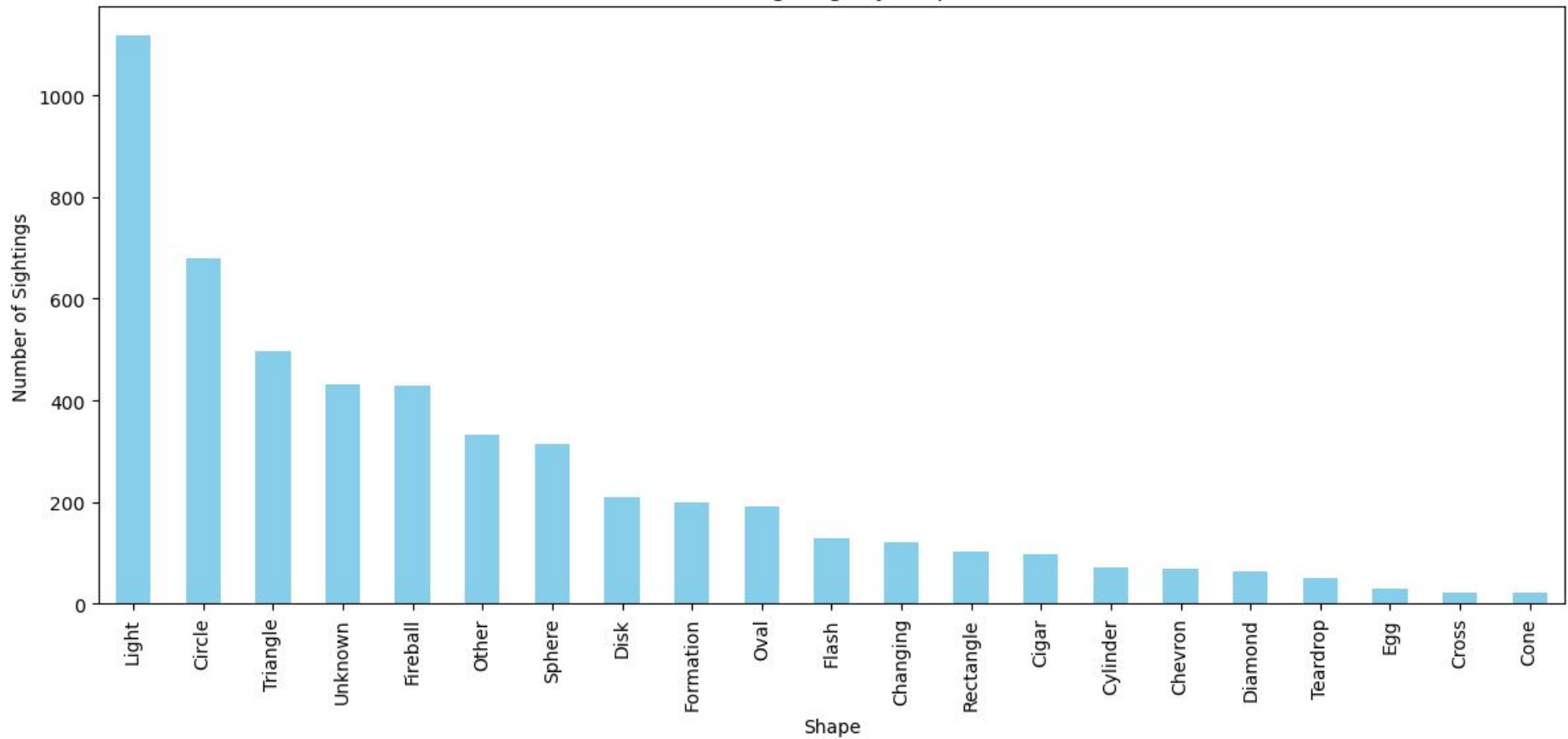
UFO Sightings by State in USA and Canada



UFO Sightings by Month



UFO Sightings by Shape



APP



Map

References

SINGH, U. (2023, May 16). UFO Sights US and Canada. Kaggle.
<https://www.kaggle.com/datasets/utkarshx27/ufo-sights-2016-us-and-canada/data>