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

df = pd.read_csv("E:/archive/Global_Space_Exploration_Dataset.csv") # Read the csv dataset.

# print(df) # Prints all the rows of the dataset.
# df.head() # Prints top 5 rows of the dataset.
df.describe() # It gives instant insights like mean, median, min, max, spread.
```

```
                Year  Budget (in Billion $)  Success Rate (%)  \
count  3000.000000            3000.000000       3000.000000
mean   2012.471000              25.428917         74.985000
std       7.437177              14.108438         14.945252
min    2000.000000               0.530000         50.000000
25%    2006.000000              12.977500         62.000000
50%    2012.000000              25.495000         75.000000
75%    2019.000000              37.597500         88.000000
max    2025.000000              49.970000        100.000000

       Duration (in Days)
count         3000.000000
mean           181.483000
std            104.983822
min              1.000000
25%             91.000000
50%            180.000000
75%            272.000000
max            365.000000
```

```python
df.info() # Gives a concise summary of your entire DataFrame.
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 3000 entries, 0 to 2999
Data columns (total 12 columns):
 #   Column                  Non-Null Count  Dtype
---  ------                  --------------  -----
 0   Country                 3000 non-null   object
 1   Year                    3000 non-null   int64
 2   Mission Name            3000 non-null   object
 3   Mission Type            3000 non-null   object
 4   Launch Site             3000 non-null   object
 5   Satellite Type          3000 non-null   object
 6   Budget (in Billion $)   3000 non-null   float64
 7   Success Rate (%)        3000 non-null   int64
 8   Technology Used         3000 non-null   object
 9   Environmental Impact    3000 non-null   object
```

```
 10  Collaborating Countries  3000 non-null   object
 11  Duration (in Days)       3000 non-null   int64
dtypes: float64(1), int64(3), object(8)
memory usage: 281.4+ KB
```

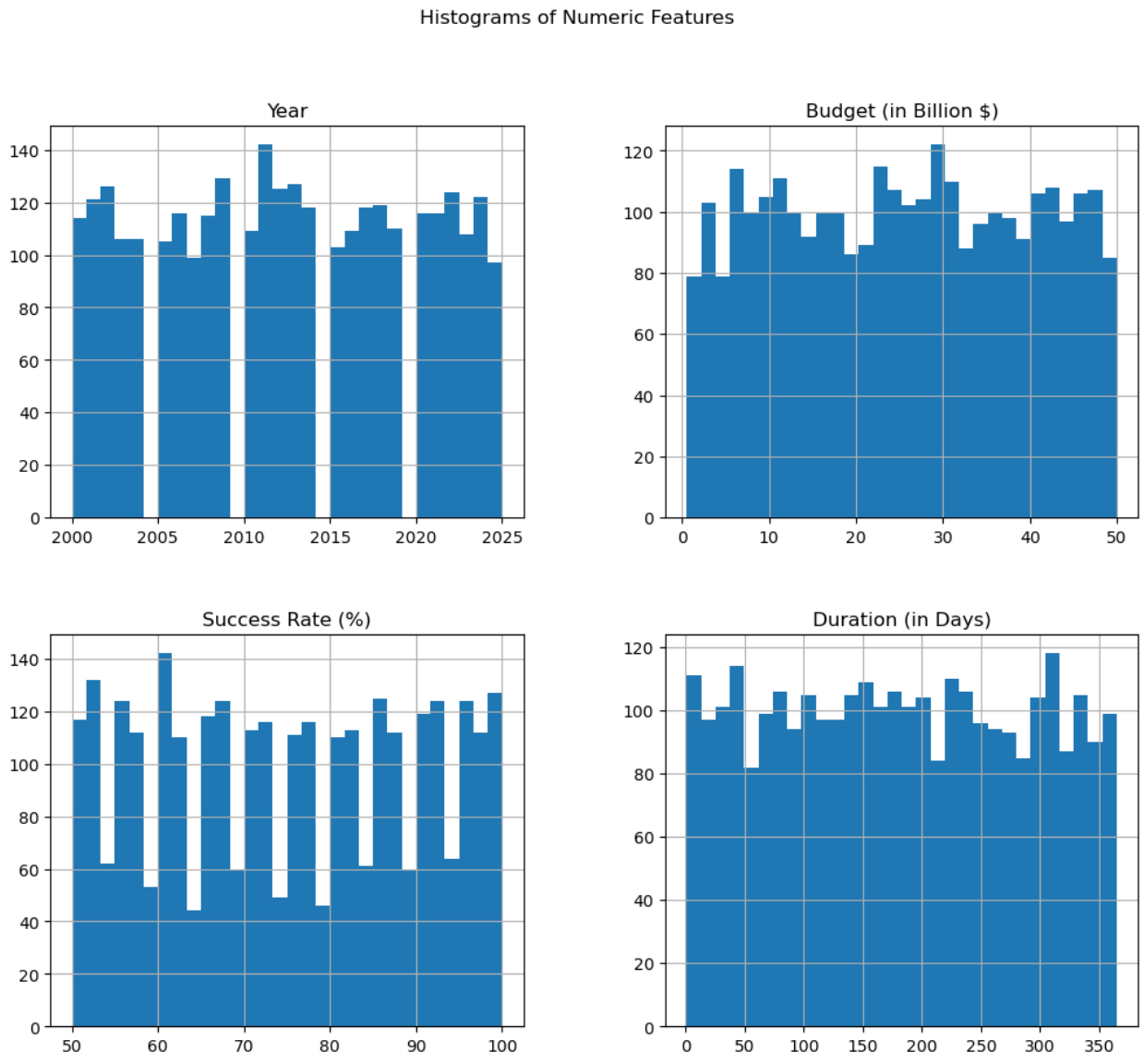
```
df.value_counts() #  Counts the frequency of unique rows or values in a Series.
```

```
Country  Year  Mission Name                                    Mission Type  Launch Site        Satellite Type  Budget (in Billion $)  Success Rate (%)  Technology Used     Environmental Impact  Collaborating Countries  Duration (in Days)
China    2000  Compatible systematic synergy                   Manned        Lake Charles       Communication   18.75                  73                Solar Propulsion    Medium                UAE, Israel, Russia      296                1
Russia   2019  Pre-emptive composite task-force                Manned        South Nicolehaven  Spy             45.07                  65                Solar Propulsion    Medium                Germany, UAE             26                 1
         2018  Streamlined encompassing capability             Unmanned      Andersonside       Spy             49.54                  66                Reusable Rocket     Low                   Israel                   144                1
               Universal mission-critical firmware             Unmanned      Lindatown          Weather         48.70                  94                Reusable Rocket     Medium                Russia, Germany, Japan   91                 1
         2019  Centralized holistic open architecture          Unmanned      New Toddmouth      Communication   5.11                   84                AI Navigation       Low                   UAE, Israel              199                1

..
India    2010  Versatile tertiary paradigm                     Unmanned      Port Robert        Weather         34.76                  81                Nuclear Propulsion  Medium                France, USA, UAE         350                1
         2011  Focused user-facing archive                     Manned        Michaelfurt        Research        37.27                  94                Solar Propulsion    Low                   Israel, France           7                  1
               Fundamental disintermediate framework           Unmanned      North Josephside   Research        49.37                  58                Solar Propulsion    Low                   Israel                   336                1
               Future-proofed bifurcated pricing structure     Manned        Port Andreafurt    Communication   32.70                  92                Nuclear Propulsion  Medium                France, India, USA       270                1
```

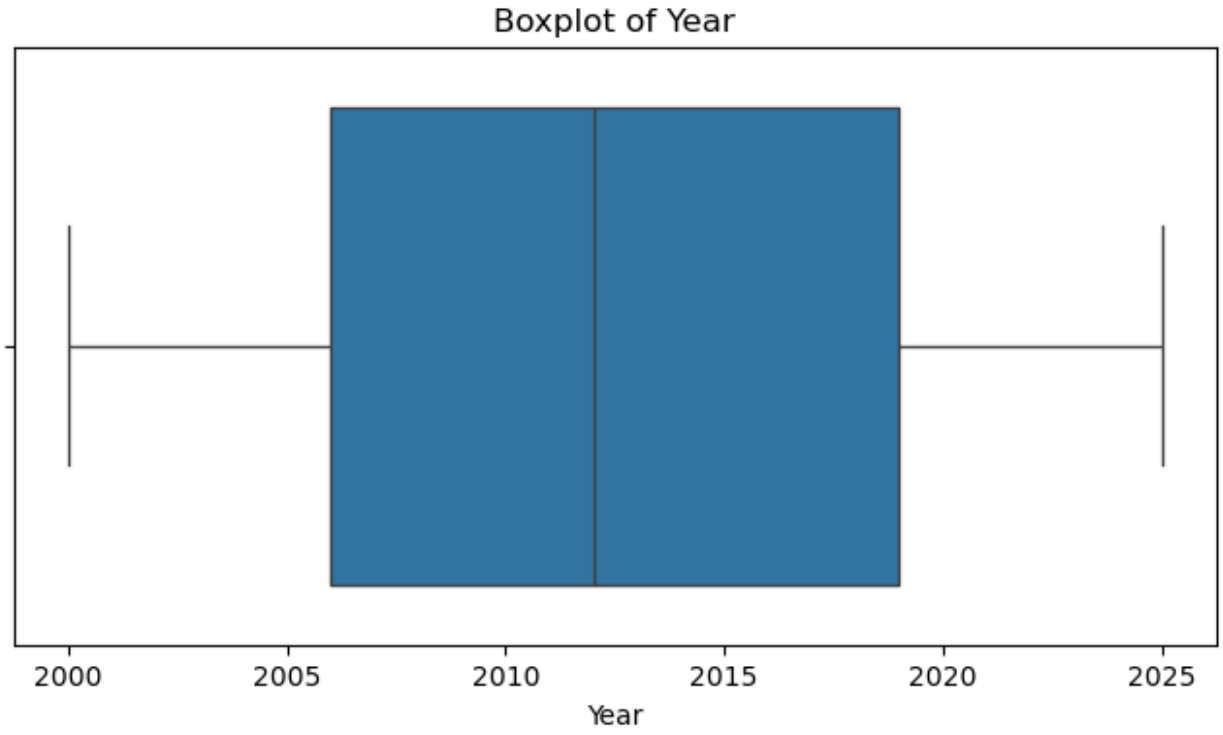
```
USA      2025  Switchable interactive analyzer                Manned
Millerborough      Communication   45.44                    50
AI Navigation       Low                    China                      25
1
Name: count, Length: 3000, dtype: int64
```

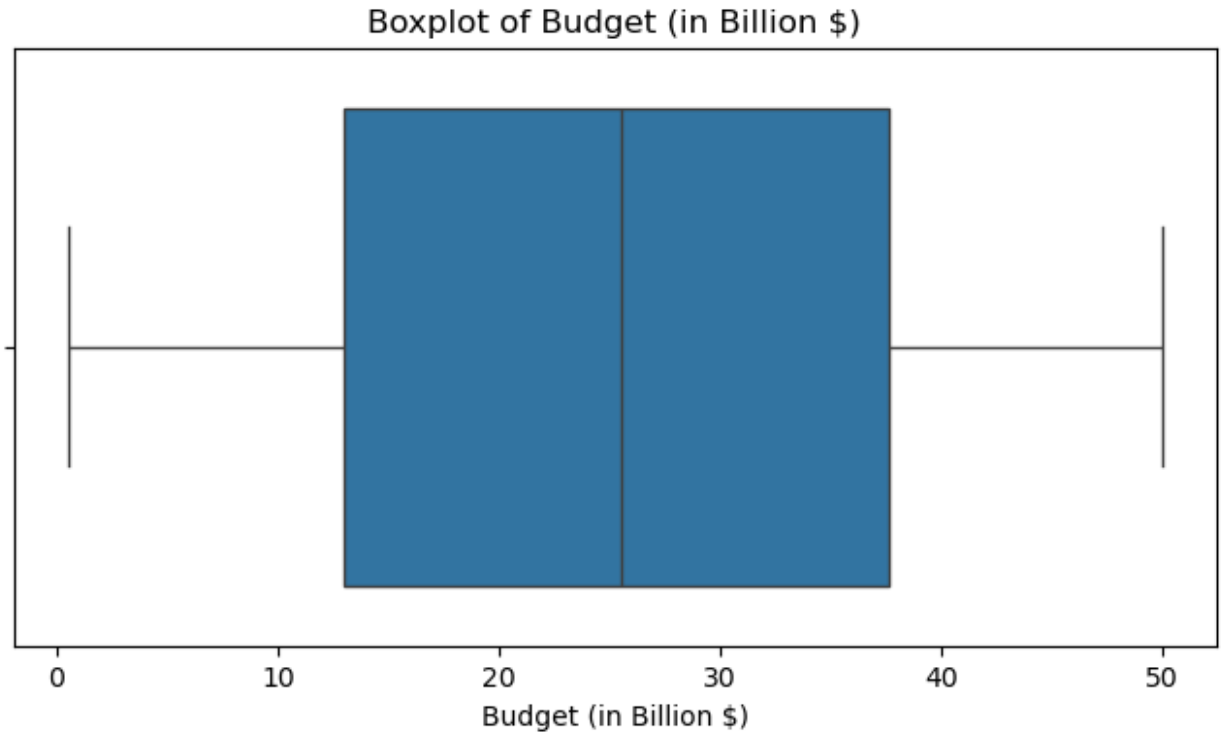
```
# Creates Histograms of the data.
df.hist(bins=30, figsize=(12, 10))
plt.suptitle('Histograms of Numeric Features')
plt.show()
```

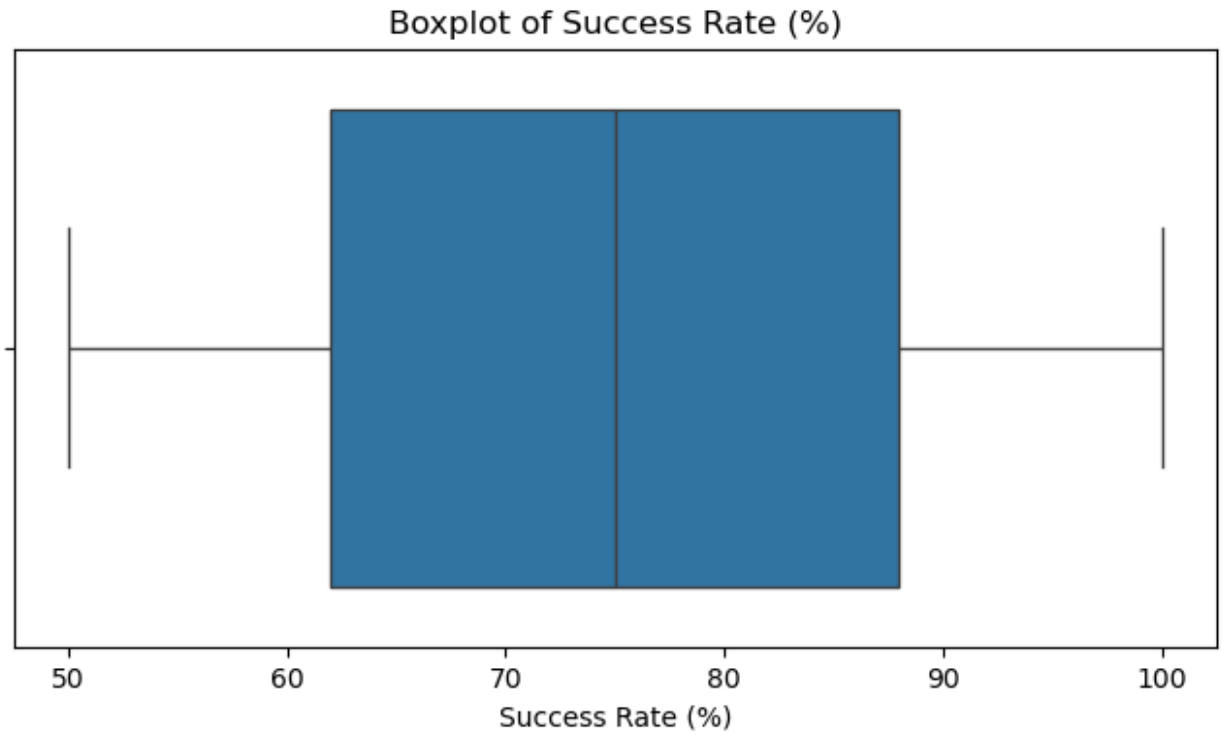


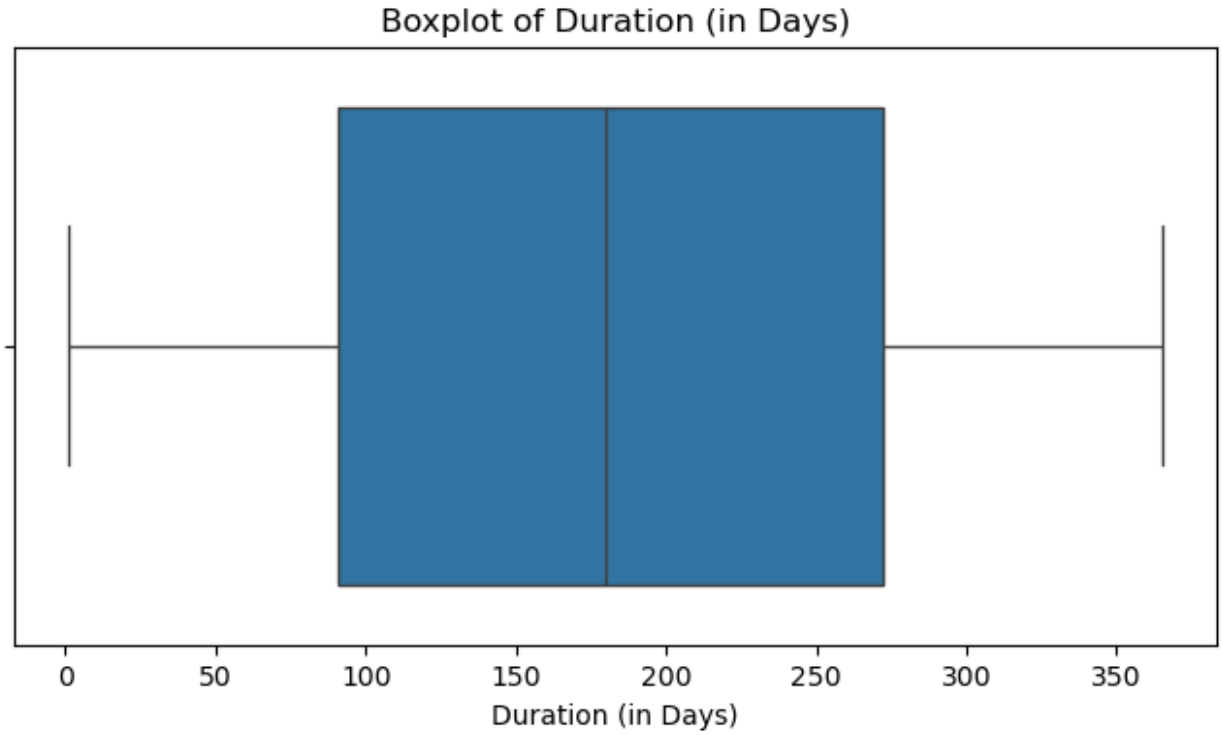

```
# Creates the Boxplots from the data.
for column in df.select_dtypes(include='number').columns:
    plt.figure(figsize=(8, 4))
```

```
    sns.boxplot(data=df, x=column)
    plt.title(f'Boxplot of {column}')
    plt.show()
```

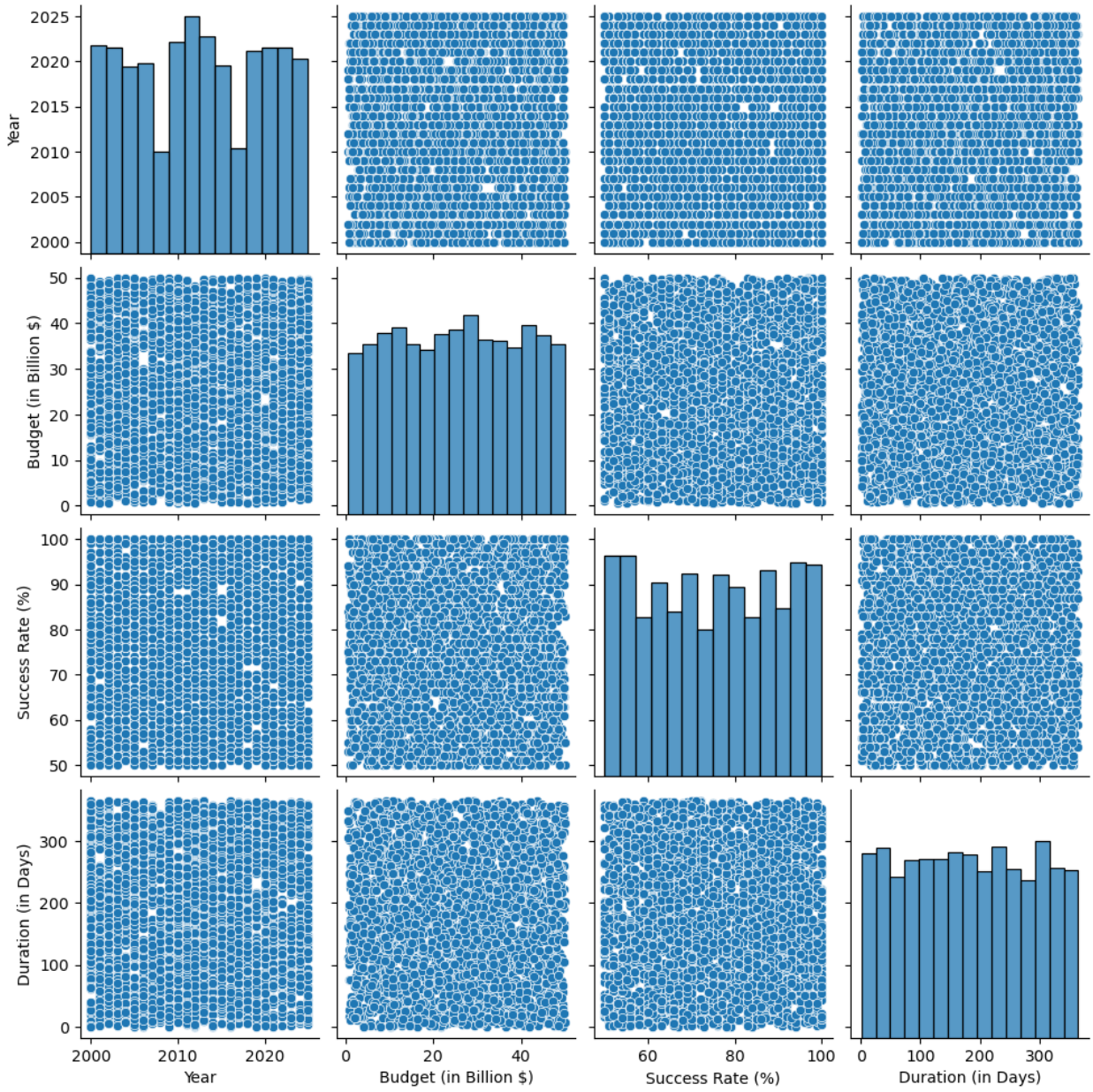




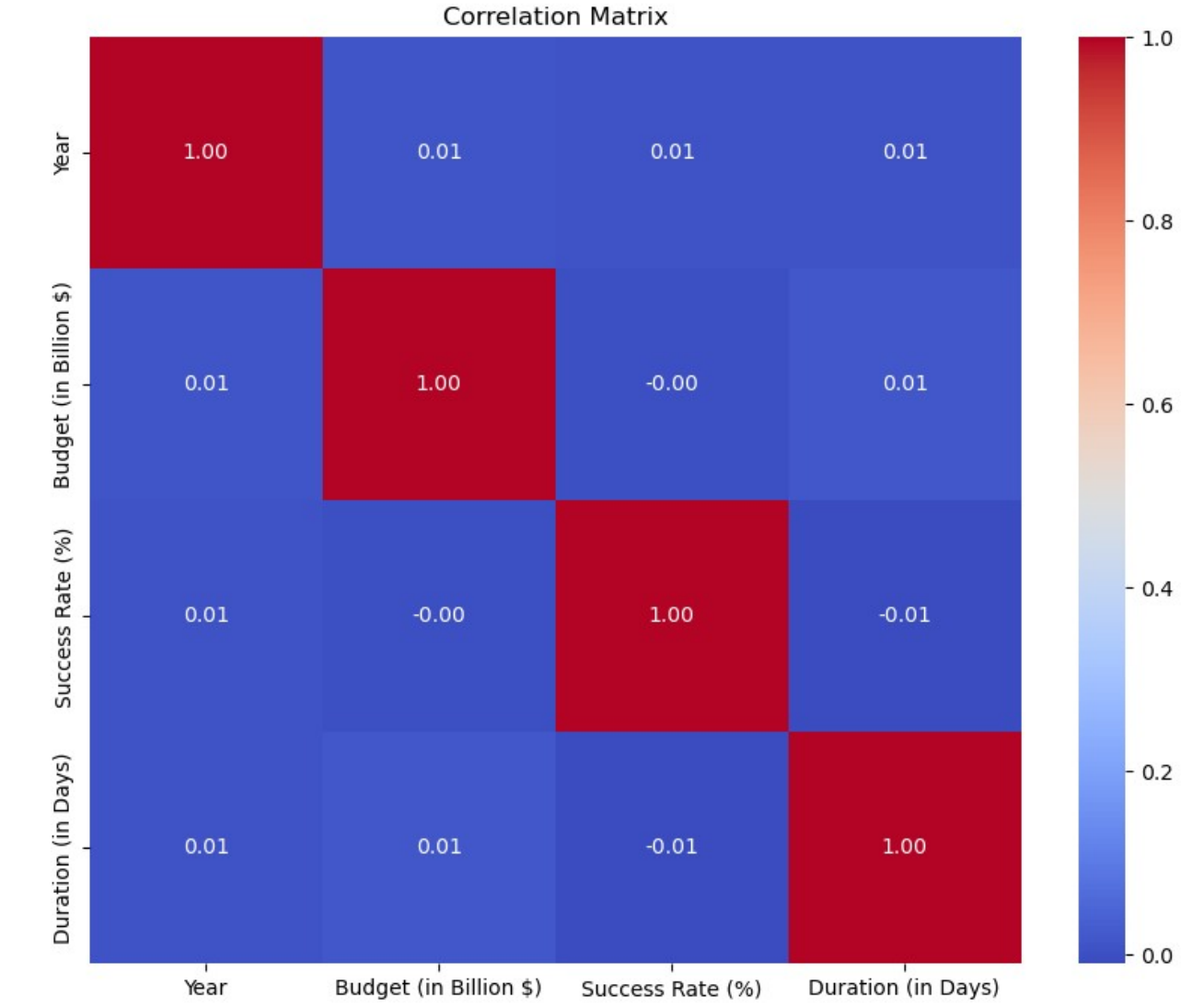





```
# Creates the pairplots from the data.
sns.pairplot(df.select_dtypes(include='number'))
plt.show()
```




```
# Generate correlation matrix and Create Heatmaps of the data.
corr = df.corr(numeric_only=True)
plt.figure(figsize=(10, 8))
sns.heatmap(corr, annot=True, cmap='coolwarm', fmt='.2f')
plt.title('Correlation Matrix')
plt.show()
```


Correlation Matrix
Year
Budget (in Billion $)
Success Rate (%)
Duration (in Days)
1.00
0.01
0.01
0.01
0.01
1.00
-0.00
0.01
0.01
-0.00
1.00
-0.01
0.01
0.01
-0.01
1.00
1.0
0.8
0.6
0.4
0.2
0.0