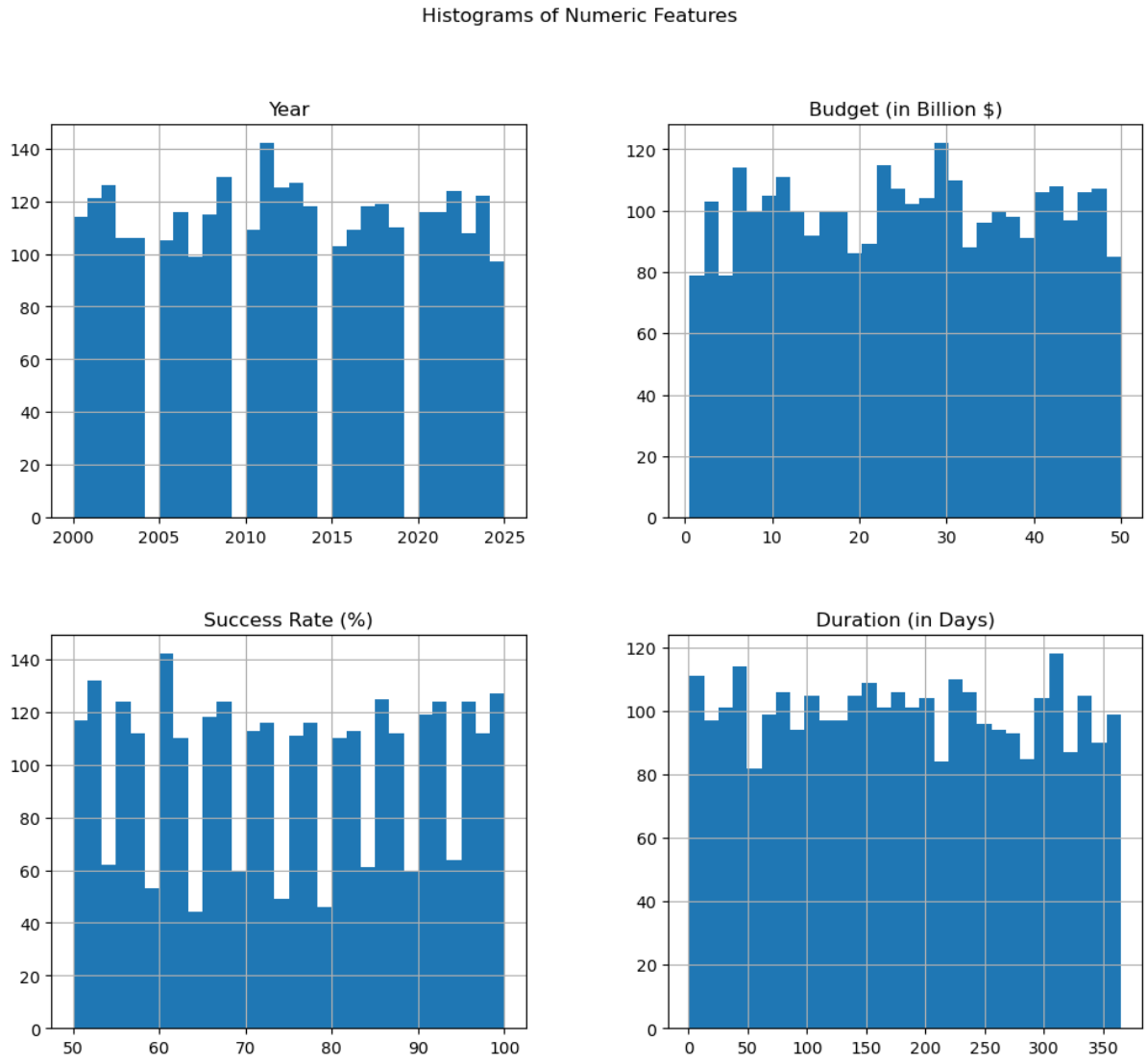
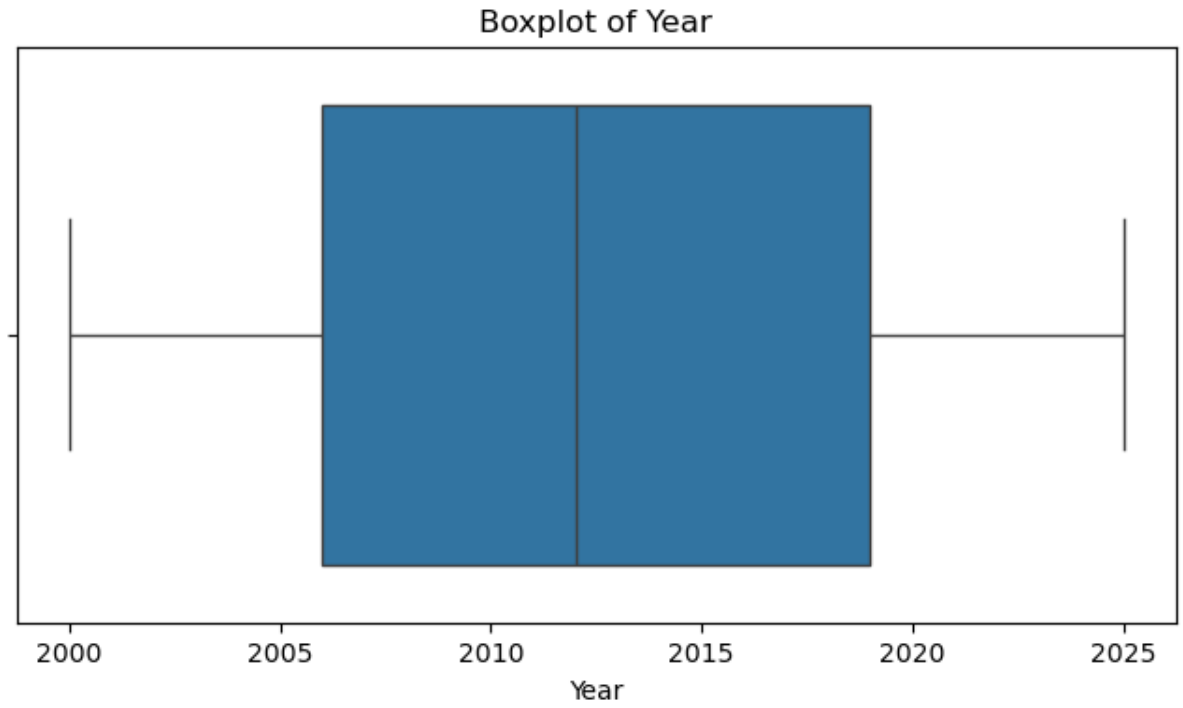


Looking at the histograms, we can observe some interesting patterns and relationships:

- **Time Progression**: The histogram for **Year** suggests a fairly even distribution of space explorat ion missions, but certain peaks in the timeline (around 2005, 2010, and 2015) may correlate with major advancements or increased funding.
- **Budget Impact**: The histogram for **Budget (in Billion $)** suggests that funding is spread across various levels, with notable peaks at around 10, 20, and 30 billion dollars. If we analyze this alongside **Success Rate (%)**, there might be a pattern where higher budgets contribute to hig her success rates.
- **Success Rate**: The **Success Rate (%)** histogram shows that success rates tend to cluster at 60%, 80%, and 100%, suggesting improvements over time or variations in mission complexity.
- **Mission Duration & Distribution**: The **Duration (in Days)** histogram shows that missions vary widely, ranging from short (50 days) to longer durations (up to 300 days). Peaks at 50, 150,

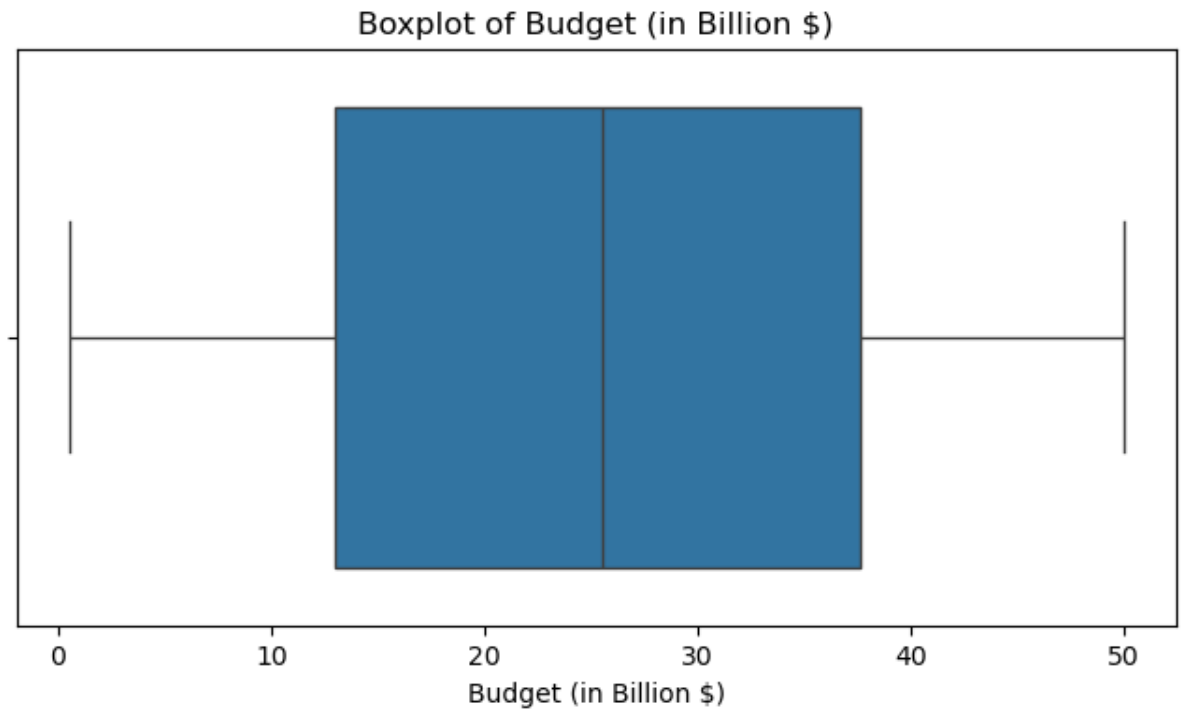
and 300 days suggest that certain mission profiles are more common—perhaps short-duration exploratory missions versus longer-term deep-space projects.

- **Possible Trends**: If we were to overlay these variables, we might see that as budgets increase over time, success rates improve. Additionally, longer missions might require higher funding, contributing to peaks at certain budget levels.



The boxplot visually represents the distribution of data across different **years**:

- **Spread & Distribution**: The data spans from approximately **2000 to 2023**, with the bulk of the observations concentrated between **2008 and 2018** (the interquartile range, or IQR).
- **Central Tendency**: The **median year is around 2012**, indicating that half of the missions occurred before this year and half after.
- **Whiskers & Extremes**: The whiskers stretch from **2000 to 2023**, suggesting that space missions were conducted throughout this range, though fewer occurred at the extremes.
- **Potential Outliers**: If any data points lie outside the whiskers, those could indicate unusual years with a significantly higher or lower number of missions.



This boxplot provides a detailed look at the distribution of **budget values (in billion dollars)** across different space missions. Here's what we can interpret:

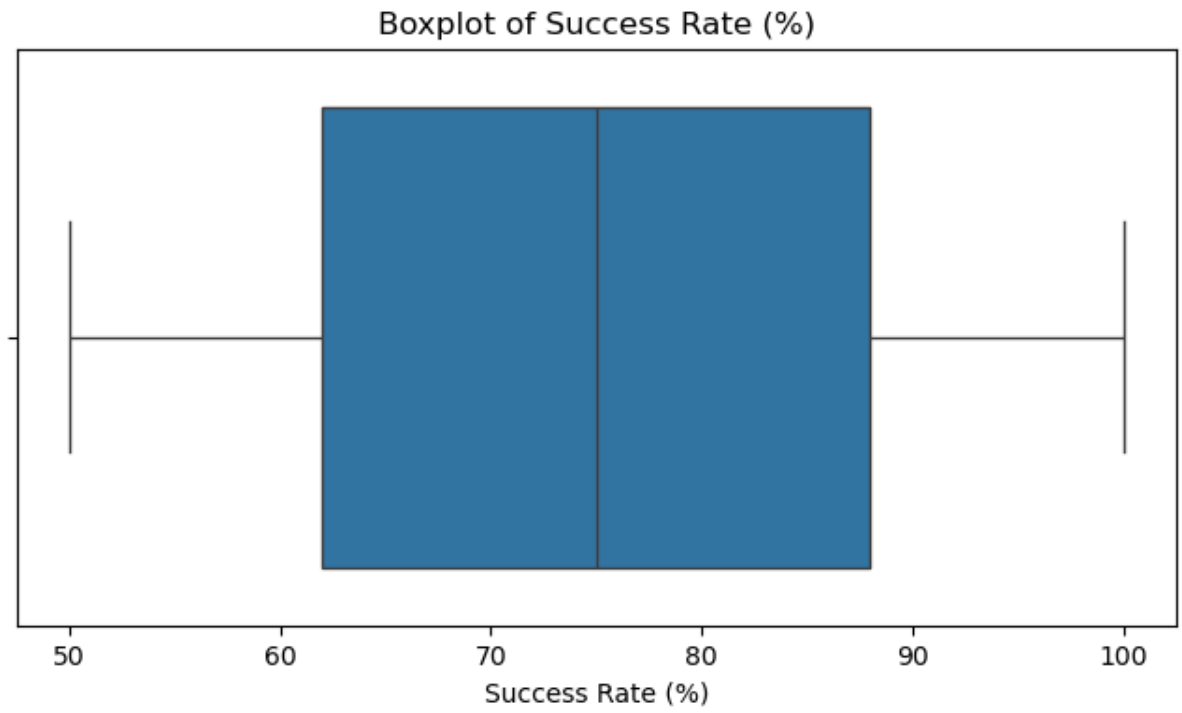
Interquartile Range (IQR): The central box spans from approximately **15 billion to 35 billion dollars**, meaning most space mission budgets fall within this range.

Median: The bold line inside the box is positioned around **25 billion dollars**, suggesting that half of the budgets are below this amount and half are above.

Whiskers & Range: The whiskers extend from **0 to 50 billion dollars**, representing the broader range of space exploration budgets. This shows that while some missions are highly funded, others operate with significantly lower budgets.

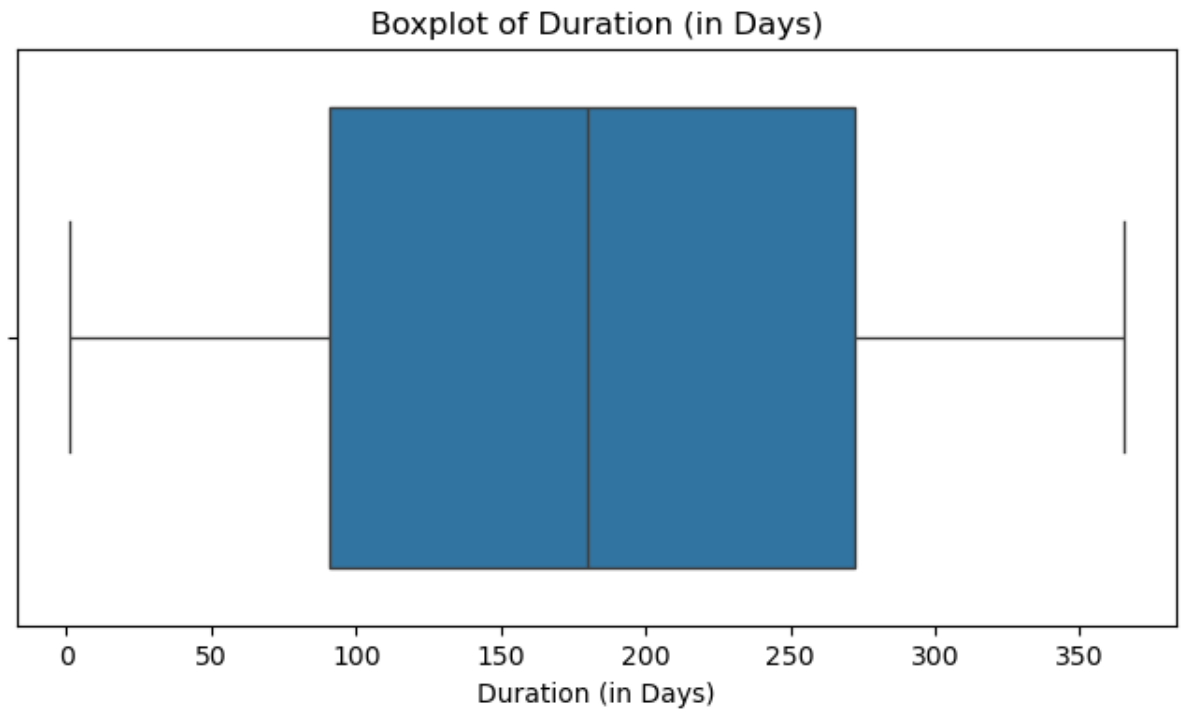
Variability: The relatively wide box indicates significant variation in budgets, suggesting diverse mission scopes and complexities.

Potential Outliers: If there are individual points beyond the whiskers, they may represent exceptionally high or low budgets compared to the general trend.



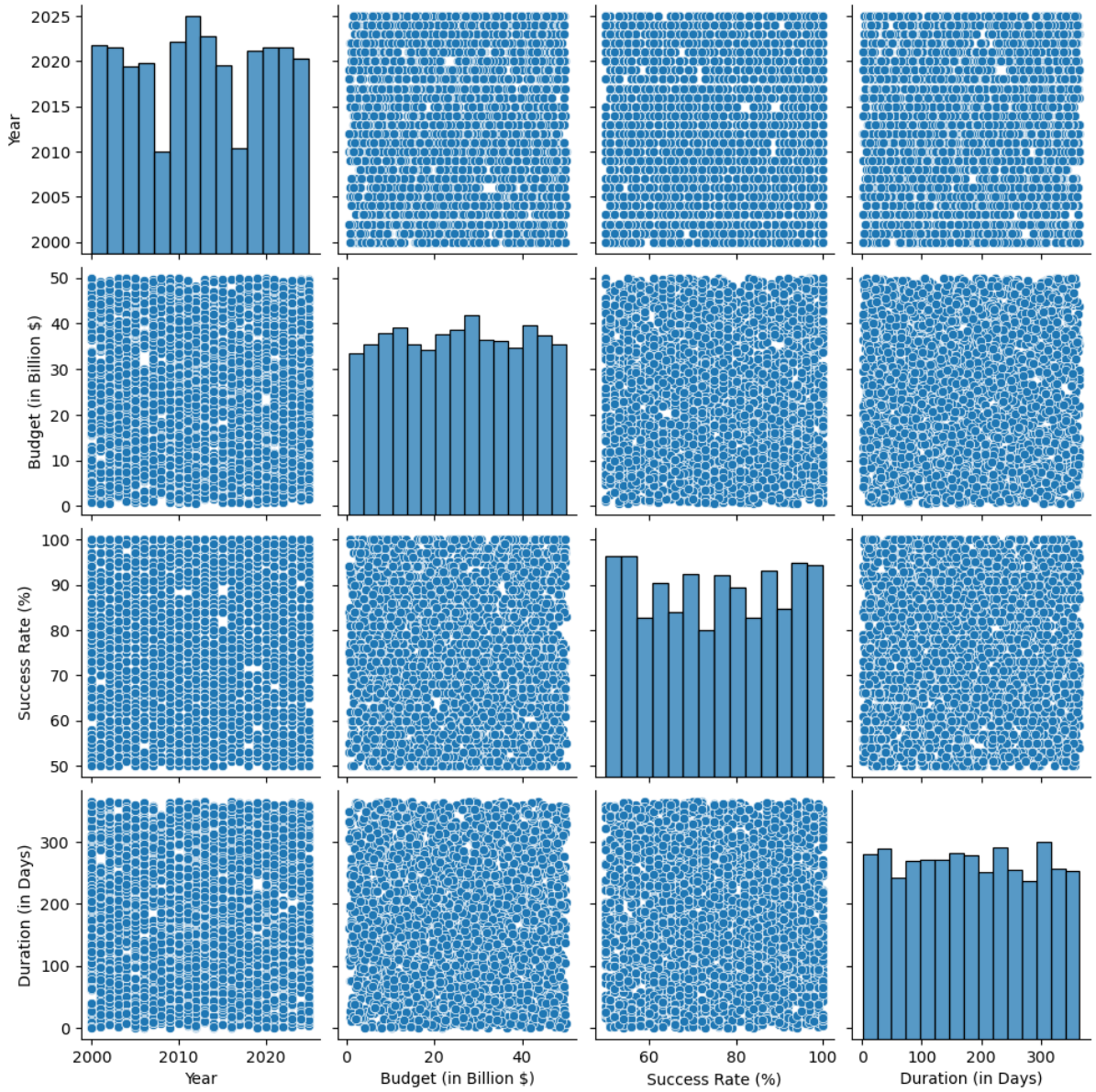
The boxplot represents the distribution of **success rates (%)** across various space exploration missions. Here's what we can observe:

- **Interquartile Range (IQR)**: The central box spans from approximately **65% to 85%**, meaning the majority of missions have success rates within this range.
- **Median Success Rate**: The bold line inside the box sits around **75%**, indicating that half of the missions have a success rate below this value and half above.
- **Whiskers & Range**: The whiskers extend from **50% to 100%**, suggesting that missions have varied success rates, from relatively low (50%) to perfect (100%).
- **Possible Outliers**: If there are points beyond the whiskers, they could represent missions that had significantly lower or higher success rates compared to the majority.



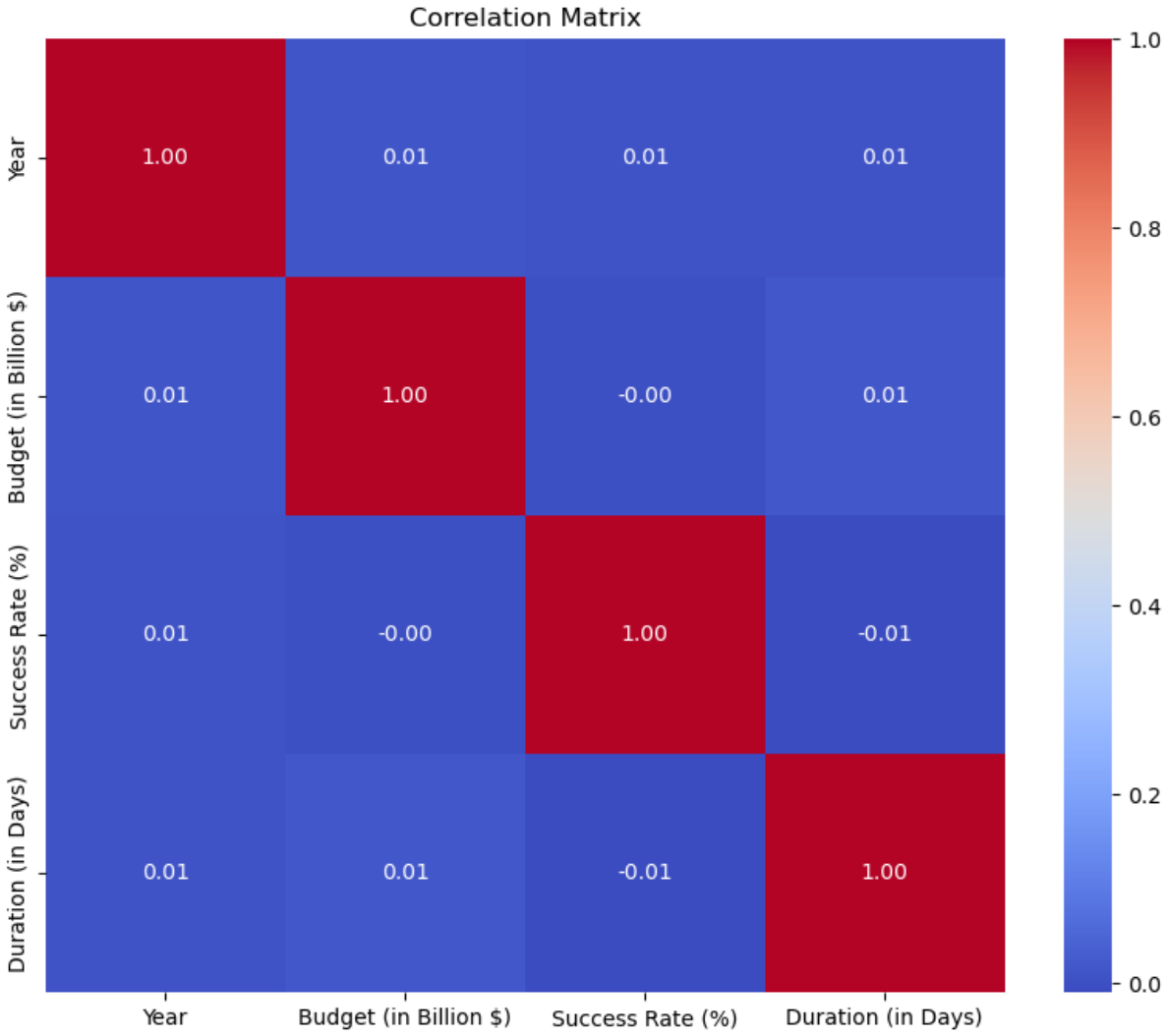
This boxplot titled **"Boxplot of Duration (in Days)"** visualizes the distribution of space mission durations, providing key insights:

- **Range of Mission Durations:** The durations span from **0 to 350 days**, as indicated by the whiskers. This broad range suggests diverse mission complexities, from short-term exploratory missions to longer-term space projects.
- **Interquartile Range (IQR):** The bulk of missions fall between **100 and 250 days**, meaning most missions have durations within this range.
- **Median Duration:** The central line inside the box is positioned around **200 days**, indicating that half of the missions lasted fewer than 200 days and half exceeded this length.
- **Potential Outliers:** If there are any data points beyond the whiskers, they may represent extreme values—either exceptionally short or long missions compared to typical space projects.



This image is a **pair plot matrix**, which visually represents relationships between four key variables: **Year, Budget (in Billion $), Success Rate (%), and Duration (in Days)**. Here are some insights:

- **Year Trends**: The histogram shows a fairly even distribution of space missions from **2000 to 2025**, suggesting consistent exploration efforts over time.
- **Budget Distribution**: The scatter plots indicate that budget values are spread across different levels, with no strong correlation to other variables. The histogram suggests a relatively uniform distribution of funding.
- **Success Rate Patterns**: Most missions have success rates clustered between **60% and 100%**, indicating that space missions generally achieve high success rates.
- **Duration Variability**: The scatter plots show that mission durations vary widely, with no clear trend linking them to other variables. The histogram suggests a fairly uniform distribution of mission lengths.



This image is a **correlation matrix**, which visually represents the relationships between four key variables: **Year, Budget (in Billion $), Success Rate (%), and Duration (in Days)**. Here are some insights:

- **Weak Correlations Across Variables**: The off-diagonal values are all close to **zero**, indicating that there are no strong relationships between these variables.
- **Year's Influence**: The correlation between **Year and other variables** (Budget, Success Rate, and Duration) is **approximately 0.01**, suggesting that time does not significantly impact these factors.
- **Budget vs. Success Rate & Duration**: Budget has a **-0.00 correlation with Success Rate** and **0.01 correlation with Duration**, meaning that funding does not strongly determine mission success or duration.
- **Success Rate vs. Duration**: The correlation is **-0.01**, indicating that longer missions do not necessarily have higher or lower success rates.