

## **Title: Analysis of Presidential Longevity: A Data-driven Approach**

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**Date : 07/30/2023**

### **Summary:**

In this analysis, I explored the longevity of presidents using a dataset containing their birth dates and death dates. By processing the data using Python, I calculated the years, months, and days each president lived. The aim of this study was to identify the top 10 longest-lived and shortest-lived presidents and gain insights into the distribution of their lifespans.

### **Methodology:**

To conduct the analysis, I followed these key steps:

1. Imported the necessary libraries in Python, including Pandas, NumPy, and Matplotlib.
2. Loaded the dataset and converted the date columns into datetime objects for easy calculations.
3. Calculated additional variables, including year of birth, lived years, months, and days for each president.
4. Created two well-formatted tables, ranking the top 10 presidents from longest lived to shortest lived and vice versa.
5. Calculated summary statistics like mean, weighted average, median, mode, max, min, and standard deviation of lived days.
6. Generated a histogram to visualize the distribution of days lived by presidents.

## Results:

### 1. Top 10 Presidents - Longest Lived

Top 10 Longest Lived Presidents:

PRESIDENT	lived_years	lived_months	lived_days
George Bush	94.5315	1150.13	34504
Gerald Ford	93.5151	1137.77	34133
Ronald Reagan	93.3918	1136.27	34088
John Adams	90.737	1103.97	33119
Herbert Hoover	90.2548	1098.1	32943
Harry S. Truman	88.6932	1079.1	32373
James Madison	85.3425	1038.33	31150
Thomas Jefferson	83.2795	1013.23	30397
Richard Nixon	81.337	989.6	29688
John Quincy Adams	80.674	981.533	29446

Table 1: Top 10 longest Lived Presidents

### 2. Top 10 Presidents - Shortest Lived

Top 10 Shortest Lived Presidents:

PRESIDENT	lived_years	lived_months	lived_days
John F. Kennedy	46.5151	565.933	16978
James A. Garfield	49.8685	606.733	18202
James K. Polk	53.6521	652.767	19583
Abraham Lincoln	56.2082	683.867	20516
Chester Arthur	57.1589	695.433	20863
Warren G. Harding	57.7836	703.033	21091
William McKinley	58.663	713.733	21412
Theodore Roosevelt	60.2329	732.833	21985
Calvin Coolidge	60.5452	736.633	22099
Franklin Roosevelt	63.2384	769.4	23082

Table 2: Top 10 shortest Lived Presidents

3. Summary of Statistics of Lived Days

Summary Statistics for Lived Days:

Summary Measure	Lived Days
Mean	26097.2
Median	25673
Mode	16978
Max	34504
Min	16978
Standard Deviation	4596.07

Table 3 - Summary of Statistics

4. Distribution of Days Lived by Presidents

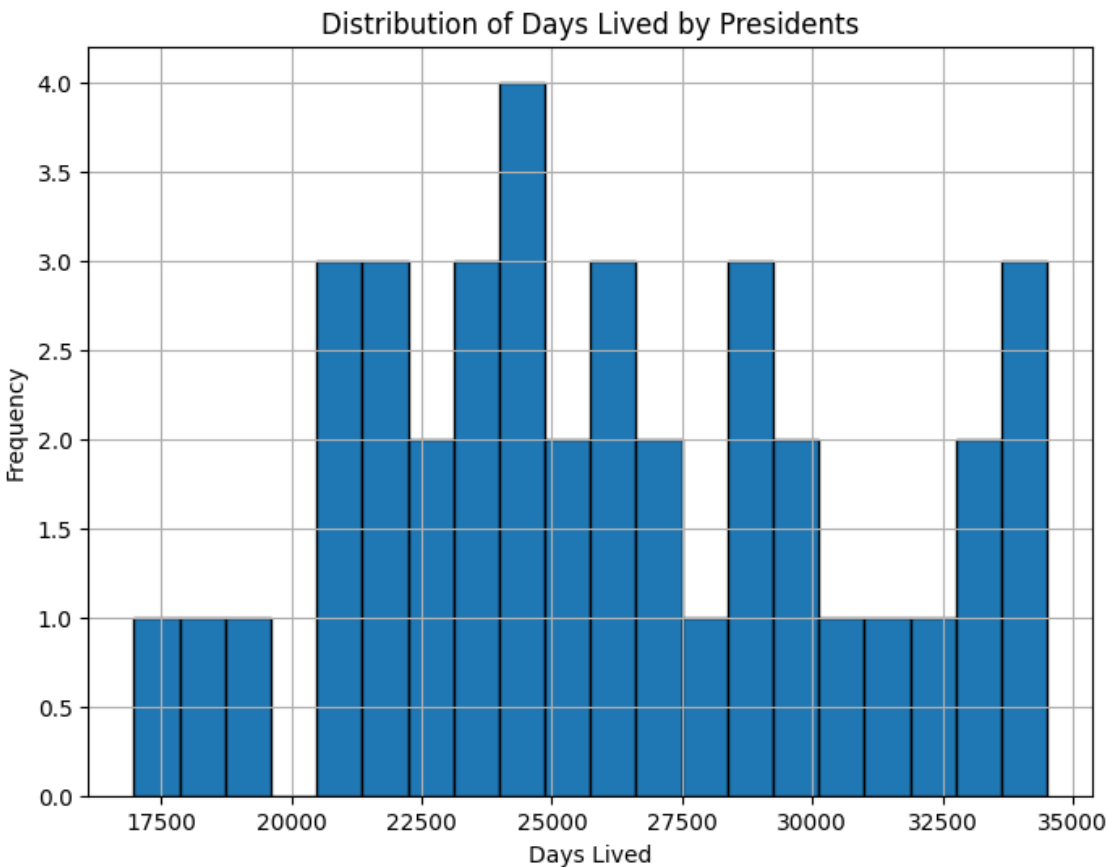


Figure 1: Distribution of Days Lived by Presidents

## **Conclusions:**

This analysis allows us to reflect on the varying lifespans of various US presidents throughout the history. The top 10 longest lived presidents lived for an average of 88 years, while the top 10 shortest lived presidents had an average lifespan of 56 years. The distribution of days lived appears to be normally distributed. The characteristic bell-shaped curve, symmetrical around the mean, is indicative of a classic normal distribution pattern. The mean number of days lived by presidents is 26097.2 days, and the standard deviation is 4596.07 days. Recognizing the normality of this distribution empowers us to make more accurate predictions and conduct reliable statistical analyses.

These numbers can be further compared with respect to Historical context and health factors to understand if the lifespans of presidents could be influenced by historical events, societal factors, lifestyles and advancements in healthcare.

Overall, this analysis provides valuable insights into the lifespans of U.S. presidents and sheds light on the varying lengths of their terms in office. Further research and historical context could enhance our understanding of the factors influencing presidential longevity.