Introduction
The natural world is full of wonder and awe, and the National Parks of the United States are no exception. The first National Park, Yellowstone, was established March 1, 1872. The National Park Service (NPS), founded August 25, 1916, by President Theodore Roosevelt, is an agency of the United States federal government that manages all national parks, many national monuments, and other conservation and historical properties with various title designations. Since its founding, the NPS has preserved natural and cultural resources and values for the enjoyment, education, and inspiration of this and future generations. This analysis attempts to look in depth at National Parks, the species that reside in them, visitor numbers, and visitor reviews on the travel website TripAdvisor.

Data Collection
- Data gathered from various sources:
  - Visitation data (1904-2016): nps.gov
  - Parks & Species data (2016): kaggle.com
  - TripAdvisor user reviews (2000-2018): tripadvisor.com
- Data analyzed in multiple programs:
  - Microsoft Excel
  - JMP
  - Tableau
  - R & R Studio
  - Visual Studio

Data Visualization
Tableau was used to create several interactive visualizations of the National Park data (see laptop). A few of the results are displayed here, as well.

Visitor Data Over Time

National Parks Data Analysis
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Statistical Modeling of Park Attendance
The above graph overlays the actual number of visits and three different predictions of visits (Neural Net, Bootstrap Random Forest, and K-Nearest Neighbors). These three prediction models were built using U.S. population to predict the number of visitors to National Parks for each year. Each model predicted the number of visitors very well.

Model performances:
- NNET: Validation Rsquare = 0.985947, RMSE = 3219936
- BOOT: Validation Rsquare = 0.995, RMSE = 1944436.2
- KNN=2: RMSE = 1696285.3

Results and Discussion
- Parks
  - Scattered throughout the US
  - Alaska has the most parks and the most acreage of parks
- Species
  - Great Smoky Mountains NP has the most species, even though small relative acreage
- Visitors
  - Great Smoky Mountains NP attracts the most visitors overall through the years
  - 2016 was record-breaking year for NPS visits
  - Visitor numbers on steady rise
  - Neural Net model predicts visitor numbers well, based off U.S. population

Conclusion
National Parks have a rich history in the United States, and the data we have on them is rich as well. This analysis barely scratches the surface, and future investigations could go more in depth to find trends in species population and visitor numbers and relationships between a number of variables.

References
- Nps.gov
- Kaggle.com
- Tripadvisor.com

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