National Parks Recreational Database Project Abstract

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Currently there are 423 national parks in the United States containing various amenities such as hiking trails, campgrounds, and historical places of interest. According to recent data, overall national park visitation is approximately 297 million visitors per year with only 25 national parks accounting for 50 percent of overall visitation (NPS 2022a). Severe overcrowding in the most popular national parks may detract or ruin the experience for many people. Additionally, parking and access may be a potential consideration for some visitors. Therefore, the objective of this project is to provide visitors search tools so they can determine which national parks they would like to visit based on their personal interests and possible concern of overcrowded parks or parks with limited availability and access.

This database was designed for use with pgAdmin and five questions were devised to demonstrate its functionality and versatility. Formulation of these questions was based on a hypothetical scenario of a user planning a visit to a national park and searching for various aspects that could affect their decision to visit one park over another. The datasets used to construct this database were obtained from the National Park Service (NPS) and the United States Department of Agriculture, Forest Service (USDA-FS). Targeted features included park visitation data, roads, trials, parking areas, historical points of interest, and facilities such as campgrounds.

This report details the process of designing a national parks database from conceptualization to implementation. As the data obtained for the database was fragmented or incomplete, several issues were encountered that were dealt with throughout the process such as each national park using different spatial data structures. Using ArcGIS Pro, Microsoft Excel, Jupyter Notebook, and pgAdmin, the data was altered, edited, and combined to create a more cohesive dataset that can be queried using PostgreSQL. Although this database is an improvement over existing databases, the addition of spatial data for more national parks is a target for future efforts.