

BIKESHARE ANALYSIS WITH PYTHON

Date: 7th of May, 2023

Video demo: https://youtu.be/Hm_6WqPiNTY

Overview

The Bike-Share Data Analysis program is a Python script that allows users to explore and analyze bike-share data for three major cities in the United States: Chicago, New York City, and Washington. The program interacts with the user to select a city and optionally specify the month and day for analysis. It then loads the corresponding bike-share data and provides various statistical insights and visualizations based on the user's input.

Prerequisites

Before running the program, ensure you have the following installed on your machine:

1. Python
2. Pandas library
3. NumPy library
4. Matplotlib library
5. Seaborn library

You can install the required libraries using the following command:

```
pip install pandas numpy matplotlib seaborn
```

Usage

- Save the script in a Python file, for example, bike_share_analysis.py.
- Ensure the bike-share data files (chicago.csv, new_york_city.csv, washington.csv) are in the same directory as the script.
- Open a terminal and navigate to the directory containing the script.
- Run the script using the following command:

```
python bike_share_analysis.py
```

Program Workflow

1. City, Month, and Day Selection

The program starts by prompting the user to select a city (Chicago, New York City, or Washington) and optionally specify a month and/or day for analysis.

2. Data Loading

The selected data is loaded into a Pandas DataFrame, and the script converts the "Start Time" column to a datetime format. It then extracts the month and day of the week from the "Start Time" column to create new columns.

3. Data Preview

The user is given the option to preview the raw data, and if desired, they can choose to view additional rows in increments.

4. Statistical Insights

The program provides statistical insights into the bike-share data, including the most frequent times of travel, popular stations and trips, trip duration statistics, and user statistics.

5. Dashboard

The program generates a dashboard with visualizations representing key performance indicators, user type distribution, gender distribution, month-wise trip duration, day-of-week trip duration, start and end times, and the most common start station.

6. Restart or Exit

After presenting the results, the user has the option to restart the program and analyze data for another city or exit the program.

User Input Handling

The program incorporates robust input handling using while loops and exception handling to ensure that users provide valid inputs for city, month, and day selection.

Customization

Conclusion

The Bike-Share Data Analysis program offers a user-friendly interface to explore and analyze bike-share data interactively. Users can gain valuable insights and visualize key performance indicators to better understand bike-share patterns in different cities.