Bus Data Automation Guide

Welcome to the **Bus Data Automation** tool! This program helps you gather, clean, store, and visualize bus route data. It works in four main steps:

1. **Scrape Bus Route Links**
2. **Scrape Detailed Bus Route Data**
3. **Insert Data into a Database**
4. **Launch Bus Booking Streamlit App**

Step 1: Scrape Bus Route Links

This step collects links to bus route pages from various bus services, such as APSRTC, TSRTC, and many others. The program accesses these links and stores them in an organized way for further processing.

What happens?

- The program goes to the bus booking websites.
- It collects route links from each service.
- It stores this information in a clean file called ***`Bus_Data_Cleaned.xlsx.`***

How to use:

- When you choose "Scrape links," the program will automatically fetch the links for you.

Step 2: Scrape Detailed Bus Route Data

Once we have the route links, this step fetches detailed information for each bus route. It gathers data like departure times, available seats, fare, and more.

What happens?

- The program goes to each route link collected in Step 1.
- It extracts detailed information for each bus route.
- This information is stored in a file called ***`Bus_Details.csv.`***

How to use:

- After scraping the links, you can select "Scrape route data" to fetch detailed bus route information.

Step 3: Insert Data into the Database

In this step, the program takes the detailed bus route information stored in a CSV file and inserts it into an SQL database for easier management.

What happens?

- The program reads the data from the ***`Bus_Details.csv`*** file.
- It inserts this data into the database so it can be easily accessed and used in other applications.

How to use:

- Choose the "Insert data into SQL" option, and the program will transfer the data into the database.

Step 4: Launch Bus Booking Streamlit App

This step runs the **Bus Booking App**, which uses the collected bus data to provide an interactive user interface for exploring bus routes.

What happens?

- The program starts the Streamlit app, which is a web application where you can view and filter bus routes, check availability, and more.

How to use:

- After inserting data into the database, you can launch the app by selecting the "Run Streamlit app" option.

How to Use the Program

1. **Choose an option**: When you run the program, you'll see a menu with four options:
    a. **1 - Scrape links**
    b. **2 - Scrape route data**
    c. **3 - Insert data into SQL**
    d. **4 - Run Streamlit app**
2. **Enter your choice**: Type the number corresponding to what you'd like to do and press **Enter**.
3. **Follow the steps**:
    a. If you choose to scrape links, the program will collect the bus route links.
    b. If you choose to scrape route data, it will gather detailed information for each route.

c. If you choose to insert data into SQL, it will transfer the collected data into a database.
d. If you choose to run the Streamlit app, it will open a web app where you can interact with the bus data.

Troubleshooting

If you encounter any issues:

- **File Not Found**: Ensure that the necessary files (e.g., Bus_Data_Cleaned.xlsx or Bus_Details.csv) exist before proceeding to the next step.
- **Error Messages**: If you see any error messages, the program will try to explain what went wrong, so you can fix it easily.

Conclusion

This tool helps automate the process of collecting, cleaning, and visualizing bus route data, saving time and effort.