Programming Assignment 1

Analyzing COVID-19 time series data is a relevant and insightful task. You can use datasets that contain information about COVID-19 cases, deaths, and recoveries over time. One such dataset is provided by organizations like Johns Hopkins University, which compiles global COVID-19 data. Here's how you can structure your assignment:

Dataset: COVID-19 Global Time Series Data

Description: The COVID-19 Global Time Series dataset provides daily updates on confirmed cases, deaths, and recoveries related to the COVID-19 pandemic across various countries and regions worldwide.

Variables:

- Date: The date of observation
- Country/Region: The name of the country or region
- Confirmed Cases: The number of confirmed COVID-19 cases on a specific date
- Deaths: The number of deaths due to COVID-19 on a specific date
- Recovered: The number of recovered COVID-19 cases on a specific date

Instructions: Here are some tasks you can include in your assignment for analyzing the COVID-19 Global Time Series data:

Link for Dataset- https://data.world/shad/covid-19-time-series-data

1. **Data Import and Exploration:**
   - Import the COVID-19 time series dataset into R.
   - Display the structure and summary statistics of the dataset.
   - Check for missing values and handle them appropriately.
   - Explore the temporal trends of confirmed cases, deaths, and recoveries globally and for specific countries or regions.
2. **Data Visualization:**
   - Create time series plots to visualize the progression of COVID-19 cases, deaths, and recoveries over time.
   - Generate bar plots or pie charts to visualize the distribution of cases, deaths, and recoveries across different countries or regions.
   - Plot daily new cases, deaths, and recoveries to identify trends and fluctuations.
3. **Time Series Analysis:**

- Calculate daily changes and growth rates of COVID-19 cases, deaths, and recoveries.
- Identify regions with significant increases or decreases in COVID-19 cases using time series analysis techniques.
- Explore correlations between COVID-19 cases, deaths, and recoveries, and factors such as population density or government interventions.

Submission Guidelines:

- Submit your R script (.R file) containing the code for completing the tasks.
- Include comments in your code to explain each step and provide interpretations of the results.
- Additionally, submit a PDF report documenting your findings, including visualizations, model performance metrics, and interpretations.
- At email-