**Title: Public transport analysis**

**Phase 4: Development part 2**

**INTRODUCTION :**

Public transport analysis is a critical evaluation of transportation systems that serve the general public. It involves assessing various aspects of public transportation, including buses, trains, trams, subways, and other modes of communal mobility. The analysis can encompass a range of factors such as efficiency, accessibility, affordability, safety, environmental impact, and social equity. Researchers and policymakers often conduct these analyses to make informed decisions about improving public transport services, addressing congestion, reducing emissions, and enhancing urban planning. Understanding the strengths and weaknesses of public transportation systems is crucial for creating sustainable and efficient transportation networks that benefit communities and regions.

**GIVEN DATASET :**

TripID RouteID StopID StopName WeekBeginnumberofboarding

23631 100 14156 181 CrossRd6/30/20130:00 1

23631 100 14144 177Cross Rd6/0/20130:00 1

23632 100 14132 175CrossRd6/30/2010:00 1

23633 100 12266 ZoneAArndaleInterchange6/30/201 0:00 2

23634 100 14132 175Cross Rd6/30/2013 0:00 1

23634 100 13335 9AHolbrooksRd6/30/2013 0:00 1

23634 100 13878 9MarionRd6/30/2013 0:00 1

23634 100 13045 206HolbrooksRd6/30/2013 0:00 1

23635 100 13335 9AHolbrooksRd6/30/2013 0:00 1

**Modeling :**

**1. Data Preparation:** Make sure you have your data ready for analysis. Clean, preprocess, and structure your data as needed.

**2. IBM Cognos:** In IBM Cognos, you can create visualizations and reports. This typically involves using the drag-and-drop interface to select data, choose chart types, and customize your visuals.

3**. Code Integration**: To integrate code for data analysis, you might want to use a scripting language like Python or R. You can run code for more advanced analysis or custom visualizations.

**4. Data Export/Import**: If you need to use code for analysis, export your data from Cognos and import it into your chosen analysis tool. You can use libraries like Pandas in Python or data frames in R to work with the data.

5**. Analysis:** Write your code to perform the desired analysis, which might include statistical tests, machine learning models, or any other data manipulation tasks.

6**. Visualization:** Use libraries like Matplotlib or Seaborn in Python to create custom visualizations, or you can export the results from your code to be visualized in Cognos.

7**. Dashboard Creation**: Once you have your visuals and analysis results, you can create interactive dashboards in IBM Cognos to present your findings.

8**. Automation (Optional):** If you need to automate this process, you can schedule it to run at specific intervals or trigger it with new data.

**Program :**

import pandas as pd

import matplotlib.pyplot as plt

import seaborn as sns

# Define objectives

objective = "To determine and visualize peak travel times on weekdays for a specific region."

# Data Collection (assuming you've gathered the data)

data\_filepath = "public\_transport\_data.csv"

# Data Cleaning & Preprocessing

data = pd.read\_csv(data\_filepath)

data = data.dropna() # Handle missing data

weekday\_data = data[data['Day'].isin(['Monday', 'Tuesday', 'Wednesday', 'Thursday', 'Friday'])]

# Data analysis

Peak\_time=weekday\_data.groupby('Hour')['Passenger\_Count'].mean().sort\_values(ascending=False)

# Data Visualization

plt.figure(figsize=(10,6))

sns.barplot(x=peak\_times.index, y=peak\_times.values, palette="viridis")

plt.title("Passenger Volume by Hour on Weekdays")

plt.ylabel("Average Passenger Count")

plt.xlabel("Hour of Day")

plt.show()

**output :**







