Java programe

(ASSINGMENT)

**Smart Traffic Signal Optimization**

**Scenario:** You are part of a team working on an initiative to optimize traffic signal management in a busy city to reduce congestion and improve traffic flow efficiency using smart technologies.

**PROGRAME:**

class TrafficData {

int vehicleCount;

double speed;

public TrafficData(int vehicleCount, double speed) {

this.vehicleCount = vehicleCount;

this.speed = speed;

}

public int getVehicleCount() {

return vehicleCount;

}

public void setVehicleCount(int vehicleCount) {

this.vehicleCount = vehicleCount;

}

public double getSpeed() {

return speed;

}

public void setSpeed(double speed) {

this.speed = speed;

}

}

class TrafficSignalOptimization {

public void optimizeSignalTiming(TrafficData data) {

if (data.getVehicleCount() > 10) {

System.out.println("Increasing green light duration.");

} else {

System.out.println("Maintaining current signal timings.");

}

}

}

public class TrafficSignalControlApp {

public static void main(String[] args) {

TrafficData currentData = new TrafficData(15, 30.0); // Example data

TrafficSignalOptimization optimizer = new TrafficSignalOptimization();

optimizer.optimizeSignalTiming(currentData);

System.out.println("Signal timings adjusted based on current traffic data.");

}

}

class TrafficVisualization {

public void displayRealTimeData(TrafficData data) {

System.out.println("Real-time Traffic Data:");

System.out.println("Vehicle Count: " + data.getVehicleCount());

System.out.println("Speed: " + data.getSpeed() + " km/h");

}

public void generateReports() {

System.out.println("Generating traffic flow reports...");

}

}

class TrafficManagementUI {

public void displayTrafficManagerUI() {

System.out.println("Traffic Manager UI displayed.");

}

public void displayCityOfficialDashboard() {

System.out.println("City Official Dashboard displayed.");

}

}

class TrafficSignalSystem {

public void drawDataFlowDiagram() {

System.out.println("Data Flow Diagram drawn.");

}

public void implementAlgorithm() {

System.out.println("Algorithm implemented.");

}

public void provideDocumentation() {

System.out.println("Documentation provided.");

}

public void developUserInterface() {

System.out.println("User interface developed.");

}

public void runTestCases() {

System.out.println("Test cases run.");

}

}

**OUTPUT:**

