Credit Name:CSE3130
Assignment Name:Vehicle

Describe the errors you've encountered while working on this assignment. What caused the error and how do you overcome the error?

My Errors and how I fixed them:

1. Variable Name: The variable userinput should be renamed to userInput in order to follow the standard naming conventions in Java.
2. Scanner Input Mismatch: The Scanner method next() should be replaced with nextLine() when reading the user's choice of action to avoid skipping input. Similarly, nextDouble() should be used instead of nextInt() to read the distance of travel as a floating-point number.
3. Object Comparison: The == operator should be replaced with the equals() method to compare vec and vec1 objects. It ensures proper object comparison instead of comparing references.
4. Resource Leak: The Scanner object userInput should be closed using the close() method to release system resources once it's no longer needed.

Errored code:

```
package Mastery;

import java.text.NumberFormat;
import java.util.Random;
import java.util.Scanner;

public class VehicleTest {

	// Method to travel a vehicle for a given distance
	public static void travelVehicle(Vehicle vec, double KM) {
		NumberFormat travelKM = NumberFormat.getCurrencyInstance();
		double kmTravel;

		System.out.println(vec); // Print the details of the vehicle

		kmTravel = vec.costOfTravel(KM); // Calculate the cost of travel for the given distance

		System.out.println(travelKM.format(kmTravel)); // Print the cost of travel in a formatted manner
```

```
	}

	public static void main(String[] args) {
		Car vec1 = new Car("BMW", 4, 50, 6, 22); // Create a car object with specific attributes (name, doors, storage, seating, kmpl)
		Truck vec2 = new Truck("Ford", 2, 100, 7, 18); // Create a truck object with specific attributes (name, doors, storage, seating, kmpl)
		Minivan vec3 = new Minivan("Honda", 4, 75, 8, 25, 5); // Create a minivan object with specific attributes (name, doors, storage, seating, kmpl, capacity)

		Scanner userInput = new Scanner(System.in); // Create a Scanner object to read user input

		String action; // Stores the user's chosen action
		double travel; // Stores the distance of travel
		int carNum; // Stores the chosen car number

		Vehicle vec = vec1; // Initialize the selected vehicle with the first car object

		do {
			System.out.println("\n (C)ar \\ (P)rice to travel \\ (Q)uit");
			System.out.println("Enter choice: ");
			action = userInput.nextLine(); // Read the user's chosen action

			if (!action.equalsIgnoreCase("Q")) {
				System.out.println("Enter car number (1, 2, or 3)");
				carNum = userInput.nextInt(); // Read the user's chosen car number

				switch (carNum) {
					case 1:
						vec = vec1; // Set the selected vehicle as car 1
						break;
					case 2:
						vec = vec2; // Set the selected vehicle as car 2
						break;
					case 3:
						vec = vec3; // Set the selected vehicle as car 3
						break;
				}

				if (action.equalsIgnoreCase("C")) {
					System.out.println(vec); // Print the details of the selected vehicle
```

```
                        } else if (action.equalsIgnoreCase("P")) {
                                System.out.println("How far are you travelling in km?");
                                travel = userInput.nextDouble(); // Read the distance of
travel from the user

                                travelVehicle(vec, travel); // Invoke the method to calculate
and print the cost of travel for the selected vehicle
                        }
                }

                if (vec.equals(vec1)) { // Check if the selected vehicle is car 1
                        System.out.println("Want to play the lottery, on the way to work?
(Y/N)");
                        action = userInput.next(); // Read the user's choice

                        if (action.equalsIgnoreCase("Y")) {
                                Random random = new Random();
                                int moneyWon = random.nextInt(1000); // Generate a
random amount of money won
                                System.out.println("You win: $" +
Integer.toString(moneyWon)); // Print the amount won
                        }
                }
        } while (!action.equalsIgnoreCase("Q")); // Repeat the loop
                userInput.close(); // Close the Scanner object to avoid resource leak
        }
}
```

FIxed Code:

```
package Mastery;
import java.text.NumberFormat;
import java.util.Random;
import java.util.Scanner;
public class VehicleTest {

        // Method to travel a vehicle for a given distance
        public static void travelVehicle(Vehicle vec, double KM) {
                NumberFormat travelKM = NumberFormat.getCurrencyInstance();
                double kmTravel;

                System.out.println(vec); // Print the details of the vehicle
```

```
		kmTravel = vec.costOfTravel(KM); // Calculate the cost of travel for the given distance

		System.out.println(travelKM.format(kmTravel)); // Print the cost of travel in a formatted manner
	}
	public static void main(String[] args) {
		Car vec1 = new Car("BMW", 4, 50, 6, 22); // Create a car object with specific attributes (name, doors, storage, seating, kmpl)
		Truck vec2 = new Truck("Ford", 2, 100, 7, 18); // Create a truck object with specific attributes (name, doors, storage, seating, kmpl)
		Minivan vec3 = new Minivan("Honda", 4, 75, 8, 25, 5); // Create a minivan object with specific attributes (name, doors, storage, seating, kmpl, capacity)

		Scanner userinput = new Scanner(System.in); // Create a Scanner object to read user input

		String action; // Stores the user's chosen action
		double travel; // Stores the distance of travel
		int carNum; // Stores the chosen car number

		Vehicle vec = vec1; // Initialize the selected vehicle with the first car object

		do {
			System.out.println("\n (C)ar \\ (P)rice to travel \\ (Q)uit");
			System.out.println("Enter choice: ");
			action = userinput.next(); // Read the user's chosen action

			if (!action.equalsIgnoreCase("Q")) {
				System.out.println("Enter car number (1, 2, or 3)");
				carNum = userinput.nextInt(); // Read the user's chosen car number

					switch (carNum) {
						case 1:
							vec = vec1; // Set the selected vehicle as car 1
							break;
						case 2:
							vec = vec2; // Set the selected vehicle as car 2
							break;
						case 3:
							vec = vec3; // Set the selected vehicle as car 3
							break;
```

```
                                        }

                                        if (action.equalsIgnoreCase("C")) {
                                                System.out.println(vec); // Print the details of the selected
vehicle
                                        } else if (action.equalsIgnoreCase("P")) {
                                                System.out.println("How far are you travelling in km?");
                                                travel = userinput.nextDouble(); // Read the distance of
travel from the user

                                                travelVehicle(vec, travel); // Invoke the method to calculate
and print the cost of travel for the selected vehicle
                                        }
                                }

                                if (vec == vec1) { // Check if the selected vehicle is car 1
                                        System.out.println("Want to play the lottery, on the way to work?
(Y/N)");
                                        action = userinput.next(); // Read the user's choice

                                        if (action.equalsIgnoreCase("Y")) {
                                                Random random = new Random();
                                                int moneyWon = random.nextInt(1000); // Generate a
random amount of money won
                                                System.out.println("You win: $" +
Integer.toString(moneyWon)); // Print the amount won
                                        }
                                }
                        } while (!action.equalsIgnoreCase("Q")); // Repeat the loop
                }
}
```