Credit
3130
Assignment
E13Vehicle

manage vehicle data for car truck and minivan with user input and display

How has your program changed from planning to coding to now? Please explain?

Fancy abstract class

```
7  public abstract class Vehicle
8  {
9      // fuel economy city
10     protected double fuelEconomyCity;
11     // fuel economy highway
12     protected double fuelEconomyHwy;
13     // seating capacity
14     protected int seatingCapacity;
15     // cargo volume
16     protected double cargoVolume;
17
18     // constructor
19     public Vehicle()
20     {
21         fuelEconomyCity = 0;
22         fuelEconomyHwy = 0;
23         seatingCapacity = 0;
24         cargoVolume = 0;
25     }
26
27     // set fuel economy city
28     public void setFuelEconomyCity(double city)
29     {
30         fuelEconomyCity = city;
31     }
32
33     // set fuel economy highway
34     public void setFuelEconomyHwy(double hwy)
35     {
36         fuelEconomyHwy = hwy;
37     }
38
39     // set seating capacity
40     public void setSeatingCapacity(int seats)
41     {
42         seatingCapacity = seats;
43     }
44
45     // set cargo volume
46     public void setCargoVolume(double cargo)
47     {
48         cargoVolume = cargo;
49     }
50
51     // get fuel economy city
52     public double getFuelEconomyCity()
53     {
54         return fuelEconomyCity;
55     }
56
57     // get fuel economy highway
58     public double getFuelEconomyHwy()
59     {
```

Short car class

```java
package mastery;

/*
car class
*/

public class Car extends Vehicle
{
    // extra for car if needed
    private String type = "Car";

    // constructor
    public Car()
    {
        super();
    }

    // type output
    public void vehicleType()
    {
        System.out.println("vehicle type car");
    }
}
```

Truck class

```java
package mastery;

/*
truck class
*/

public class Truck extends Vehicle
{
    // extra for truck if needed
    private String type = "Truck";

    // constructor
    public Truck()
    {
        super();
    }

    // type output
    public void vehicleType()
    {
        System.out.println("vehicle type truck");
    }
}

```

Mini van

```java
package mastery;

/*
truck class
*/

public class Truck extends Vehicle
{
    // extra for truck if needed
    private String type = "Truck";

    // constructor
    public Truck()
    {
        super();
    }

    // type output
    public void vehicleType()
    {
        System.out.println("vehicle type truck");
    }
}

```

Big boi tester

```java
public class VehicleClient
{
    public static void main(String[] args)
    {
        // scanner for input
        Scanner input = new Scanner(System.in);

        // create vehicles
        Car car = new Car();
        Truck truck = new Truck();
        Minivan minivan = new Minivan();

        // main menu choice
        char mainChoice = 0;

        // loop main menu
        do
        {
            // print main menu
            System.out.println("\n--- Main Menu ---");
            System.out.println("(I)nput - enter vehicle data");
            System.out.println("(D)isplay - show vehicle data");
            System.out.println("(Q)uit - exit program");
            System.out.print("choose option: ");
            String line = input.nextLine();
            if (line.isEmpty())
            {
                System.out.println("invalid input try again");
                continue;
            }

            mainChoice = Character.toUpperCase(line.charAt(0));

            // input or display
            if (mainChoice == 'I' || mainChoice == 'D')
            {
                // select vehicle type
                System.out.println("\nselect vehicle type");
                System.out.println("1 - car");
                System.out.println("2 - truck");
                System.out.println("3 - minivan");
                System.out.print("enter 1 2 or 3: ");
                int typeChoice;
                try
                {
                    typeChoice = Integer.parseInt(input.nextLine());
                    if (typeChoice < 1 || typeChoice > 3)
                    {
                        System.out.println("invalid input must be 1 2 or 3");
                        continue;
                    }
                }
                catch (NumberFormatException e)
```

```
64                  System.out.println("invalid input must be a number");
65                  continue;
66              }
67
68              Vehicle vehicle = null;
69              // assign vehicle
70              if (typeChoice == 1)
71                  vehicle = car;
72              else if (typeChoice == 2)
73                  vehicle = truck;
74              else
75                  vehicle = minivan;
76
77              // input data
78              if (mainChoice == 'I')
79              {
80                  try
81                  {
82                      System.out.print("enter fuel economy city: ");
83                      double city = Double.parseDouble(input.nextLine());
84                      if (city < 0)
85                      {
86                          System.out.println("invalid value must be >=0");
87                          continue;
88                      }
89                      vehicle.setFuelEconomyCity(city);
90
91                      System.out.print("enter fuel economy highway: ");
92                      double hwy = Double.parseDouble(input.nextLine());
93                      if (hwy < 0)
94                      {
95                          System.out.println("invalid value must be >=0");
96                          continue;
97                      }
98                      vehicle.setFuelEconomyHwy(hwy);
99
100                     System.out.print("enter seating capacity: ");
101                     int seats = Integer.parseInt(input.nextLine());
102                     if (seats <= 0)
103                     {
104                         System.out.println("invalid value must be >0");
105                         continue;
106                     }
107                     vehicle.setSeatingCapacity(seats);
108
109                     System.out.print("enter cargo volume: ");
110                     double cargo = Double.parseDouble(input.nextLine());
111                     if (cargo < 0)
112                     {
113                         System.out.println("invalid value must be >=0");
114                         continue;
115                     }
116                     vehicle.setCargoVolume(cargo);
```

```
                    {
                        System.out.println("invalid value must be >=0");
                        continue;
                    }
                    vehicle.setFuelEconomyHwy(hwy);

                    System.out.print("enter seating capacity: ");
                    int seats = Integer.parseInt(input.nextLine());
                    if (seats <= 0)
                    {
                        System.out.println("invalid value must be >0");
                        continue;
                    }
                    vehicle.setSeatingCapacity(seats);

                    System.out.print("enter cargo volume: ");
                    double cargo = Double.parseDouble(input.nextLine());
                    if (cargo < 0)
                    {
                        System.out.println("invalid value must be >=0");
                        continue;
                    }
                    vehicle.setCargoVolume(cargo);

                }
                catch (NumberFormatException e)
                {
                    System.out.println("invalid input must be a number");
                    continue;
                }
            }
            else // display
            {
                vehicle.vehicleType();
                System.out.printf("fuel economy city %.2f\n", vehicle.getFuelEconomyCity());
                System.out.printf("fuel economy highway %.2f\n", vehicle.getFuelEconomyHwy());
                System.out.println("seating capacity " + vehicle.getSeatingCapacity());
                System.out.printf("cargo volume %.2f\n", vehicle.getCargoVolume());
            }
        }
        else if (mainChoice != 'Q')
        {
            System.out.println("invalid option choose i d or q");
        }

    } while (mainChoice != 'Q');

    // end program
    System.out.println("program terminated");
    input.close();
  }
}
```

Done.