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| **R****I****T** | **Rochester Institute of Technology**  **Golisano College of Computing and Information Sciences**  **Department of Information Sciences & Technology** |

**ISTE-200 Java for Programmers**

**Homework 3 – Classes**

**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Sign-off:\_\_\_\_\_\_\_\_\_**

# Orders for Truck & Car

## **Objective**

This program will give you practice working with:

* Wrapper classes
* Parsing strings
* Array usage
* OOD – Object Oriented Design (UML)
* ArrayList or Vector
* “instanceof”
* toString()
* Java Docs - Documentation
* Other Java programming concepts

## **Description**

In this set of programs you will write classes that work together.

The classes are:

1. Truck

2. Car

1. Orders

To start describing this assignment, there are some things done differently this program than previous homeworks. This homework REQUIRES user input and printing to be done in the classes other than the “test (or main) class”. The reason of this is, the (non-main) classes will “take care of themselves”. That means the classes have all the knowledge to prompt the user for their information, store and retrieve their information, along with the accessors and mutators to return this information to the main program as requests are made.

The Order class accepts from the user what kind of vehicle they want to purchase, a Car (C/c) or a Truck (T/t). From this simple choice, Order calls the default constructor for the class requested. The default constructor is to call a method(s), name the methods the same in both the Car or Truck class.

From this constructor, the Orders class creates and object of Truck and of Car, per user’s request. Each Truck and Car selected will ask the user for some basic information; these are Model, Color, and Cost.

In addition to these three basic pieces of information when a:

* Truck order; you will use a menu system to ask the user if:
* Is it a “half ton”, or “one ton” truck?
* Engine size, choices could be. “Really big”, “Not so big” (Please choose other engine sizes than these.)
* Car order; you will use a menu system to ask the user:
* The type of car: sedan, coupe, or wagon?
* Does it have a towing package 1=yes, 2=no?

These options are numbered, 1, 2, etc. See the output examples for how the selections of these are to work.

The Orders class uses the Truck and Car classes as needed. Creating a new object of the Truck or Car and adding the appropriate object to a Collection maintained by Orders.

Once the user says there are no more orders, have Orders iterate through Order’s Collection. In this loop determine if the object is a Truck or Car by using the “instanceof” operator. If it is a Car, then cast the object as Car and execute the toString() to have it return the formatted information about the car (see output). Similarly for if the object is of the Truck class.

## Requirements:

* Truck and Car classes have a default constructor that calls methods which request input to that class.
* Classes must have Accessors and Mutators for all attributes, along with a toString().
* Must store the orders for Truck and Car in ONE common Collection.
* Inputs MUST be in order and data type as shown (or 15 points deduction). That is, menu’s must accept numeric entries for the menu choices. For example, you may set the Truck Engine Size to say any two size options you want, but they must be asked at the correct time and the number choices must be 1 and 2.

## Strongly suggest:

* In similar methods of Truck and Car, give them the same name. For example, they both will have a setCost, and getCost method.
* Use an accessor or mutators to access instance variables. Even within the class itself.

## Submitting your work:

* Submit a picture of the sign-off sheet to the dropbox.

Sample Output: (Bolded text was entered by the user)

C:\>**java Orders**

Your Name Here's Ordering System (218-HW2)

Do you want to order a Truck (T/t) or Car (C/c)? **c**

Entering Car order:

Model: **Ford**

Color: **Green**

Cost: **19875.95**

What type of Car is this?

1. Sedan

2. Coupe

3. Wagon

Choice: **3**

Does this car have a towing package?

1. Yes

2. No

Choice: **1**

Do you want to order another vehicle? **y**

Do you want to order a Truck (T/t) or Car (C/c)? **t**

Entering Truck order:

Model: Dodge **RamTruck**

Color: **red**

Cost: **25000.95**

What size truck is this?

1. Half-ton

2. Full ton

Choice: **1**

What is the engine size of the truck?

1. Really big

2. Not so big

Choice: **2**

Do you want to order another vehicle? **Y**

Do you want to order a Truck (T/t) or Car (C/c)? **C**

Entering Car order:

Model: **Toyota**

Color: **white**

Cost: **12543.21**

What type of Car is this?

1. Sedan

2. Coupe

3. Wagon

Choice: **1**

Does this car have a towing package?

1. Yes

2. No

Choice: **2**

Do you want to order another vehicle? **n**

*When no more input, print the information entered.*

Car:

Model: Ford

Color: Green

Cost: $19875.95

Type: Wagon

Towing: included

Truck:

Model: Dodge RamTruck

Color: red

Cost: $25000.95

Load: Half-ton

Engine: Not so big

Car:

Model: Toyota

Color: white

Cost: $12543.21

Type: Sedan

Towing: not included

Thank you for using *Your Name's* Ordering System.