Worksheet W0: Object-Oriented Programming

Total points: 10

Out: 2024 August 26 (Monday evening)

Due: 2024 August 27 (Tuesday end of day [2359 CDT according to D2L])

*No late submissions will be accepted*

What to submit?

Upload exactly one file to the designated D2L folder. Some questions may be answered directly on the word file. Other questions can be answered on a piece of paper, and you take a picture of your paper and insert the picture in the word file. The worksheet is available online and is open now.

Exercise 1: Arrays of Primitives

* Declare a reference variable for an array of doubles.  Name the array prices.

double[] prices = new prices;

* Instantiate the prices array to hold 50 doubles.

prices = new double[50];

* Set the array element of prices that is at index three to 13.99.

prices[3] = 13.99;

* Write a for loop to count the number of values in the prices array that are greater than 10.

int count = 0;

for (int I = 0; I < prices.length; i++) {

if (prices[i] > 10) {

count = count + 1;

}

System.out.print(count);

}

Exercise 2: Comparing Objects

Write an equals method for the Car class given here.  Two Cars are equal if their Vehicle Identification Numbers (VIN) are the same.  HINT:  The String class has an equals method that can be called from the Car class equals method.

public boolean equalsCar(String vin1, String vin2) {

if (vin1.equals(vins2)) {

return true;

}

else {

return false;

}

}

Exercise 3: UML diagrams

Draw the UML diagram for the Car class from Exercise 2 after including the equals method.

|————————————————————

| Car

|————————————————————

| - vin : String

| - color : String

|————————————————————

| + Car(vinL String, color:String)

| + setVin(vin:String) : void

| + getVin() : String

| + setColor(color:String) : void

| + getColor() : String

| + equalsCar(vin1 : String, vin2 : String)

Exercise 4: Arrays of Objects

* Declare and instantiate an array of 40 cars using the Car class.  Name the array dealerCars.

Car[] dealerCars = new Car[40];

* Write Java statements to add three cars to the dealerCars array.

dealerCars[0] = new Car("1345", "blue");

dealerCars[1] = new Car("5789", "green");

dealerCars[2] = new Car("0987", "red");

* Make a hole at the beginning of the dealerCars array by moving the cars in the array up by one position.

for(int i = 0; i < dealerCars.length - 1; i++) {

dealerCars[i] = dealerCars[i + 1];

}

* Add another car to the beginning of the array.

dealerCars[0] = new Car("1334445", "orange");

* Write a for loop to display all the cars in the dealerCars array. Add any necessary methods to the Car class.

for(int i = 0; i < dealerCars.length; i++) {

System.out.println(dealerCars[i]);

}