Due date: Today, at the end of the lab period.

Read this entire document before beginning your lab.

Make sure to locate and place the **PC² Lab System** on your desktop. The *Comp248_Lab_Manual* file is available on the H: drive if you don't remember how to use the system, **you should worry about this after completing the question**.

For this lab you are **required to fulfill all requirements exactly as described** in this provided document, no less, no more.

Question: Today's lab has a different format. You are given a *.java* file that you are to complete and submit to PC². The file already has a *main* method (that you are **NOT** to modify) that will test your class implementation once completed.

- Name of the file you are to complete: ***Train_2.java***
- Where is it? In the .ZIP file with the lab handout
- What does it emulate? A pet dog and is called ***Train_2***
- **What do I do?** Complete ***Train_2.java*** file provided. Again this file already has a *main* method (that you are **NOT** to modify) that will test your implementation once completed.
  Here are **all the** requirements you are to fulfill **exactly** as described before submitting your work. **Failing to do so will result in your program not working**

Implement the class ***Train_2*** so that it contains:

- ✓ 3 private instance variables: *line* of type String, *wagons* of type integer which records the number of wagons, and *isElectric* which is Boolean and indicates if it is an electric train or not.
- ✓ A default constructor which sets all of the numeric instance variables to zero and the String instance variables to null.
- ✓ A constructor with 3 parameters which sets the 3 instance variables to the corresponding values passed.
- ✓ Implement an accessor method for each of the 3 instance variable that will return the value of the instance variable. For example, the *getX*() method for the instance variable *line* must be called *getLine*().
- ✓ Implement a mutator method for each instance variable that will assign to the instance variable to the value passed. For example, the *setX*() method for the instance variable *line* must be called *setLine*().
- ✓ An *equals* method: two objects of type *Train* are equal if all the attributes of both objects have the same values.
- ✓ A Boolean method *bothElectric* which returns *true* if both trains are electric and *false* otherwise.
- ✓ A *toString* function must also be provided to return the watch information in the following format:

  `The train on line <line> has <wagons> wagons and is electric is <isElectric>`

  Where <*line*>, <*wagons*> and <*isElectric* > are the content of the instance variables.

If you correctly implemented all of the above, running the main method will result in your program displaying **exactly**: (REMEMBER in the output: ◦ `is a space,` → `is a tab` and ↵ `is a new line. Text in green is user input.`

Note: the only format you need to worry about is the one of your *toString* method as the driver is already set up.

```
On which line is this train? Vaudreuil-Hudson
How many wagons does it have? 7
Is it an electric train? (true or false) true
The two trains are:
The train on line null has 0 wagons and is electric is false
The train on line Vaudreuil-Hudson has 7 wagons and is electric is true

Let's set up the 1st train ...
→    What line is it? Vaudreuil-Hudson
→    How many wagons? 7
→    Is it an electric train (true or false)? false
Train 1: The train on line Vaudreuil-Hudson has 7 wagons and is electric is false
Are the 2 Train objects equal? No
Are they both electric trains? false
Now are they both electric trains? true
```

```
On which line is this train? St-Jerome
How many wagons does it have? 10
Is it an electric train? (true or false) false
The two trains are:
The train on line null has 0 wagons and is electric is false
The train on line St-Jerome has 10 wagons and is electric is false

Let's set up the 1st train ...
→    What line is it? Hudson-Vaudreuil
→    How many wagons? 9
→    Is it an electric train (true or false)? false
Train 1: The train on line Hudson-Vaudreuil has 9 wagons and is electric is false
Are the 2 Train objects equal? No
Are they both electric trains? false
Now are they both electric trains? false
```

Note 1: You are to expect a perfect user who will always enter valid values; that is, **do not** verify the validity of user input.

Note 2: The use of libraries other than *java.util.Scanner* is prohibited. Your program must work for data entered, not just the ones in the samples above.

Note 3: Final thought, remember that your solution is case-sensitive and space-sensitive and fulfill the above instructions carefully and precisely.

Reminder:
When submitting your solution to the lab system, make sure there is no `package` statement at the top of your `.java` file as this will result in a grade of 0 (restriction of this system).