CSE 271: Object-Oriented-Programming
Lab 03: Class and Objects

Lab Overview:

In this lab, you will practice how to create a class and define its methods. Create a project in Eclipse named **Lab_03.** You are going to design two classes in this project.

1. Class Date:

Create a class name Date that has the following public fields:

- **int day**. The day field of the calendar date. For example: 2 or 31.
- **String month**. The month field of the calendar date. For example: "January".
- **int year**. The year filed of the calendar date. For example: 2020

The class should also have the following methods:

- Create a method name **public boolean equals(Date date)** which should return true if both dates have the same day, month and years, otherwise it should return false.
- Create another method name **public String toString()** which returns a string representation of the date, i.e. "23 January 2020".

Test your Date class using the **DateTester** class posted on Canvas. Download **DateTester.java** and add it to your project. Run you program; it should have the following output:

```
Date 1: 25 January 2002
Date 2: 25 January 2011
Two dates are not equal

Date 1: 25 January 2002
Date 2: 25 January 2002
Two dates are equal
```

2. Class Car:

Create a class named **Car** which has the following public fields:

- **int yearModel** : The yearModel field is an int that holds the car's year model.
- **String make** : The make field references a String object that holds the make of the car.
- **int speed** : The speed field is an int that holds the car's current speed.

The class should also have the following methods:

- **public void accelerate()**
  The method increments the car's speed by 5. The method does not return anything.
- **public void brake()**
  The method decrements the car's speed by 5. The method does not return anything.
- **public boolean equals(Car c)**
  The method returns true if the two cars have the same make and model.
- **public String toString()**
  The method returns the String representation of the car that includes the yearModel, make and speed of the car. When this method is called, it returns a String like "Make: Toyota, Year: 2014, Speed: 45".

Test Classes:

Test your Car class using the **CarTester** class posted on Canvas. Download **CarTester.java** and add to your project. Run you program and it should have the following output:

```
Car 1: Make: null. Year: 0, Speed: 0
Car 2: Make: null. Year: 0, Speed: 0

Car 1: Make: BMW. Year: 2018, Speed: 250
Car 2: Make: Tesla. Year: 2018, Speed: 300

Car 1: Make: BMW. Year: 2018, Speed: 270
Car 2: Make: Tesla. Year: 2018, Speed: 270

Car 3: Make: Google. Year: 2020, Speed: 25
Car 4: Make: Apple. Year: 2020, Speed: 20
The cars are not equal

Car 3: Make: Google. Year: 2020, Speed: 25
Car 4: Make: Google. Year: 2020, Speed: 20
The cars are equal
```

Grading Rubric:

Date	
Declare public fields with appropriate type or class	10
equals() method with appropriate header/signature	10
toString() method with appropriate header/signature	10
Correct output	10
Car	
Declare public fields with appropriate type or class	10
accelerate() method with appropriate header/signature	10
break() method with appropriate header/signature	10
equals() method with appropriate header/signature	10
toString() method with appropriate header/signature	10
Correct output	10
Total	**100**

Important Note:

Make sure the file name is correct and code is well commented.

Submission:

Submit **ONLY** java files to the appropriate submission folder on the Canvas by the due time.