Course: **Object-Oriented Programming** **(Spring 2023)**

Resource Person: **Shazma Noor** **Assignment–2** **(Objects & Classes)**

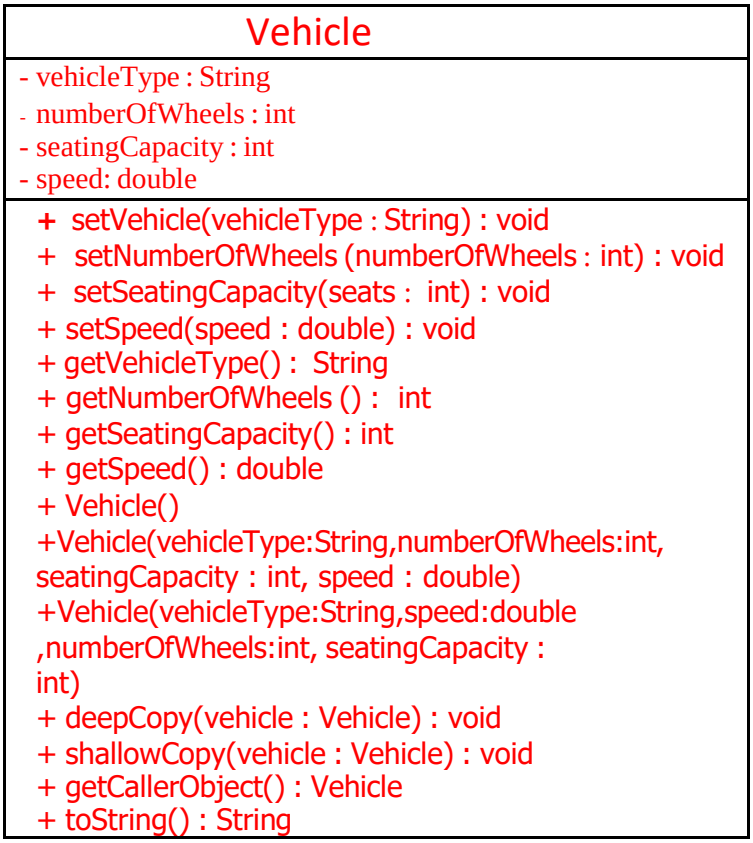
Total Points: 30
Submission Due: Monday July 24, 2023

Instructions: Please Read Carefully!

- **This is an individual assignment. Everyone is expected to complete the given assignment on their own, without seeking any help from any website or any other individual.** There will be strict penalties for any work found copied from any source and the university policy on plagiarism will be strictly enforced.
- You are expected to submit this assignment as:
    - Create a single **.java** file solution of the assignment question. The name of the **.java** file should be as mentioned in the assignment question.
    - Execute the program to test the complete working and take screenshots of cmd.
- Java File and cmd screenshots of each menu operation should be submitted in googleclassroom under Assignment thread.
    - Submit your assignment on or before due date. **Late Submission will get -25% each day.**

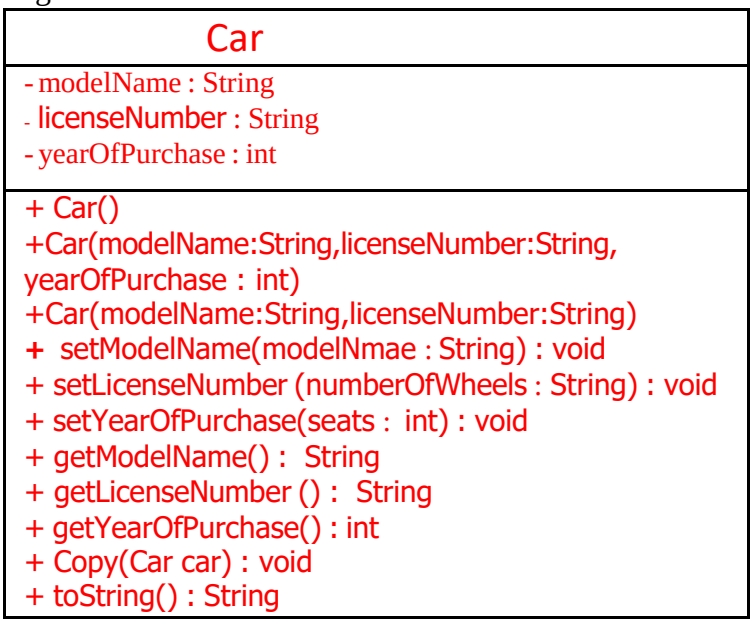
You are being asked to implement these **UML** diagrams and utilize them using the **main** function.

1. Implement **Vehicle.java** for the UML given below:

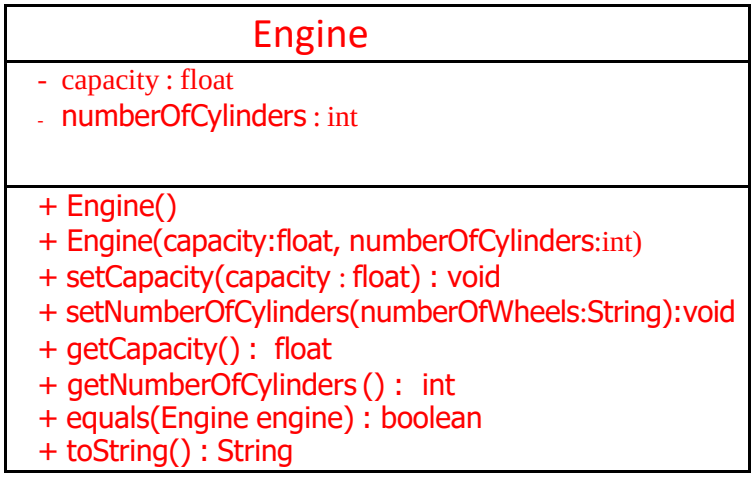


Here, the **getCallerObject()** shall return that object through which the call to this method was made.Or Simply put, it shall return that particular object who called this method.

2. Create a **Car.java** for given UML:



3. Implement **Engine.java** using this UML:



You have to **override** and thus implement the **equals()** method from **Object** class such that it shall return **true** when both the capacity and numberOfCylinders of caller and argument object are equal to each otherand **false** otherwise.
(Try to do this in one line.)

4. Finally, create a **Main** class having main function. Create instances / objects of these classes anduse all of the methods/functions. Also display the information of all these instances using **toString()** which is implemented.