Assignment 2 - Inheritance Subject: CSE 1116(Object Oriented Programming Lab)

In this problem you need to model some automobiles. The skeleton class and expected behavior of different methods are provided in a separate java file. Use inheritance to implement the following 4 types of automobile as shown in the table below. The different features of each type are mentioned here.

Type	Turn angle (Degree)	Inc./Dec. Speed (KM)	Max speed (KMH)	Fuel capacity (Litre)	Fuel efficiency (KM/Litre)	Transmission System
Car	5	10	120	30	8	Automatic
SUV	10	8	100	50	6	Automatic
Bus	15	6	80	80	4	Manual
Truck	25	4	60	100	2	Manual

For manual transmission system, different settings of a gear are used for different speed ranges.

Manual Transmission Gear	Speed Range
0	0
1	0 - 20
2	10 - 30
3	25 - 45
4	35 - 60
5	50 onward

Gear position can be changed only 1 unit in either direction. Once you are at or beyond the maximum speed range of the current gear position, the speed cannot increase any further. Similarly, once you are at or below the minimum speed range of current gear position, the speed cannot decrease any further.

You can add any private or public variables and/or methods in your implemented classes for different computations. **But you must adhere to the following constraints:**

- Class file for Automobile or AutomobileWithManualXmission class has been provided. **It cannot be changed in anyways**. **We will compile your code with our local copy of this file. Include the Automobile.java file in your project and any source code you write. Do not copy paste from it, rather import it.**
- The name of the 4 classes for the 4 different types of automobiles must be Car, SUV, Bus and Truck. Instances of each of these classes should be creatable without passing any parameters.
- They must inherit from either Automobile or AutomobileWithManualXmission class.
- You should write a main function to test and demonstrate your functionalities. However, be careful that we may run your classes with a different main function.
- All vehicles must be initialized with maximum amount of fuel.

·You need to override methods in your inherited classes as you find appropriate.

Submission Rules

1. Submission Steps:
   a. In your local machine, create a new folder; the name of the folder should be your ID number.
   b. Put the source code .java files only in the folder created in (a)
   c. Do not put any other project files in the folder.
   d. Finally, compress the folder created in (a) to produce a .zip file. The name of the .zip file should be your ID number.
   e. Submit the .zip file in LMS.
   f. If you do no follow the above rules during submission, you will get a penalty.
2. Do not copy code. You will get negative score otherwise.
3. On the evaluation day, you must be able to explain your code properly.