ELET 4309-01	Homework No. 5	Dr. F. Attarzadeh
80 Points	Due 04/11/2019	03/28/2019

It is very important that you read the notes at the end of each assignment for this and all other assignments.

Make sure that you read related lessons, slides, the notes, and the sample programs. Study the exercises, and study program examples in the book. These are all prerequisites for better understanding of the classes, objects, and messages.

This assignment covers classes, and strings (refer to class notes, slides, sample programs in appropriate chapters in yourbook). Enough flexibility are provided for you to apply your knowledge of the basic C++ programing to develop a solution with enough information and documentation as needed for this assignment.

Develop the program model of the problem you are developing. This is different from the flowcharting you have been doing throughout the semester. Make sure the program model reflects the problem statement. You then need to develop a C++ program to solve the problem stated by you.

Define a class **Automobile** with appropriate data member(s) and member functions (at least constructors and a destructor for each class.)

Define the class **Truck** derived from the class **Automobile** that will add data members for the manufacturer and model year and member functions (at least constructors and destructor for the class.)

Define the class **SUV** derived from the class **Automobile** that will add data members for the manufacturer and the color and member functions (at least constructors and destructor for the class.)

You will create an object of the class **Truck** and an object of the class **SUV** using the default constructors and constructors with arguments.

The default constructors initialize the two objects **T1** (Truck Object) and **S1** (SUV Object). An overloaded constructors will obtain the appropriate data from the keyboard and create objects **T2** (Truck Object) and **S2** (SUV Object).

The program will then display the information using the function *displayAutomobile()* to display the information in the format shown below.

Manufacturer Model year

Manufacturer Color

Once the information is displayed, the program ends.

Other member functions for the classes are defined by the programmer and as a minimum will include constructors, destructors, accessor, and mutating functions. User-defined functions will be used as needed to solve your problem.

This program leaves out a few options for you to select.

Notes:(please read very carefully)

Grading:

Program model	5 points
Choice of data selected	5 points
Documentation	10 points – problem statement, class, member functions, main(), etc.
Proper development of classes, and member functions	40 points
Program completeness	10 points, this includes program correctness, efficient programming, using right constructs for the solution, and proper use of coding as emphasized in class
Sample correct outputs	10 points

Notes:(please read very carefully)

1. Make sure your files are **VIRUS FREE**! (A grade of 0 will be given for infected files). Use Technology lab PCs for the test.

2. Comment your program.

3. Use meaningful prompts.

3a. You need to review "how to submit your homework" document. Incomplete submissions will not be graded.

4. Provide a brief description of the problem being solved.

5. Be sure to include a header file at the beginning of your program as shown in the course syllabus.

6. **NO global declarations allowed, except for the function prototypes and class declarations.**

7. Use classes, member functions, and strings.

8. Full member -function prototyping is required. Member functions must have their purposes fully explained.

8A. No member function should be defined within a class (i.e., no body of a member function should be seen inside any of the classes you are defining)

9. Make sure to use constructors and destructors for the classes. A class may have more than one constructor.

10. Parameter passing to the user-defined functions, the class member functions and the return types will be specified by you. The function prototypes will clearly show the formal parameters and the return values.

11. Use data types as specified in the member function prototypes. All class data members will be in the private access region of the class.

12. On the due date, submit your **H6 containing the components of the program specified in the guidelines.** Create a Word file that contains the header, the flowchart, the list of your .cpp file, and the sample runs of the program. Name this file **H6NAME.docx**. The source file for **H6NAME.cpp** and the Visio 2013 file **H6NAME.vsdx** will be uploaded as well. Unrelated files should not be present when you upload them to the Blackboard. Homework must be uploaded to Blackboard before **9PM** of the due date. NAME is your last name.

13. Use **Microsoft Visual Studio Enterprise 2015** compiler using default compiler settings.

14. Use **Microsoft Visio 2013** to develop your program model.

15. Illegal inputs must be handled properly without terminating the program.

16. Adherence to the *ANSI C++* required.

17. *Do not* use **<stdio.h> and <conio.h>** in this assignment and all other assignments.

18. *Do not* use any **#define** in your program until the time that is required for class declaration header files.

19. No *goto* statements allowed in any program that you develop in this course.

20. *Non-compliance with these notes will cost you points*.

21. No collaboration on this assignment and all other assignments allowed. If you violate this policy, your grade for the course will be **F**.

22. You must show us your program model before we can help you with your code.

23. When copying and pasting code into a Word document, please use the Courier New font with a font size no more than 10.

24. *Late homework will not be accepted*.