

ENGINEERING H192
DAILY ASSIGNMENT B23

The purpose of this assignment is to introduce C++ classes and objects by starting with a struct (a data structure primarily thought of as a C data structure) and modifying the struct to create a C++ class. Once the class is defined, you are to create a couple instances of the class, also known as objects, and then use them in a short program. In addition to modifying the struct to become a class, you are to write the member functions, including the constructor, that belong to the class.

Given the C structure:

```
struct Student
{
    char cName[30];
    long int liID;
    float fGPA;
};
```

you are to write a C++ class definition of Student. This class must:

1. Make the variables **Name**, **ID** and **GPA** private
2. Contain the function prototypes for a:
 - a. Member function **fillStudent** that will input a name, ID number, and GPA from the keyboard and assign them to the **Name**, **ID**, and **GPA** data members,
 - b. Member function **showdata** which will output to the screen the values of the **Name**, **ID**, and **GPA** data members,
 - c. Constructor member function which will initialize the data members of an object in this class to the input arguments given, or, if none are given, to appropriate default values (“Unknown” and zero are suggested).

Note that the member functions must be public.

You are to write a complete C++ program, **b23.cpp**, which implements the class as described above, including the member functions. You are to provide a small **main ()** program that declares at least two objects of the class and tests their functions. Your main program might look something like:

```
int main ( )
{
    Student oEng1, oEng2("My Name", 54321, 4.0);
    oEng1.showdata ();
    oEng2.showdata ();
    cout << "Enter the following data for a student:" << endl ;
    oEng1.fillStudent ();
    oEng1.showdata ();
    oEng2.showdata ();
}
```

Use the **iostream** header file and the standard namespace in your program. Also, use **cin**, **cin.get()**, or **cin.getline()** rather than **scanf()**, and **cout** rather than **printf()**.

Name _____ Instructor _____ Seat _____ Hour _____