SE 116– LAB#9 2014 – 2015 SPRING

Aim: Practice on operator overloading and file operations.

Suppose that you are going to design a score system for a computer game. In this game, the player collects stars and for every ten stars, player gains one more score.

Separate interface from implementation. Therefore, use header files for the class declarations and use source files for the function definitions.

a) Create header files to declare your classes and functions.

b) Create source files (.cpp) to define your classes and functions. Do not forget to include the corresponding header file in the related source file.

c) Declare and define two classes, **Score** and **Star**.
Star has one attribute: **starCount**
Score has two attributes: **totalScore** and **totalStars**

d) Declare and define **set** and **get** functions for all attributes in both classes.

e) Overload **++** operator for **Score** class. Whenever it is called, increase *totalScore* attribute by 1.

```
Score operator ++ (int); // prototype
```

f) Overload **--** operator for **Score** class. Whenever it is called, decrease *totalScore* attribute by 1.

```
Score operator -- (int); // prototype
```

g) Overload **+** operator for **Score** class. This operator takes one Score object, one Star object and returns in Score type. By adding a Star object to a Score object, you increase *totalStars* attribute of the Score object by *starCount* attribute of the Star object. For every 10 *totalStars* value, increase *totalScore* value by 1 and reset *totalStars* to 0. (Do not change the Score object, create a new Score object as the addition result and return it.)

```
Score operator + (const Star &s); // prototype
```

Since the *starCount* attribute in the Star class is private, you need to declare the + operator as a **friend** function in the **Star** class:

```
friend Score Score::operator + (const Star &s);  //friend declaration
```

h) Test your overloaded operators in the **main** function. At the end of the main function, create/open a file “scores.txt” and write the value of totalScore attribute into that file.