

CSC 1302 Principles of Computer Science II

Lab 9: Object as Parameter

(Due on 11:59 pm, 7/7/2021)

Purpose:

A class is a blueprint or prototype from which objects/instances are created. It includes fields or methods that are common to all objects of the same blueprint/class. In general, a class declaration has components: class header, constructors, methods such as getter/setter, and so on. The constructors are used for initializing new instances. Fields are variables representing the state of the class and its objects. The methods are used to implement the behavior of the class and its objects.

In this lab, we will practice how to define classes and create objects. Once a class is available, it's like we have a new data type. Variables can be defined with a type of this class and can refer to an object of this class. Methods can use this class as parameter type or return type.

Criteria:

1. Upload all of the .java and the .class files to the CSc1302 dropbox on <http://icollege.gsu.edu>.
2. Your assignment will be graded based on the following criteria: (a) Are your programs runnable without errors? (b) Do your programs complete the tasks with specified outputs? (c) Do you follow the specified rules to define your methods and programs? (d) Do you provide necessary comments include the programmer information, date, title of the program and brief description of the program.
3. Please comment the important lines in the .java file as shown in the template. The important lines including but not limited to i) variables, ii) for-loop, iii) while-loop, iv) if-else statement, iv) methods. Please use your own words to describe what is your purpose to write this line. A .java file without comment will be graded under a 40% penalty.
4. Make sure that both the .java and .class files are named and uploaded to icollege correctly. If any special package is used in the program, be sure to upload the package too. Should you use any other subdirectory (whatsoever) your program would not be graded, and you will receive a 0 (zero).
5. No copying allowed. If it is found that students copy from each other, all of these programs will get 0.

Task:

1. Write a **NBATEam** class including the following components:
 - a. private field :
 - i. `teamName;`
 - ii. `NumberOfWin;`
 - iii. `NumberOfLoss;`
 - b. constructors:
 - i. `NBATEam (String s, int w, int l)`
 - c. methods:
 - i. `winAgame();`
 - ii. `lossAgame()`
2. Write a **NBA** class with main method to:
 - a. Create two teams: heat, spurs
 - b. Generate a random number and if the number is bigger than 0.5, then heat wins over spurs; otherwise spurs win
 - c. Do above step 3 times and then print out the win/loss of each team
3. Modify a **NBATEam** Class to add the following method:
 - a. `winAgame(NBATEam teamB)`
 - b. `lossAgame(NBATEam teamB)`
4. Add `toString()` method to the **NBATEam** class and modify the main method in **NBA** class to do the following:
 - a. Create two teams: heat, spurs
 - b. Generate a random number and if the number is bigger than 0.5, then heat wins over spurs; otherwise spurs win
 - c. Do above step 3 times and then print out the win/loss of each team