

# Cmp Sci 187: Programming with Data Structures

Discussion section: **Java Review/Practice:** *Designing a Simple Game Character Class*

Your task is to write portions of a class **DDChar** that models a character from a “Dungeons and Dragons” style game. While full characters in such games can be quite complex, we will model only some simple properties for now:

- Some **String** values, that once set (in the constructor) cannot be changed: *name, hair color*
- Some **int** values, that once set (in the constructor) cannot be changed: *height, weight*
- Some **float** values, that can change, but *may* be set in a constructor: *strength, dexterity*

Each of the properties needs a *get* method. The ones that can change need a *set* method. We also desire the following methods:

- A **strengthen** method, which takes a **float** percent and adjusts the character’s current strength by that amount, e.g., if **d** is a **DDChar**, then **d.strengthen(5.0)** increases the strength by 5% (multiplies by 1.05) and **d.strengthen(-1.0)** weakens **d**’s strength by 1% (multiplies by .99). It should not allow the strength to become negative.
- A **toString** method, for printing out the current state of a **DDChar**.
- An **equals** method, for seeing if two **DDChar** objects are the same (pointer equality is appropriate in this case).

1. Write a *skeleton* of the class, with the class declaration line, field declaration lines, and two constructors and methods with empty bodies. You may use another sheet of paper, or the back of this one.

2. Once we’ve completed 1 together, I will hand out a possible skeleton. You are to fill in the bodies of the methods in turn, and I will present and go over a possible solution for each.

3. We’ll rate the value of this exercise to you with a simple in-class raise-your-hand voting scheme.