

CS 12 - Assignment 9

Operator Overloading and Virtual Functions

Due Friday, March 20

In this assignment you will be using classes, inheritance, virtual functions, and operator overloading. You will be using your assignment from AS8 which created a baseball and football class derived from the sport's team class. You will need to make modifications to your code from the last assignment. You must divide your program up into separate files and turn in a makefile with your code. Be sure to include all necessary information at the top of your program and each file and use good commenting and style throughout. You must use linux to do this assignment.

Create a class called *athletics* that maintains information about many different teams. Your class should have the following data members.

Array of teams You should have an array of five pointers to sports's teams (your common base class).

Number of teams Keep track of the number of teams that have been set up. This should be initially zero.

Include the following functions members:

Constructor Initialize all data members.

Destructor Clean up (reminder, every NEW needs a delete).

Set up team Find out whether the user wishes to set up a football or baseball team. Use the next available position in the array and update the number of teams. Be sure not to overflow the array. Use dynamic allocation.

Display all teams You should overload the insertion operator. This function should go through the array and display data members of all teams that have been set up. You should call the display function in the football or baseball class to do this.

Search percentage This function should take one double parameter for a percentage. It should search through the teams to find winning percentages that are greater than or equal to the specified percentage. It should print out the name of each qualifying team and their winning percentage.

Display one team This takes one string parameter. It should display the information of the team with the given name, if one exists. You should call the display function for either the baseball or football class. Do not rewrite the function.

Now write a main program. It should set up an *athletic* object and should allow the user to choose from a menu (set up team, display all teams, display a specific team, search based on a percentage, quit).

You should use virtual functions, thus the names of the functions in your derived class should be the same as those in your base class. However, you should not rewrite code. You should simply make a function call to a function that has already been written when possible.

You may receive EXTRA CREDIT if you add features to this assignment that show that you are an extra special and competent programmer.