# CS221: Data Structures — Programming Assignment #5

Due: See Canvas for Due Date — (20 points)

## Problem Statement

This program will sort an array of Players using Mergesort. You must write your own sort code. Do not use any built in C++ libraries for sorting. For this problem, you will order the players by batting average instead of their names. Do not worry about breaking ties.

**Requirements**

- Prompt the user for the name of the input file.
- Read up to 100 players into a simple array that can hold Player objects. players in a file, from 1 through 100. You do not have to create a PlayerList ADT to hold your players. Just read them into an array in the main program. if desired.
- Write a MergeSort function set to sort them into the array by batting average, best (highest value) to worst (lowest value)
- Prompt the user for the input and output file names, as usual.
- **COMMENT YOUR CODE.** I will take off heavily if code is not commented well. This includes a block comment at the beginning of every file that clearly explains the program and/or data structure defined in the file, a comment block for every function header that clearly explains the operation of the function and its required inputs / outputs, and comments where needed in the code to clarify logic.

**Sample Input File (Same data format as our earlier programs):**

```
Hank Aaron     13941 12364 2294 624  98 755 1402 32
Chipper Jones  10614  8984 1671 549  38 468 1512 18
Ty Cobb        13099 11434 3053 724 295 117 1249 94
Jonny Bench     8674  7658 1254 381  24 389  891 19
Tony Gwynn     10232  9288 2378 543  85 135  434 24
John Smoltz     1167   948  118  26   2   5   79  3
```

**Sample Output File (Same data format as our earlier programs, except now sorted by batting average):**

```
BASEBALL TEAM REPORT --- 6 PLAYERS FOUND IN FILE

    PLAYER NAME      :    AVERAGE    OPS
-----------------------------------------------
           Cobb, Ty :     0.366    0.934
         Gwynn, Tony :     0.338    0.810
         Aaron, Hank :     0.305    0.928
      Jones, Chipper :     0.303    0.930
        Bench, Jonny :     0.267    0.817
        Smoltz, John :     0.159    0.406
```