CSCI 1302 Introduction to Programming Principles

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**Due: October 25, 2016 by 1:55pm (Folio Dropbox)**

**Project: Player & Roster Classes**

Problem Description:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Player #** | **Player's Name** | | **GP** | **GS** | **Total Mins** | **Total FG** | **Total FGA** | **3FG** | **3FGA** | **FT** | **FTA** | **Off Reb** | **Def Reb** | **PF** | **A** | **TO** | **Stl** | **Blk** | **Total Pts** |
| 11 | | [McGowan, Angel](http://gseagles.com/McGowanAngel) | 29 | 28 | 890 | 131 | 331 | 33 | 125 | 84 | 117 | 23 | 57 | 68 | 73 | 91 | 46 | 3 | 379 |

Design a class named **Player** with fields for holding a Georgia Southern Women’s Basketball player’s statistics. All fields should be private.

Write the appropriate mutator and accessor methods for the class’s fields. The class should also have methods that can compute the following:

* The average minutes played per game by the individual
* The field goal percentage for the individual
* The 3 point FG percentage for the individual
* The free throw percentage for the individual
* The average rebounds for the individual

(25 points)

Next, design a class named **Roster**, which contains an array or ArrayList of Player objects. The class should also have methods that can compute the following:

* Import a text file with stats information for multiple players (see example above) and create the Player objects.
* Save all statistics from the array/ArrayList of Player objects to a text file
* Display, in order, the top 3 individuals who has scored the most total points for the season
* Display, in order, the top 6 scorers per game on average.
* Display, in order, the top 3 assists per game on average.
* Display, in order, the 4 players with the least number of personal fouls.

(60 points)

**Use exceptional handling where appropriate. I will attempt to break your program**. (10 points)

Write a client (a test class with the main method) to **test all the methods and constructors** of your classes.

The included stats file is for your testing purposes, I will use a completely different file for my testing. So ensure you code is not hard coded for the student file.

Analysis & Design: (5 points)

(Describe the problem including input and output in your own words. Describe the major steps for solving the problem)

First fields should be made for the stats you’re using for computation. Then compute the average minutes played field goal perc, three points, free throws and average rebounds. Make a comparator to compare the 3 best total scores, 6 best scores per game, 3 best assisters, and 4 with the least amount of fouls. if there aren’t enough girls in the roster to sort then break the loop. for the rest Throw in some Try Catch blocks because that’s what you taught in class and that’s all I know that works besides throws Exception and test.

Submit the following items:

1. Complete this Word file and Submit to the dropbox.

2. Compile, Run, and Test your code then **submit the .java files** to the dropbox.