**COMP 1800 – Fall 2016**

**Classwork 16: Writing Custom Functions**

**(20 points)**

Number of People: Teams of up to 2. If you work with a teammate, only one submission is needed. Be sure to put both of your names in a comment at the top of each source code file, as well as in the eCourseware notes box when you submit. Feel free to ask me or Swaroop for help!

Due: Nov. 22, by the end of class

Submission: Zip all of your Python script files into a single file, and submit that zip file to the appropriate folder on eCourseware.

Grader: TA, Swaroop Goli ([ssgoli@memphis.edu](mailto:ssgoli@memphis.edu)). Questions about grading? Please contact him first!

1. **(10 pts) Save your script file as: CW16Problem1.py**It’s a question on SPORTS! In a computer science class! \*gasp\*
   1. *(5 pts)* Write a custom function **fgPoints(distance)** that returns the number of points that a basketball field goal is worth, based on the distance of the shot in feet.  
        
      Parameters: a number indicating the distance of the shot, in feet  
      Returns: 3 if the distance is 23.75 feet or more, 2 otherwise  
        
      (Note: If you’re familiar with the NBA court layout, you know that this is not entirely accurate, since 3-pointers can be made from a shorter distance if you’re shooting from the side of the basket. But ignore that for this problem ☺)
   2. *(5 pts)* Within the same file as part (a), write a program that asks the user to enter the distance of his/her shot in feet. The program should then call your **fgPoints** function and display the value that was returned.
2. **(10 pts) Save your script file as: CW16Problem2.py**Write a custom function **computeTaxes(income)** that returns the amount of income tax to be paid on the specified income. Assume that the following scheme is used. (This is similar to how U.S. federal income tax is actually computed, but there are more brackets in the real tax code!)  
   * The portion of income $5,000 or below is charged no tax.
   * The portion of income over $5,000, up to and including $20,000 is charged 10% tax.
   * The portion of income over $20,000 is charged 15% tax.

Parameters: a number indicating the income  
Returns: the income tax to be paid on that income  
  
Examples:  
Calling **computeTaxes(5000)** should return 0 (the income is $5,000 or below, so there is no tax)

Calling **computeTaxes(13000)** should return 800 (no tax on the first $5,000 of income; 10% on the part between $5,000-$20,000, which yields 0.1\*8000 or $800)

Calling **computeTaxes(27000)** should return 2550 (no tax on the first $5,000 of income; 10% on the part between $5,000-$20,000, which yields 0.1\*15000 or $1,500; 15% on the part over $20,000, which yields 0.15\*7000 or $1,050)