**COMP 1800 – Fall 2016**

**Classwork 12: Loops and Patterns  
(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: Oct. 27, 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. **(4 pts) Save your script file as: CW12Problem1.py**Write a loop that prints the first 100 numbers in the sequence 1, 3, 9, 27, 81, …
2. **(4 pts) Save your script file as: CW12Problem2.py**Write a loop that prints the first 100 numbers in the sequence 8192, 8189, 8186, 8183, 8180, …
3. **(6 pts) Save your script file as: CW12Problem3.py**  
     
   Write a loop that prints the first 100 numbers in the sequence 0, 1, 3, 6, 10, …  
   (Hint: You can make another variable to keep track of how much the number increases each time.)
4. **(6 pts) Save your script file as: CW12Problem4.py**We did an example in class involving the sequence 1, -2, 3, -4, 5, …  
     
   In that solution we had the variable **i** start from 1 and go up to 100. If the value of **i** was even, we displayed its negative; otherwise we just displayed **i**. Rewrite the solution to use this logic instead:  
   * Always print the value of i each loop iteration, instead of switching between i and -i.
   * If the value of i is odd, negate i and subtract 1 to get the next term. For example, 3 is odd, so to find the next term we compute -3 - 1 = -4.
   * If the value of i is even, negate i and add 1 to get the next term. For example, -4 is even, so to find the next term we compute -(-4) + 1 = 5.