ETGG1802	**Lab03: Tile-based worlds**	Points: **70**
Assigned: **1/19/2017**	Due: (tentatively) **1/31/2017 before class**	

Tasks:

1. Re-form groups (if desired). I'd like the groups to stay at about 3 – 4 people (if you give me a good division-of-labor plan, I'm open to negotiation)
2. Use one of your Lab2 solutions (I'll provide mine too)
3. New additions to the Map class
    a. (**10 points**) Create a dictionary of all *used* tiles (in the map) codes, where the key is an integer and the value is a pygame-style rect (x, y, width, height) in the tilesheet.
    b. (**20 points**) Write a render method which draws the map to a pygame surface that is passed as an argument.
    c. (**20 points**) Add a camera position to the map class. Add a method to set the camera position (cap it so the screen can't go off the visible area of the map). Also add methods to convert between screen and world coordinates.
4. Modify the main program so all of the new functionality is called. In addition:
    a. (**10 points**) The main program should have a dot (representing the player). Every frame, attempt to set the camera position to the player position. When drawing the player, convert the world space to screen space. This should cause the player to be in the center of the screen at all times, unless the screen is butting against one edge of the world map.
    b. (**10 points**) Create a bunch of birds (just a dot of a different color) that move left in a frame-rate independent manner. If they go off the world left edge, wrap them around.
5. *(Bonus features, up to 20 points of bonus)*
    a. (**15 points**) Make a player object that is constrained by walls and controllable by the arrows keys / wasd.
    b. (**10 points**) Add more than one layer in the map file and add support in your program for multiple tile layers.
    c. (**5 points**) Make a more interesting map. Make sure you export it as "flare" format.
6. Submit a .zip of your entire project directory (including images and map file) to the blackboard page on or before the due date (-10 points if there are missing files, or if the program won't run)
    a. Note: I don't normally grade commented out code…
    b. START EARLY – procrastination is the bane of programmers everywhere!
    c. ASK FOR HELP – good programmers do this all the time!