CSCI 210 Homework 3

Assigned: Monday, March 19, 2012
Due Date: Wednesday, March 28, 2012
Due Time: 11:59 pm

Purpose

This assignment focuses on:

- Programming in Python
- Using Pygame
- Understanding event-handling in Pygame
- Understanding using infinite loops in a game

This is an individual assignment. You **must** work on your own. You may contact the instructor if you have difficulty with the assignment. **Start early** so you may ask for help in class, if you run into any problems.

Assignment

Extend the Tamagochi you created in Homework 2 by incorporating a game-like interface using Pygame. Create a loop which captures the user input, updates your Tamagochi's state and renders the resulting state to the screen. Make sure to use the same keyboard input as was used in Homework 2 (i.e., 'F' adds food, 'T' add or removes a toy, 'Q' quits the game). Note that you will not need to implement the 'N'othing command.

Implementation of the game will have the following constraints:

1. Make sure the game runs at 30 FPS maximum.
2. Every frame, the Tamagochi looses 3 nutrition points. Nutrition will never go below 0.
3. When food is added, set the amount of food to 1000 units. When the Tamagochi is eating, he/she consumes 5 units of food per frame (subtract this from the amount of food, and add it to nutrition). So, food should be completely consumed in roughly 6 seconds or so.
4. Make sure each state is distinguishable with different sprites. Also, make sure that food and toys are displayed with a sprite.
5. Each state of the Tamagochi should be animated with at least two images. You can simply swap between the images every 15 frames or so (keep a variable with the number of frames until switching images, for instance).
6. Place a background image in the game (rather than filling with black).

You can simply copy over the functionality from Homework 2, rather than importing the file.

Your program should be legible and easily understood. This includes ensuring that variable and function names reflect what the variable / function does, and appropriately commenting your code. Furthermore, your program must have the following comment header (or something equivalent):

```
#
# Author:        <Your Name>
# Class:         <Class AND Section number>
# Assignment:    <Assignment number>
# Due Date:      <The assignment's due date>
#
# Certification of Authenticity <remove one of the following>:
#
#   I certify that this assignment is entirely my own work.
#
#   I certify that this assignment is my own work, but I received
#   some assistance from: <Name(s)>
#
# TASK:    <Provide a simple, yet complete description of the task being
#          performed by this program.  It may be several sentences long.>
#
```

Submission

1. Submit your Python file(s) (yourName_Homework3.py) to Homework 3 in the dropbox. If you have modified the state machine for your Tamagochi, include that in the submission (this may be submitted in class).

Assessment

Your grade will be based on how well you followed the above instructions. Grades will be broken down as follows:

- **10%** **Keyboard Input**: 'F', 'T' and 'Q' keys perform required functions.
- **20%** **Content:** Game contains a background image, images for each state of the Tamagochi, and images for food and toy.
- **10%** **Animation:** Each Tamagochi state is animated by at least two images.
- **30%** **Behavior:** Program behaves properly and reflects the state machine.
- **30%** **Program Quality:** Variable names reflect their role, comments are appropriately written, header information is properly included.

Late assignments will be deducted 10% per day late.