COMP 3609 – Game Programming

2023/2024 Semester 2

Assignment 1

Date Due: *Wednesday February 21, 2024 @ 11:55 pm*

Description

Design and implement a game with the following features:

(1)   It uses the Java 2D API to draw various shapes on the screen.

(2)   It uses the keyboard and/or the mouse to interact with game objects. For example, the arrow keys may be programmed to move game objects around the screen (not necessarily all of them).

(3)   It displays simple scoring information on the screen as the game progresses (using a JPanel). This information could be the time remaining, points gained, lives remaining, lives lost, etc.

(4)   It should have a simple but interesting game play.

(5)   It should be based on the object-oriented design embodied in the sample program given on myeLearning (*GamePanel-Bat-Alien*).

NB: The game must NOT use any graphic images such as JPEG, GIF, PNG, etc. (see notes on Page 2).

Mark Scheme

Marks will be awarded as follows:

- Game concept   [20 marks]
- 2D shapes that move on their own or based on user input   [10 marks]
- Handling user input   [5 marks]
- Collision detection:
    - Identifying when game objects collide with each other   [10 marks]
    - Doing something interesting when a collision occurs (e.g., loss of life)   [10 marks]
    - Handling screen boundaries correctly (based on game play)   [10 marks]
- Scoring   [10 marks]
- Executes correctly   [20 marks]
- 1 Page PDF document describing what is the game play and how to score points   [5 marks]

Total: **[100 marks]**

Notes on Assignment 1

1. Graphic images and sound clips will be used in Assignment 2 and in the Project. In Assignment 1, you should try to understand how to put all the pieces together to create a game. The same approach will be followed to build a game in Assignment 2 when graphic images and sounds are used. So, focus on the game concept and getting all the pieces to work.

2. The same game concept can be reused in Assignment 2 (with enhancements, based on the material covered in Weeks 3, 4, and 5).

3. There are many Java games available on the Internet. This makes it very difficult to determine if the work submitted for an assignment was actually done by the student who submitted the assignment. The course has a set of objectives and learning outcomes. The best way to ensure that the learning outcomes have been achieved is to request that the code conform to the design given. While this can be somewhat limiting, it does not stop you from extending the design or modifying it to suit the requirements of the game being developed.

4. The code for creating multiple Aliens has been commented off. You may remove this code if you do not need more than one of a certain game entity.

5. If a collision occurs with the Alien and the Bat, the Alien is returned to a random location at the top of the GamePanel. Points could be awarded at this stage. A different feature can be implemented when the Bat hits the Alien.