Final Project: Make a Game

Due: Friday December 4th at noon. **There will be no extensions.**

The final project for this class is a group project to make a video game. You should work in groups of 1-4 people (However we strongly encourage you to not work alone). There are no restrictions on who can be in your group (i.e. it doesn't matter which tutorial you are in or which section of the class you are in). Piazza is an excellent mechanism for finding group members.

1 Criteria for the game

The over all goal of this assignment is to make any game you want. The code for the game should showcase what you have learned throughout the quarter.

Specifically, the game should:

- Have `(+ 2 number-of-group-members)` new structures. **(20%)**
- Have at least `number-of-group-members` structures should use inheritance. **(20%)**
- Have at least `number-of-group-members` structures with methods (these can be the same structures as the previous bullet or not) **(20%)**
- Have at least `(* 2 number-of-group-members)` procedures that are not methods **(20%)**
- Use lists and higher-order constructs like `map`, `for-each`, `filter`, `andmap` etc. **(20%)**

In addition to the automatic checks above your game will be hand graded by our TA's. The TA's will inspect whether or not your game:

- Clearly states in a comment at the top of the file which function to call to start the game. **(10%)**
- Can have several objects on the screen at once (something more than a one ball pong game). **(40%)**
- Doesn't crash when played for several minutes, or exhibit any obvious bugs (i.e. a collision system that sometimes lets shapes pass through each other). **(50%)**
- The game is not just a clone, reskin, minor modification of the asteroids game or fireworks simulator. **Doing this results in a 0**
- **Extra Credit:** There is a 5% extra credit allocated to games that particularly impress your grader, that shows particular creativity, that makes them laugh extra hard, or that is particularly fun to play.

The two grading passes will have separate grade columns in canvas.

You may reuse any code you have written from earlier in the semester, or any of the code we have handed out (like, the asteroids game, the collision system, or fireworks example). You can even base your game code off of any of the code we have shown or given to you, as long as there is enough **new** code to satisfy the requirements.

"Game", for purposes of this assignment, is very loosely defined. It doesn't need to have win conditions, a scoring system, or anything like that. It just needs to be interactive.

2 Things you may need

Here is a list of things from `big-bang` that you may want to use. If you want to you know about them you can look them up in the documentation. You are **NOT** required to use any of these.

- To stop the game: use the `stop-when` clause of `big-bang` or the `stop-when` structure.
- To react to mouse events: use the `on-mouse` clause of `big-bang`.
- To react to keyboard events: use the `on-key` clause of `big-bang`.
- If you're having trouble debugging your game: using the `[state #true]` clause of `big-bang` to render the current game state might help.

Please **do not** use the `game-pad` clause of `big-bang`. Your grader might not have a compatible game pad handy.

3 Submitting the Project

To submit the project, use the handin server. But this time log in as `username1+username2+username3`, where `usernameN` is the username of each group member. As usual you can resubmit as many times as you want. But be careful, once you submit as a particular group this cannot be changed.