

## Lab 8 Supplement 3

So by now you have a ship that can be controlled from the keyboard, uses zero-gravity acceleration, and wraps around the screen properly. You also have an assortment of asteroids that are floating around in space. It is time to make sure that if your ship collides with an asteroid that the game ends.

- The `Polygon` class has a `intersects` method that determines whether a given `Polygon` overlaps with the `Polygon` the method is called on.
- You can use the method `intersects` to determine whether your ship has collided with each of the asteroids. This should be done in the `paint()` method of `Asteroids`. If the ship does collide you will need to have logic that causes the game to end (perhaps with a message, or maybe a special graphic on the screen).
- You can also (optionally) check for collisions between asteroids. If a collision is detected, there are several options for how to respond. Experiment with this.

The final step to get a functional game of asteroids is to create the `Bullet` and `Star` classes (as subclasses of `Circle`).

- Create these two classes.
- Add a new `KeyListener` key code to allow your ship to shoot bullets. Each time a shot is fired a new bullet should be instantiated, positioned at the front of the ship and moving in the same direction as the ship (but faster).
- The `paint` method for `Asteroids` should check each bullet for collisions with asteroids, causing the bullet to expire and the asteroid to be hit when a collision occurs.
- Stars should be instantiated just to decorate the backdrop of the screen. They don't have to do anything (unless you are aiming for an extra credit special effect) and they don't collide with anything.

Once you have finished the basic game, there is some code refactoring that is suggested on the last page of the original Lab 8 handout. Make sure you read that document again carefully to make sure you've completed all the steps and have all the parts of the deliverable completed.

**All work must be done individually. Never look at someone else's code. Please refer to the course policies if you have any questions about academic integrity. If you have trouble with the assignment, I am always available for assistance.**