CS150 - Lab Prep 2
Due: Friday Sept. 23, at the beginning of class

For the lab on Friday, we will be using the turtle graphics module to draw a picture. You will have two options, a seascape with fish and rocks or a space scene with spaceships and planets (come talk to me if you have an idea of another scene type that uses similar shapes).

1. **Turtle documentation**

   An important programming paradigm is code reuse. Rather than writing your own code, say a `turtle` module, you can use one that someone has already written. An important part of coding then is documentation, both generating it for your programs and being able to understand other people's documentation.

   The documentation for the `turtle` module can be found at:

   `http://docs.python.org/library/turtle.html`

   If you scroll down to section 24.5.2.2 you can see an overview of all of the functions available to you.

   (a) Below are a few methods that may be useful, but that we haven't focused on in class. Click on each of them in the documentation and make sure you understand what they do as well as what parameters they take and what, if anything, they return.

      - `speed`
      - `set_heading`
      - `fill_color`
      - `begin_fill`
      - `end_fill`
      - `penup`
      - `pendown`
      - `bgcolor`
      - `goto`
   - `bye`

   (b) Documentation on the fly

      Two other methods that will be useful for us are `window_width` and `window_height`. Unfortunately, if you look at the documentation for these they say that they have been

deprecated, which means discontinued. In general, it's not good to use deprecated functions, since eventually, they may not be around. In our case, however, we will find it useful to use these, so we'd like to find out more about them.

The `help` function takes as an argument the name of a function and outputs the docstring (i.e. function description) for us. Start up WingIDE then use `help` to get the documentation for these two functions. Remember you will need to import the `turtle` module first by typing `from turtle import *`.

2. **Planning your drawing**

For fish or spaceships, we will use a triangle function and for rocks or planets, we will use arbitrarily sized polygons. For example, here is an example seascape:
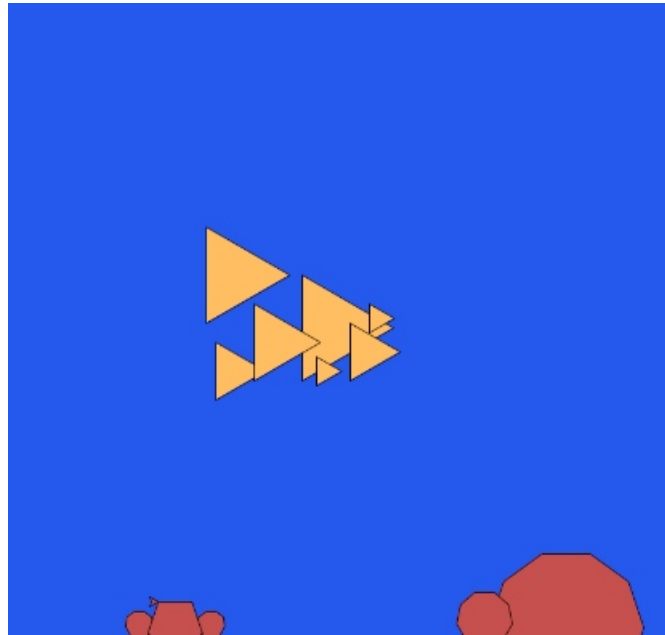
On a piece of paper (ideally graph paper) plan out the design for your drawing. The screen width will be about 720 (ranging from -360 to 360) and the screen height approximately 675 (ranging from -337 to 337). With these dimensions in mind, plan out on the paper where the different shapes will go, their sizes, etc. In particular:

- What is the x, y coordinate of the upper left hand corner your fish/ships?
- What is the side length of each of the fish/ships?
- What is the x, y coordinate of the top of your rocks/planets?
- How many sides and what are the lengths of the sides of your rocks/planets?

You should plan on having at least six fish/ships and six rocks/planets (though if you'd like to have more, that's fine too).

Eventually, we'll add bubbles/stars to make it look more interesting, but we'll deal with that on Friday (though I've included an example below so you'll see what the finished product looks like).