Class Today

- Storyboards
- Setting up Camera Markers and moving between them
- Classwork – Draw/write a storyboard that uses camera markers
- Be sure to checkoff your classwork when done

Animation Programs: Scenarios and Storyboards

- 2-step process for creating animations
  - Step 1: Design (or Algorithm)
  - Step 2: Implementation (Translate to code)

Step 1: Design

- Decide on problem to be solved
  - Often problem is given to you, by instructor or boss
  - Other times, you make it up!
  - We will do both
- Design a solution
  - Use a storyboard design
Example Problem (scenario)

- The scenario is:
  A spaceship with an astronaut Amy has landed on the moon and Amy is walking around. Suddenly a sound, and an alien peeks out from behind a rock. The camera zooms in to get a good look, then pans out. Amy runs to the ladder and the alien hides. Amy goes up the ladder to the ship and the alien peeks out again. The ship takes off and the alien asks “don’t you want to play?”

- The problem is:
  How can we create this animation?
Objects in the scene

- Objects: Amy, alien (hidden), ship with ladder down, rock
- Opening scene: a moon scene
- A quick sketch:

- Don’t have to be an artist!

Storyboard
Scenes 1 and 2
List of objects: ship, ladder, Amy, rock, alien

Storyboard
Scenes 3 and 4
List of objects: ship, ladder, Amy, rock, alien

Storyboard
Scenes 5 and 6
List of objects: ship, ladder, Amy, rock, alien

Camera zooms in to get a good look at Alien.
Then zooms back to original location.

Amy runs to ladder while Alien runs behind rock.

Amy goes up into spacecraft, then ladder goes up. Alien comes out of hiding.

Spacecraft takes off and Alien says "Don't you want to play?"
Complete Storyboard example

From Storyboard to Code

- Alien peeks out and makes noise.
  Amy turns towards sound.
  Camera zooms in and back out.
- Amy runs to ship, alien hides.
  Amy goes up into ship, ladder up, alien peeks out.
  Ship takes off, Alien wants to play.

Like a “to do” list

Translate to Code (part 1)
(all except camera zoom in/out)

Translate to Code – (Part 2)
How do we zoom in/out in code?

Camera Markers

- Remember Camera Position with a marker
  - May move the camera, then want to move it back
  - May want to remember a good camera position
- Use Camera Markers (like a tripod)
  - ALWAYS save original camera position before moving camera

To create a CameraMarker (tripod)

- Click on “add Camera marker”

Create Camera marker (cont)

- Give it a name and a color
- Then it appears here:

Create another camera marker looking at alien

- Need to move alien out from behind rock
- Use purple camera controls and move close to alien
- Add another camera marker, green this time

CompSci 94 Fall 2018
Move Camera back to original view with a one shot

1) Select camera
2) Select one shot
3) Select Move and Orient to
4) Select Camera marker

Result: You can see camera marker in front of alien (won’t show when click play)

Move back and you can see camera marker for original position

Moving the camera with code
- Move camera to a Camera marker or use moveAndOrientToAGoodVantagePointOf without a camera marker
- ALWAYS save a camera marker of start view

```python
# Example code
this_camera = Camera
this_camera.moveAndOrientTo(this_camera.healthMarker)  # Move camera to health marker
```
Moving Camera and Camera Markers

- Left button – moves camera to camera marker
- Right button – moves camera marker to camera
  - For adjusting a camera marker

Final Code Part 1

This lecture covered

- Setting up camera markers
- Moving the camera in one shot or in code
- Writing a storyboard and then translating to code.