Class Today
• KeyPress Event
  – Faster way to move a character around
• Collision Detection
• Changing Scenes
  – Darken the world and switch to another scene
• Exam 2 next Thursday
  – Old tests are on Resources tab
  – Will review on Tuesday

1) Key Press Event
• Used key press before – Press the letter S
• Here we want to move the ghost with the arrow keys, but we want to set up each key so we have more control
  – Remember arrow keys slow if you use addObjectMoverFor some object

```
addKeyPressListener
heldKeyPolicy
• Fire.Once_on_Press - means you have to press the key for each move - SLOW
```
addKeyPressListener

holdKeyPolicy

- Fire_Multiple - means item keeps moving if you hold down the key – Much Faster!

```java
addKeyPressListener(holdKeyPolicy = FIRE_MULTIPLE, multipleEventPolicy = COMBINE)
```

Move the ghost with four arrow keys in directions:

- Left, right, forward and backward (staying on the ground)
- Need four if statements in the event, one for each arrow key (just showed one if for one of the arrow keys)

addKeyPressListener

multipleEventPolicy

- Combine – means you can have several keypress events in the one event, for different keys so they can all work
- Without it, you press the second key and it doesn’t do anything

```java
addKeyPressListener(multipleEventPolicy = COMBINE)
```

2) How do you detect a collision?

- Use addCollisionStartListener
- You list two groups of items and the event kicks in if any item from the first group collides with any item from the second group
- My first group is an array of lots of bunnies
- My second group is the ghost

```java
addCollisionStartListener(bugs, event, addDetail)
```
Suppose a bunny collides with the ghost

• You have two variables to refer to the two items that collided

• `getSthingFromSetA` refers to the item that collided from the first group – in this case a bunny

• `getSthingFromSetB` refers to the ghost

So you could ask questions like

• If a bunny and the ghost collide, then make that bunny disappear – that is, – `getSthingFromSetA` setOpacity 0.0

3) Scene Change - one way

• To change scenes, we would like to drop a black curtain over the scene, then raise it and we are in a completely different scene

• We can use a billboard painted black as our curtain. We resize it and make it large to cover the screen.

• Then use a one shot to raise it up 10

Scene Change (cont)

• Now set up two different scenes in the Alice world.

• Set up one scene and drop a camera marker

• Then click on the center right arrow and turn the camera until you can’t see anything from the previous scene. Then build scene 2 there. Drop a second camera marker
To switch scenes

• Start in scene 1.
• When scene 1 is over, drop the curtain down. It’s dark!
• Move the camera to the second scene. Possibly change the ground to a different ground
• Then raise the curtain and it is now scene 2
• You could have about 8 different scenes that don’t interfere with each other.

TIP

• With multiple scenes, setup all your objects and then drop the camera markers
• Sometimes the camera markers freeze the screen so you can’t click on anything, you can still use one-shots to move them.

This lecture covered

• Events to make objects move faster such as with arrow keys
  – heldKeyPolicy
  – multipleEventPolicy
• Collision of two objects and how to handle the objects after they have collided
• Scene change – drop a curtain, raise it and in a different scene