CompSci 94 KeyPressListener, Collision Listeners November 4, 2021



Prof. Susan Rodger

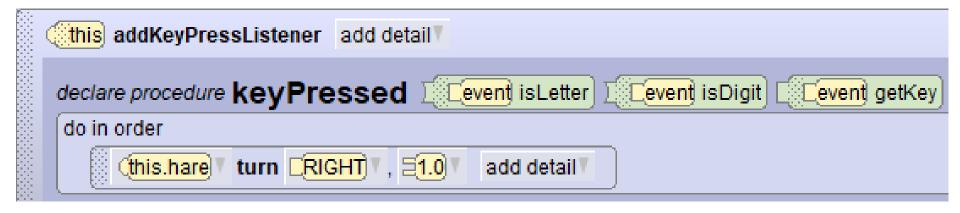
Announcements

• Assignment 5 is due Thursday, November 11

Watch videos and online quiz for Tuesday

• Exam 2 is November 16

Q1: How do I get the hare to turn around?



Q1: How do I get the hare to turn around?



Press any key and the hare will turn around

 Not a good way to do this. Can't use any other keys for anything else.

Q2: What happens if I press letter A? If I press the letter T?

```
this addKeyPressListener add detail
   declare procedure keyPressed [ event isLetter [ event isDigit
   do in order
            event isLetter ▼
                             is true then
             (this.pig) v turn □RIGHT v, ≡1.0 v
                                              else
            drop statement here
        if ☐ cevent ▼ isKey cT ▼
                                 is true then
             (this.panda) ▼ turn □RIGHT) ▼, =1.0 ▼
                                                 add detail
        else
            drop statement here
```

Q2: What happens if I press letter A? If I press the letter T?

- Letter A pig turns
- Letter T pig turns, then panda turns

```
this addKeyPressListener add detail
declare procedure keyPressed [ [event isLetter ] [event isDigit
do in order
     if [ event isLetter is true then
         (this.pig) ▼ turn [RIGHT] ▼, [1.0] ▼ add detail ▼
     else
        drop statement here
     if ☐ cevent isKey ☐ v is true then
         (this.panda) turn RIGHT, 51.0 add detail
     else
        drop statement here
```

Q3: What happens if press letter A? If press letter T?

```
this addKeyPressListener add detail
declare procedure keyPressed [ [event isLetter ] [event isDigit]
do in order
     if [ event | isLetter | is true then
          (this.pig) ▼ turn □RIGHT) ▼, □1.0 ▼ add detail ▼
     else
          if ∏<mark>⊑event</mark>, v isKey ⊑Î v
                                     is true then
               (this.panda) ▼ turn □RIGHT) ▼, ≡1.0 ▼
                                                      add detail
          else
             drop statement here
```

Q3: What happens if press letter A? If press letter T?

- Letter A pig turns once
- Letter T pig turns once

```
this addKeyPressListener add detail
    declare procedure keyPressed [ [event isLetter ] [ event isDigit ]
    do in order
           [ cevent I is Letter I is true then
              (this.pig V turn □RIGHT) V, \(\frac{1.0}{2}\) V
                                                  add detail
         else
             if ☐ cevent iskey ☐ v is true then
                   (this.panda) ▼ turn CRIGHT) ▼, 51.0 ▼ add detail ▼
             else
                 drop statement here
```

Q4: What does Combine and Fire_Multiple do?

```
this addKeyPressListener, multipleEventPolicy COMBINE , heldKeyPolicy FIRE_MULTIPLE
   declare procedure keyPressed [ [event] isLetter [ [event] isDigit [ event] getKey
    do in order
          ☐ cevent isKey RIGHT
                                   is true then
            (this.whiteRabbit ▼ move □RIGHT ▼ , ≘0.25 ▼
                                                      add detail
        else
               is true then
                (this.whiteRabbit ▼ move FORWARD ▼, 50.25 ▼
                                                             add detail
           else
               drop statement here
```

Q4: What does Combine and Fire_Multiple do?

 Hold the key down and the whiteRabbit moves a lot faster until you release the key!

Q5: What happens when ...

```
this addCollisionStartListener this v.bunnies v, [new SThing[] { (this.whiteRabbit, (this.panda) } v a declare procedure collisionStarted [event] getSThingFromSetA [event] getSThingFromSetB do in order [this.whiteRabbit] v turn [RIGHT] v, [1.0] v add detail v
```

a) panda collides with a bunny?

b) whiteRabbit collides with a bunny?

Note: bunnies is an array of bunnies

Q5: What happens when ...

```
this addCollisionStartListener this v.bunnies v, [new SThing[] { (this.whiteRabbit, (this.panda) } v a declare procedure collisionStarted [event] getSThingFromSetA [event] getSThingFromSetB do in order [this.whiteRabbit] v turn [RIGHT] v, [1.0] v add detail v
```

- a) panda collides with a bunny? WhiteRabbit (W.R.) turns right
- b) whiteRabbit collides with a bunny? whiteRabbit turns right

Note: bunnies is an array of bunnies

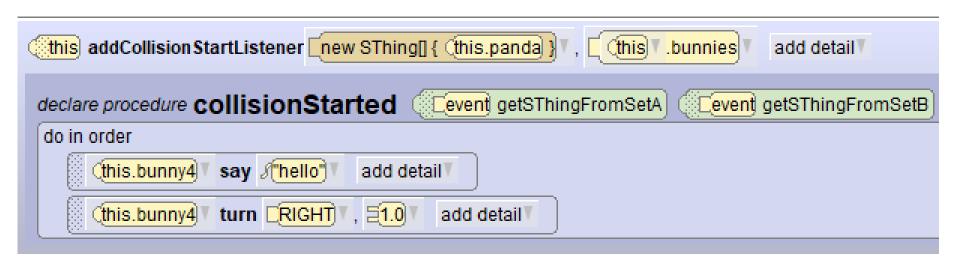
- Q6: What happens when
- a) panda collides with a bunny?
- b) white Rabbit collides with a bunny?
- c) pig collides with a bunny?

whiteRabbit collides with panda? C this addCollisionStartListener (this) .bunnies , [new SThing] { (this.whiteRabbit, (this.panda) } declare procedure collisionStarted (Event getSThingFromSetA) Eevent getSThingFromSetB do in order getSThingFromSetB V == (this.whiteRabbit) is true then this.whiteRabbit say / hello add detail else getSThingFromSetB ▼ **==** (this.panda is true then this.panda say Thello V add detail else this.pig say I hello add detail

- Q6: What happens when
- a) panda collides with a bunny? *Panda says hello*
- b) white Rabbit collides with a bunny? W.R. says hello
- c) pig collides with a bunny? Nothing happens
- d) whiteRabbit collides with panda? Nothing happens

```
this addCollisionStartListener 🕻 (this) 🗸 bunnies 🔻 , 🖺 new SThing[] { (this.whiteRabbit), (this.panda) } 🔻
   declare procedure collisionStarted (Event getSThingFromSetA)
                                                                           event getSThingFromSetB
    do in order
                       getSThingFromSetB T == (this.whiteRabbit)
                                                                      is true then
              (this.whiteRabbit) say √hello"
                                               add detail
         else
                                                 == (this.panda)
                           getSThingFromSetB
                                                                     is true then
                  this.panda say Thello 🔻
                                              add detail
             else
                  this.pig say fhello
                                           add detail
```

- There is an array of bunnies. When a bunny collides with panda, you want the bunny that collided with the panda to say hello and turn around once.
- Why doesn't this code work?



- There is an array of bunnies. When a bunny collides with panda, you want the bunny that collided with the panda to say hello and turn around once.
- Why doesn't this code work?

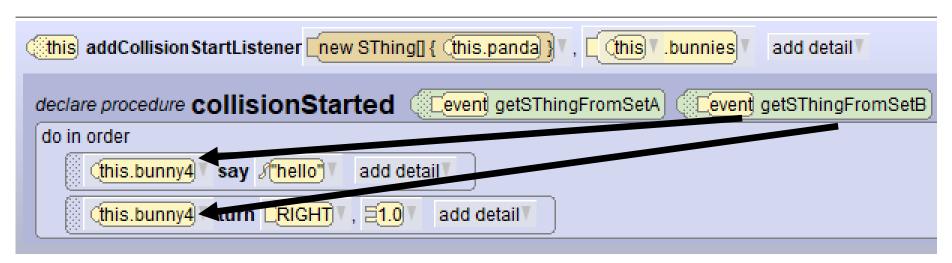
 Bunny4 says and turns



- There is an array of bunnies. When a bunny collides with panda, you want the bunny that collided with the panda to say hello and turn around once.
- Can you change the code to this?

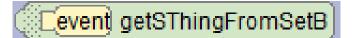


- There is an array of bunnies. When a bunny collides with panda, you want the bunny that collided with the panda to say hello and turn around once.
- Can you change the code to this? NO!

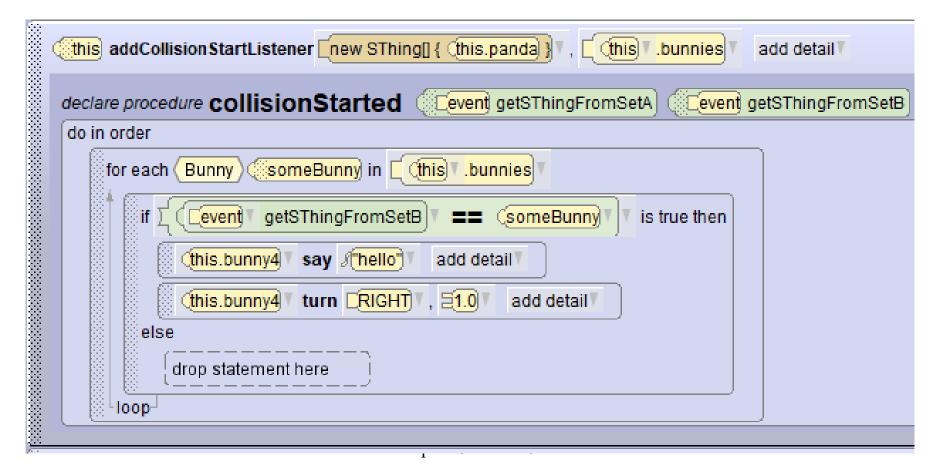


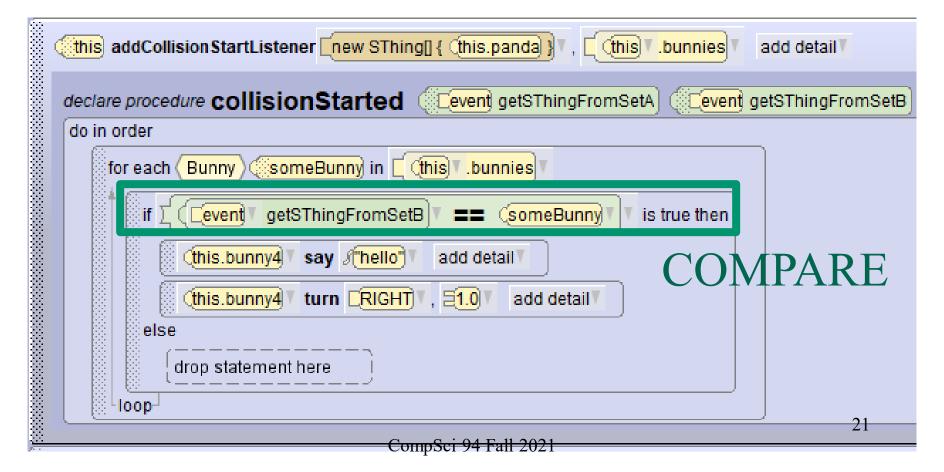
Why not?

• This code:

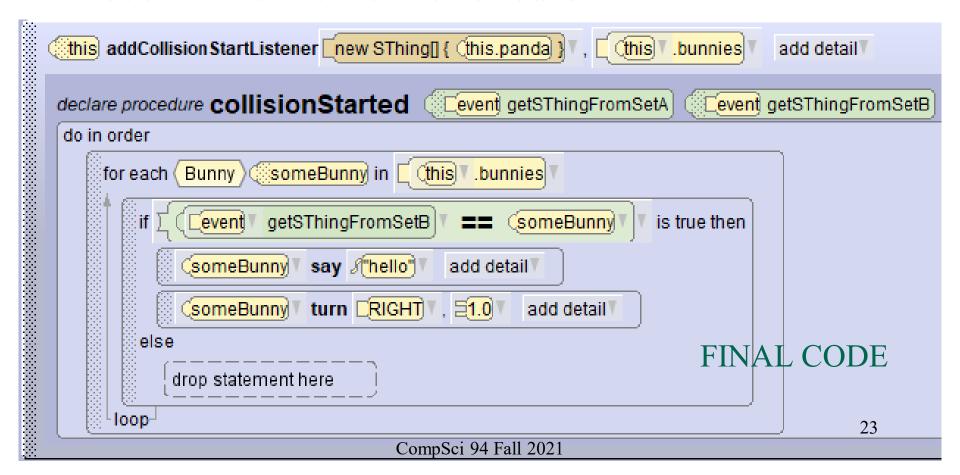


- Is an Sthing so you CANNOT drop it over a type bunny
- Instead, you have to look through the bunny array and compare each bunny with with an Sthing. When you find the bunny that was clicked on, then you just refer to that bunny









Class Today

• A game with collisions

