

CompSci 94

Undetermined Repetition with While loop

October 20, 2022



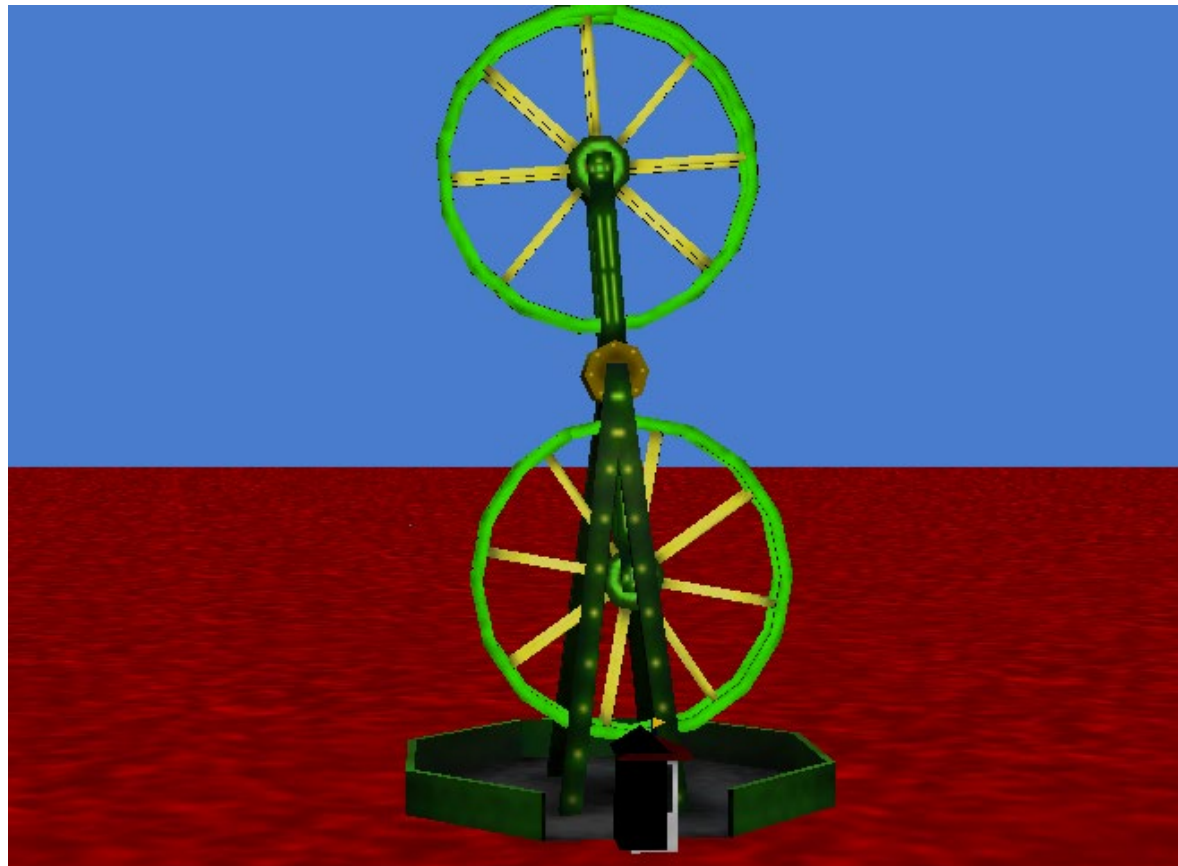
Prof. Susan Rodger

Announcements

- QZ13 and videos for next time
- Assignment 4 out next time
- Exam 2 is November 1

Alice 2 Fair Rides as objects

Double Ferris Wheel



Loop 10 times times show complicat...

ferrisWheel.doublewheel.wheel2 roll left 0.1 revolutions more...

Wait 2 seconds

ferrisWheel.doublewheel roll left 0.5 revolutions more...

Loop 10 times times show complicat...

ferrisWheel.doublewheel.wheel1 roll left 0.1 revolutions more...

Wait 2 seconds

Loop 10 times times show complicat...

Do together

ferrisWheel.doublewheel roll right 1 revolution style = abruptly duration = 2 seconds more...

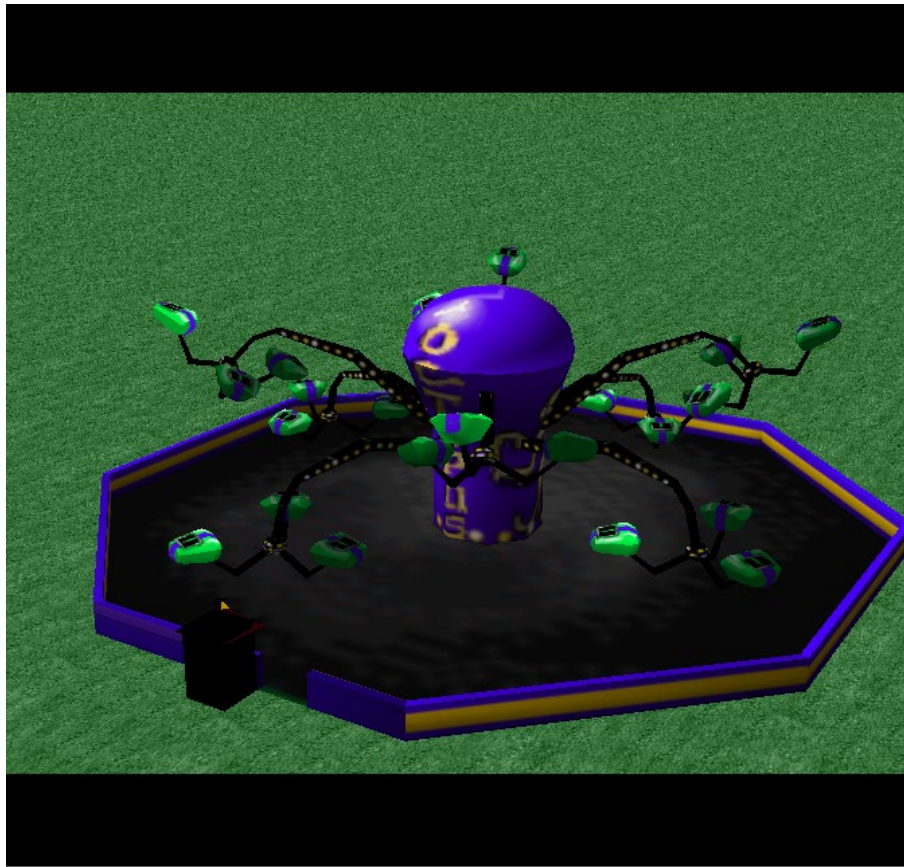
Loop 2 times times show complicat...

Do together

ferrisWheel.doublewheel.wheel1 roll left 1 revolution style = abruptly more...

ferrisWheel.doublewheel.wheel2 roll left 1 revolution style = abruptly more...

Alice 2 - Octopus Ride



● world.my first method

● Octopus.octopusAnimation

world.my first method *No parameters*

create new parameter

No variables

create new variable

// Ride the Octopus ▾

// Don Slater June 19, 2008 ▾

// <None> ▾

// See Octopus animation from above ▾

Octopus.octopusAnimation

// Move camera to one of the pods facing forward ▾

camera ▾ set point of view to Octopus.Center.Arm3.pods ▾ more... ▾

camera ▾ set vehicle to Octopus.Center.Arm3.pods ▾ more... ▾

// get in the pod ▾

camera ▾ move up ▾ .2 meters ▾ more... ▾

camera ▾ move forward ▾ (subject = Octopus.Center.Arm3.pods ▾ 's width ▾ / 2 ▾) ▾ more... ▾

// Sit in the pod ▾

☐ Do together

camera ▾ turn left ▾ 0.25 revolutions ▾ more... ▾

camera ▾ move backward ▾ 0.5 meters ▾ more... ▾

camera ▾ turn forward ▾ 0.05 revolutions ▾ more... ▾

// Ride the Octopus Pod ▾

Octopus.octopusAnimation

Octopus.octopusAnimation No parameters

create new parameter

No variables

create new variable

Loop 1 time time show complicat...

Wait 2 seconds

Do together

Loop 6 times times show complicat...

Do together

Octopus.podsAnimation pods = Octopus.Center.Arm1.pods

Octopus.podsAnimation pods = Octopus.Center.Arm2.pods

Octopus.podsAnimation pods = Octopus.Center.Arm3.pods

Octopus.podsAnimation pods = Octopus.Center.Arm4.pods

Octopus.podsAnimation pods = Octopus.Center.Arm5.pods

Octopus.podsAnimation pods = Octopus.Center.Arm6.pods

Octopus.podsAnimation pods = Octopus.Center.Arm7.pods

Octopus.podsAnimation pods = Octopus.Center.Arm8.pods

Loop 3 times times show complicat...

Do together

Octopus.armsAnimation armUp = Octopus.Center.Arm1 armDown = Octopus.Center.Arm2

Octopus.armsAnimation armUp = Octopus.Center.Arm3 armDown = Octopus.Center.Arm4

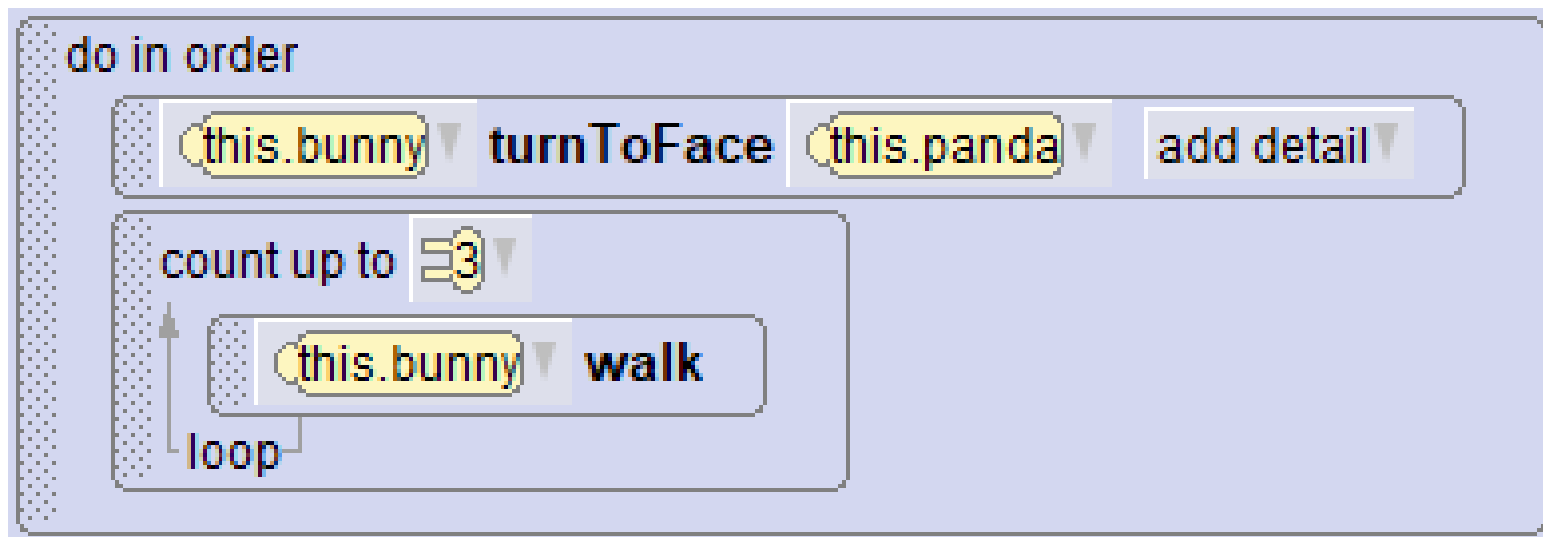
Octopus.armsAnimation armUp = Octopus.Center.Arm5 armDown = Octopus.Center.Arm6

Octopus.armsAnimation armUp = Octopus.Center.Arm7 armDown = Octopus.Center.Arm8

Back to Alice 3....

Looping – exact number of times

- Count loop



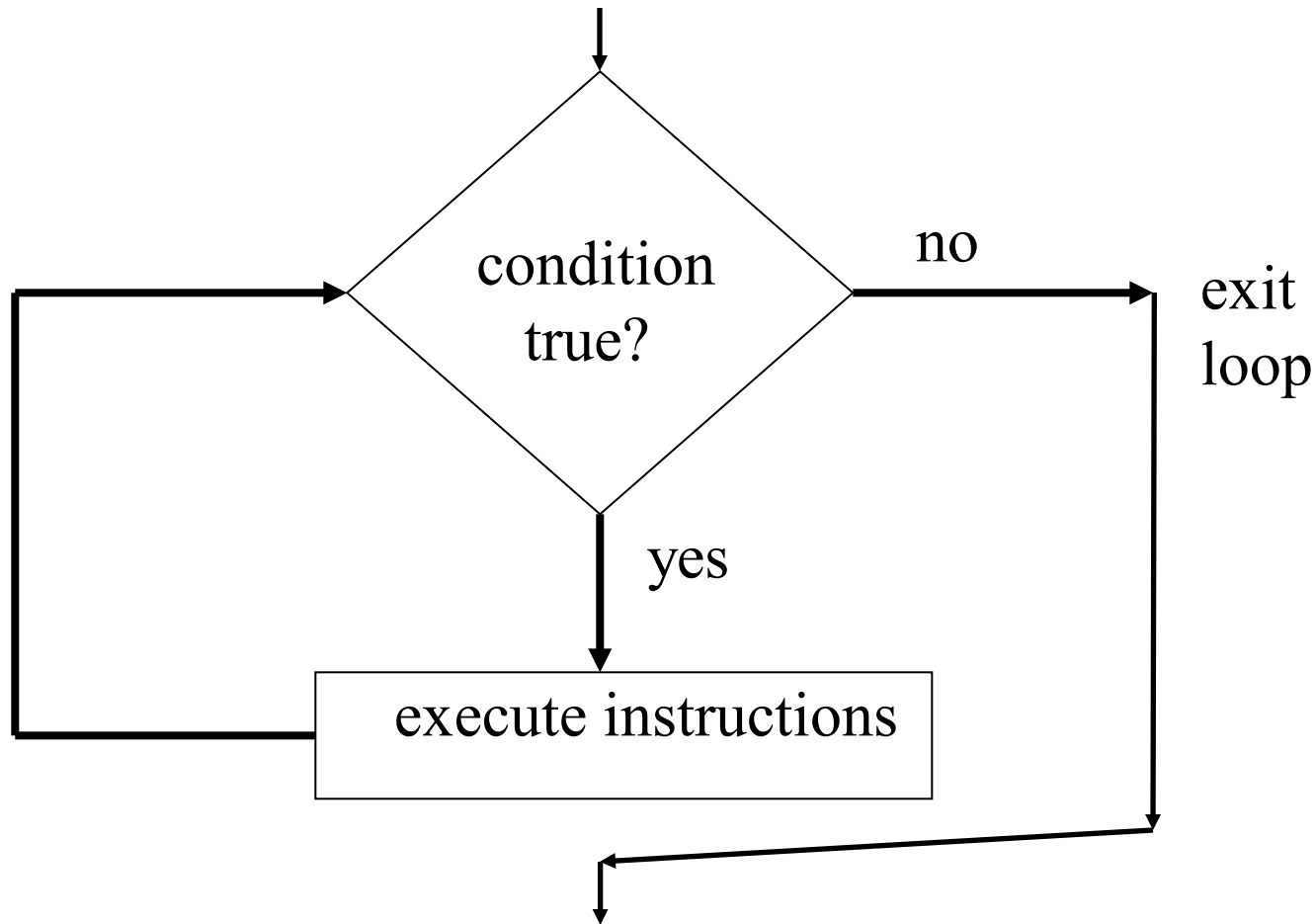
- How many steps to get to the panda?

10/20/22 3, 6, 8?

Repetition

- Sometimes don't know exactly how many times a set of instructions are repeated.
- Stopping is based on a condition
- Example:
 - Game of Chess, how many moves until win
 - Stop: when markers are in check mate position
- Indefinite Repetition
 - Where number of repetitions not known in advance
 - Use **while** statement

While statement

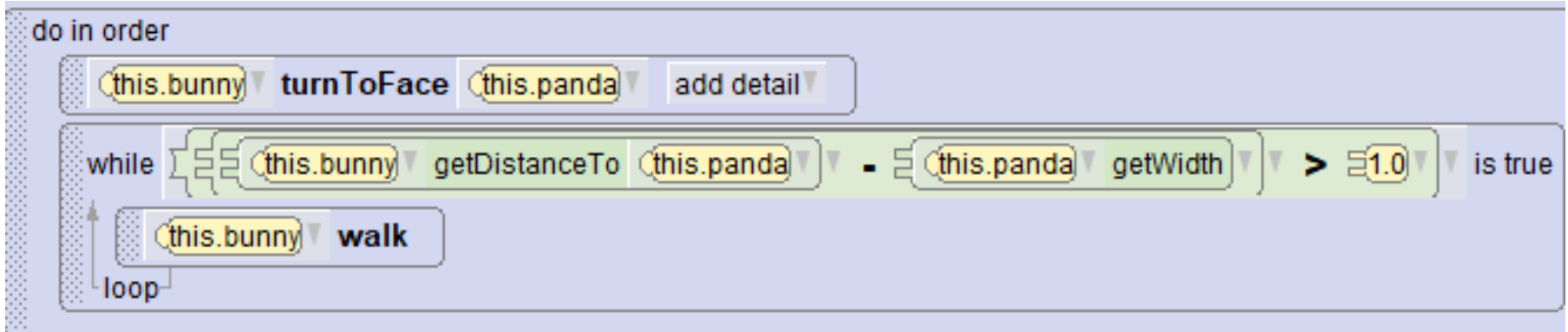
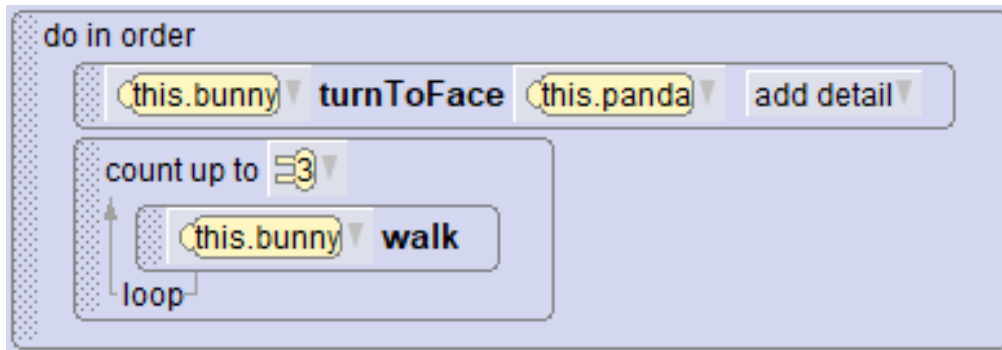


- While some condition is true
 - execute instructions

General “Rule of Thumb”

- As a general rule, a While loop should be written so the loop will eventually end
 - Requires statements inside the loop change the conditions of the world such that condition for While eventually becomes false
- If While loop never ends
 - Infinite while loop

Q1 Compare – What is difference?



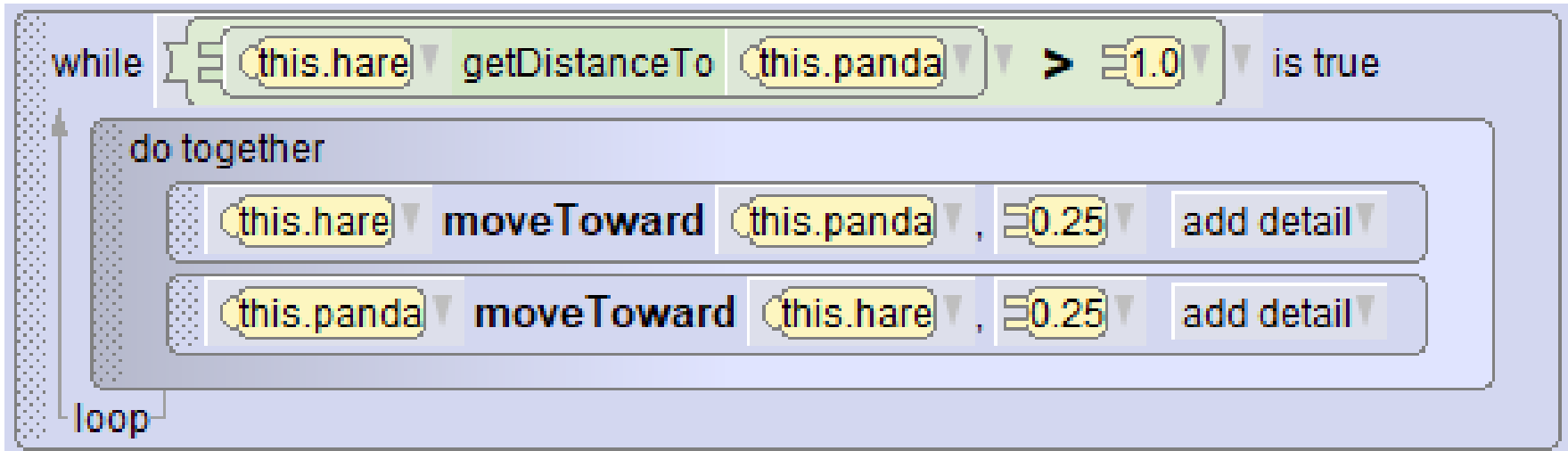
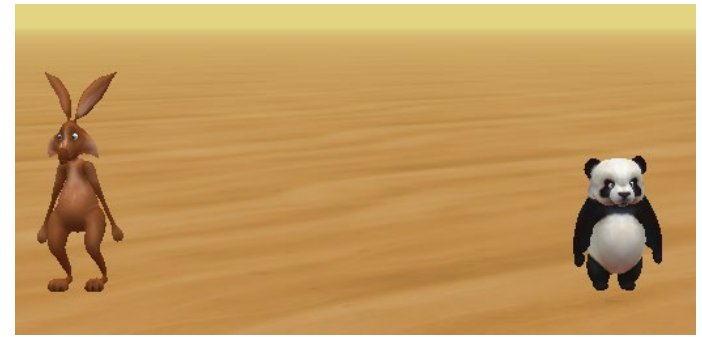
Q2. What happens when run?

```
while (this.falcon.isAbove(this.ground) && addDetail() == true)
{
    this.falcon.move(DOWN, 0.25);
    addDetail();
}
```

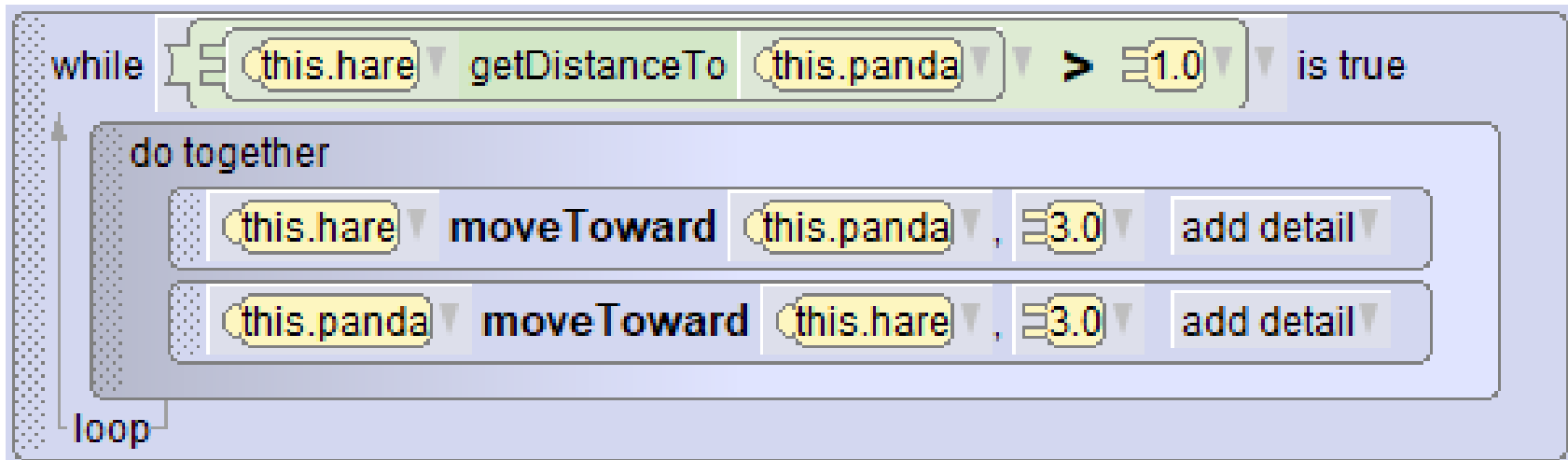
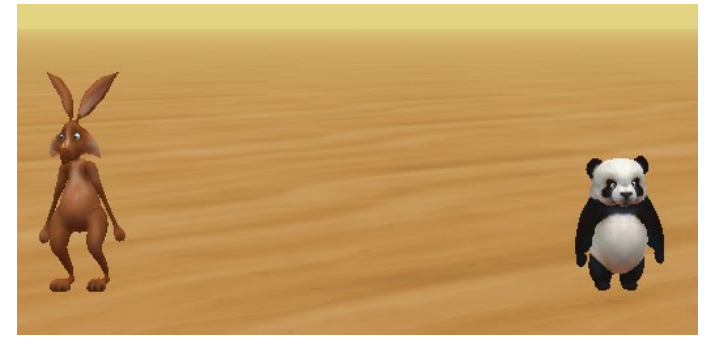
```
while (this.pig.isAbove(this.ground) && addDetail() == true)
{
    this.pig.move(DOWN, 0.25);
    addDetail();
}
```



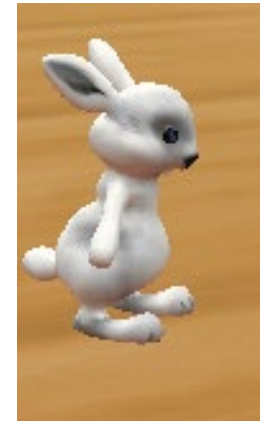
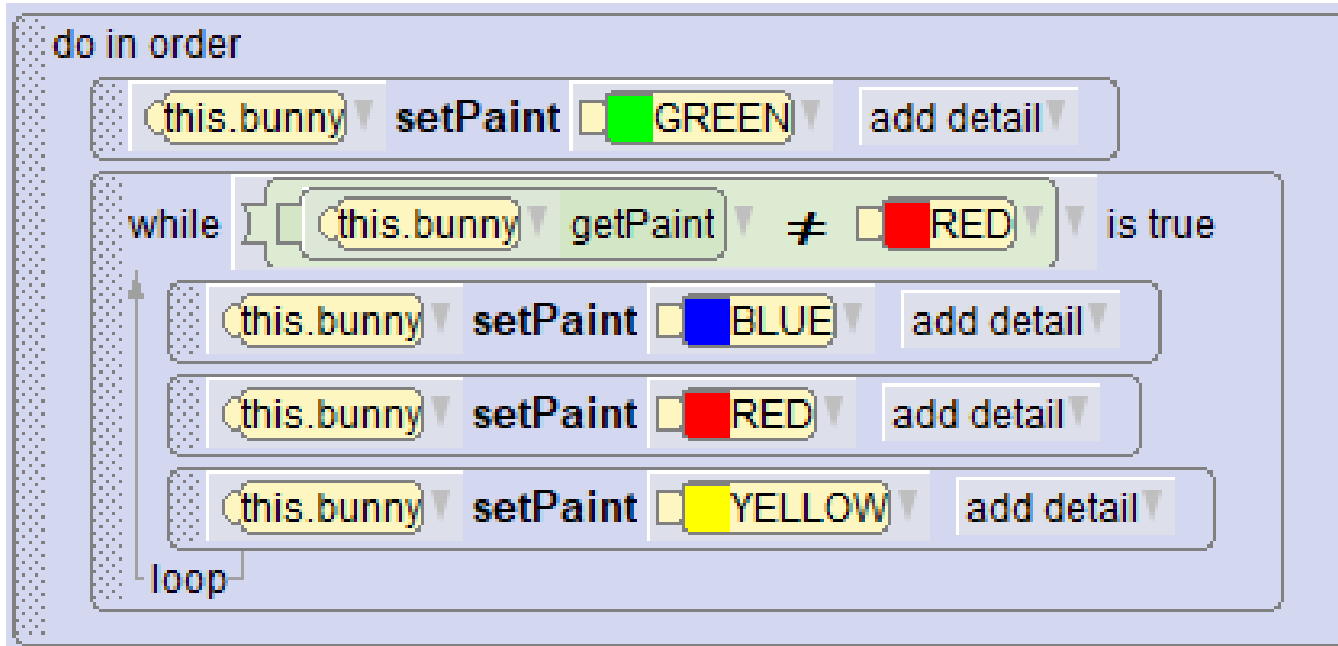
Q3 What happens, when does the loop stop?



Q4 What happens, when
does the loop stop?
(numbers different)



Q5 What happens when this runs?



Q6 What code could I use to stop this loop?

```
do in order
  //How do I stop this loop? What do I put in place of true?
  while true is true
    this.bunny.resize 1.3 add detail
  loop
```

Class Today

- Catching dinner

