CompSci 94
Writing your own Functions
October 22, 2024

Prof. Susan Rodger

Announcements

- Canvas QZ and videos for next Tuesday
- Assignment 4 due Oct 29

- More review for Exam 2
- Exam 2 on Oct 24
  - See old exams on calendar page
  - See notes from last time

Review arrays

Looping in Array – when and how to use each one

- For each in

- Each in together

Looping in Array – when and how to use each one

- For each in
  - Use with an array, to get each item in the array to do something one at a time
- Each in together
  - Use with an array, for each item at the same time to do something

Arrays

- How do you create an array?
- Where should you create an array?
- How do you access a value in an array?
- What is the advantage of using an array?

Arrays

- How do you create an array?
  - Create a variable/property and check the box for array
- Where should you create an array?
  - In Scene Properties
- How do you access a value in an array?
  - With a loop variable in an array loop
- What is the advantage of using an array?
  - Issue one instruction and apply it to every element in the array

Now on to new material!
Today material not on Exam 2

Function vs Procedure

- What is the difference between a function and a procedure?

Function vs Procedure

- What is the difference between a function and a procedure?
  - Procedure is something to do – turn, move, dance
  - Function is a calculated value – a number, an object, a direction
  - A function by itself is not very useful, a function has to be used in some way based on the type of value it calculates

Write a function called tallerHeight to compute the height of the tallest of two objects.

- What type of function should it be? Where do you create it?

- What is the return type?

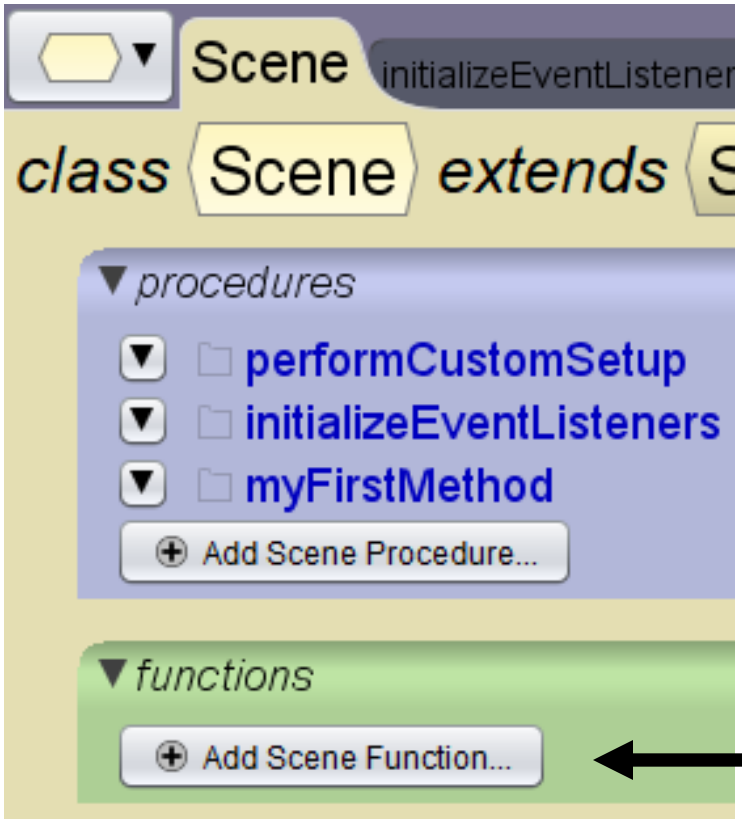
- Need two parameters, what are their types?

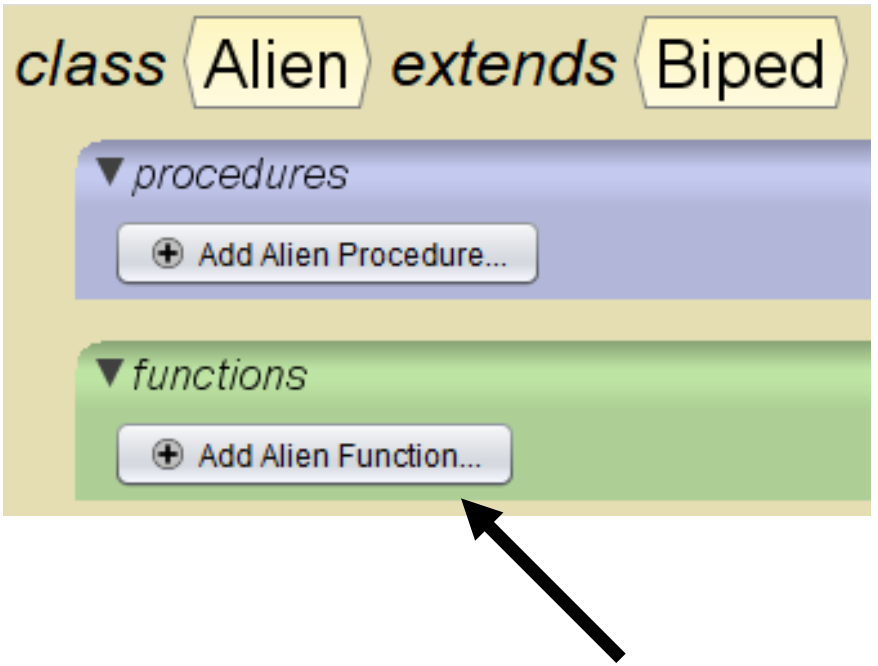
Write a function called tallerHeight to compute the height of the tallest of two objects

- What type of function should it be? Where do you create it?
  - Scene function
    - Like to be able to use it for any two objects
- What is the return type?
  - DecimalNumber
- Need two parameters, what are their types?
  - SJointedModel
    - Then works for any creatures

Can write your own functions

Function for Scene OR Function for character

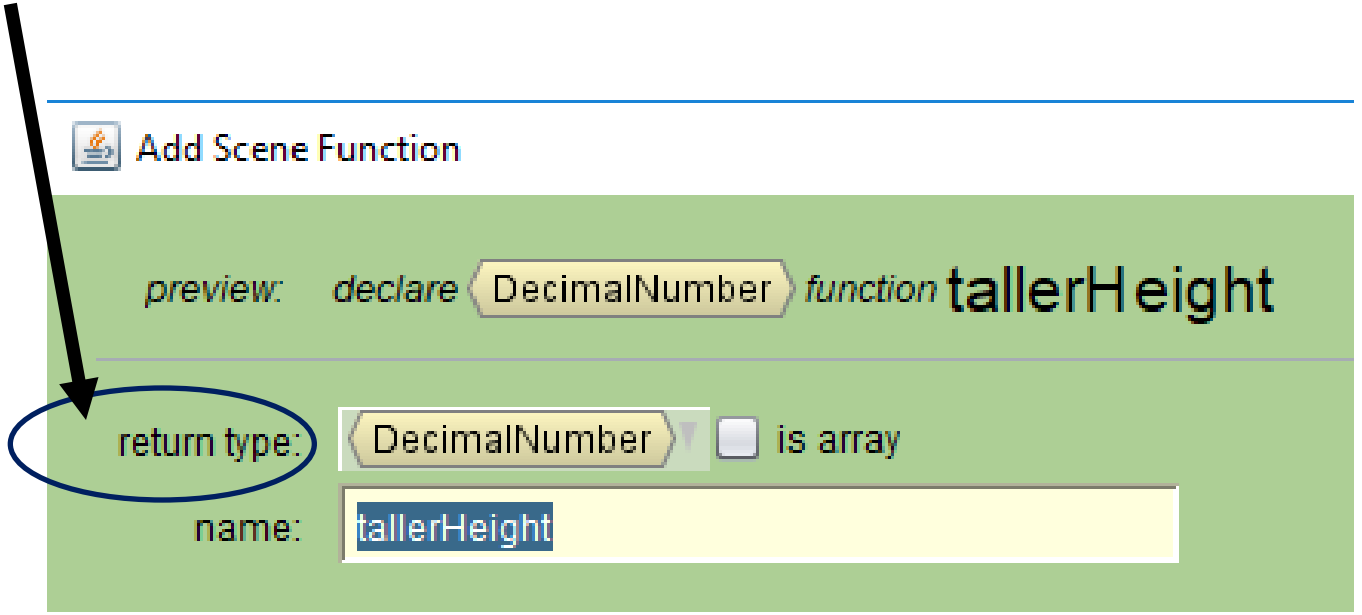




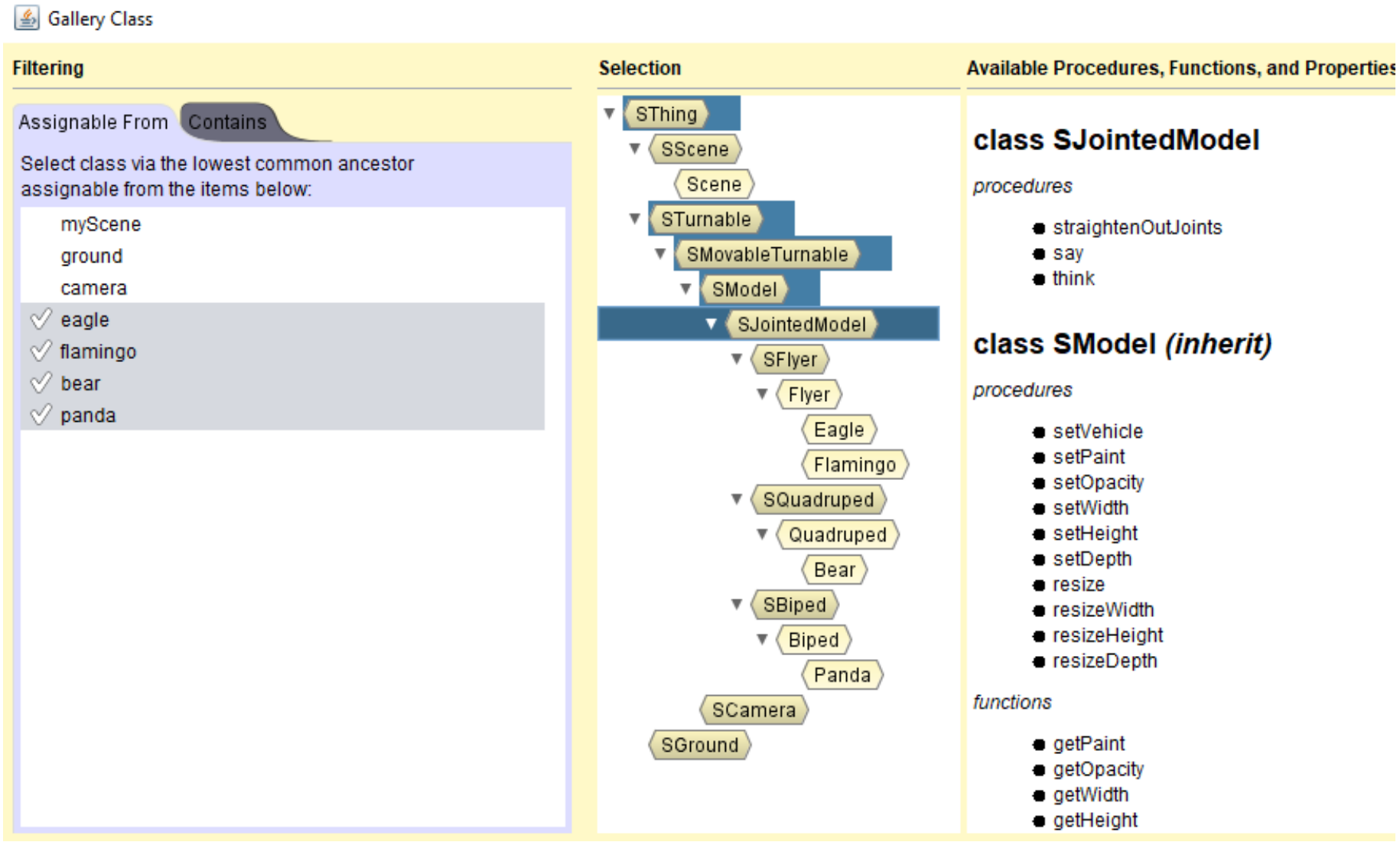
Use scene function if it involves multiple objects

Create Scene function tallerHeight

- Inputs: two objects
- Output (return value): the height of the taller object
- Return type: decimalNumber



Parameters - SJointedModel



Q1. What line of code do we have to put in every function?

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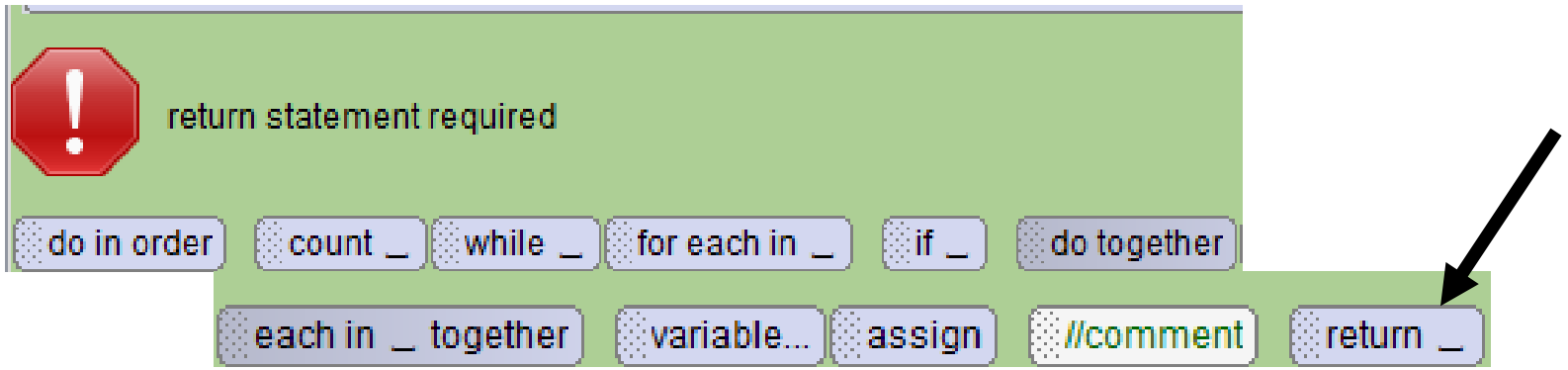
- Return statement!
  - Must return the same type as the specified return value.



Q2 What is the code for tallerHeight?

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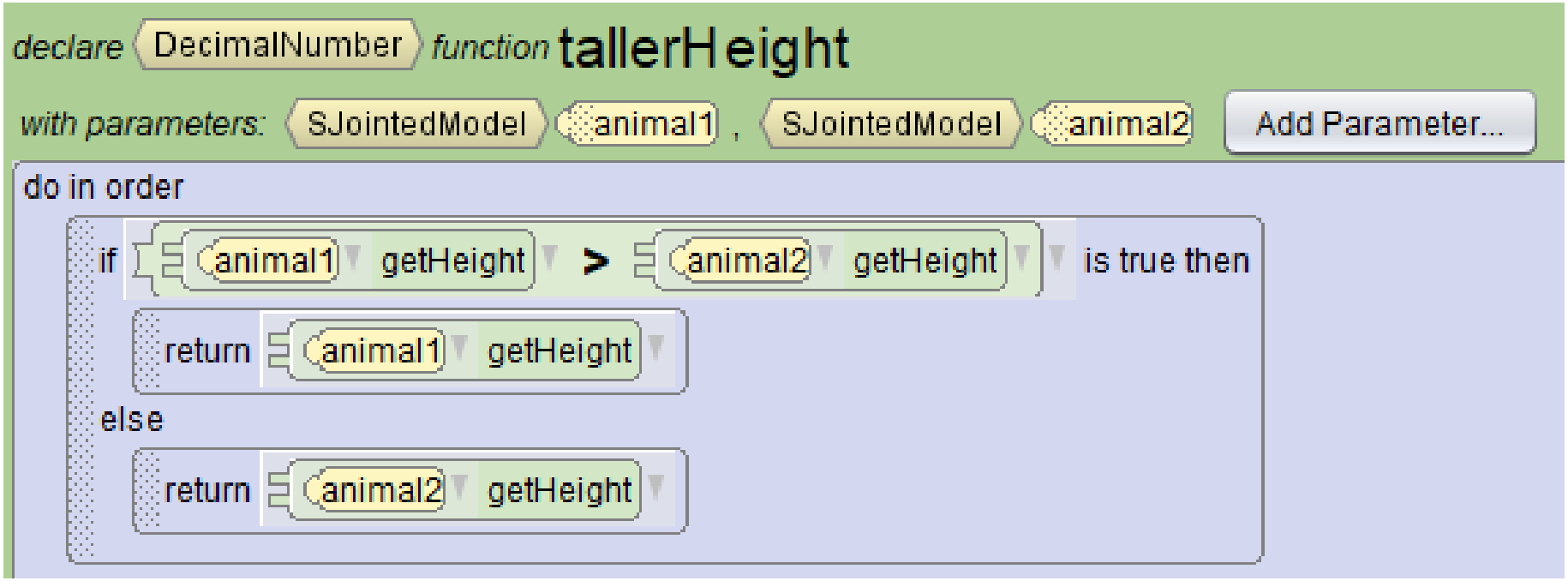

Q3 Given a bear and a flamingo, how does one use the function tallerHeight?

- Have panda say what the taller height is of the bear and flamingo.

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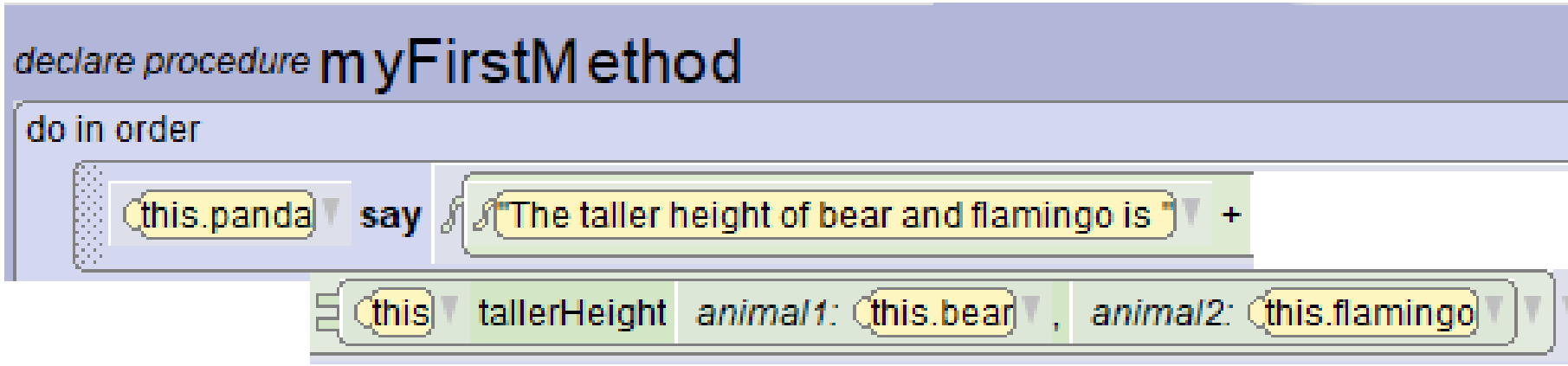

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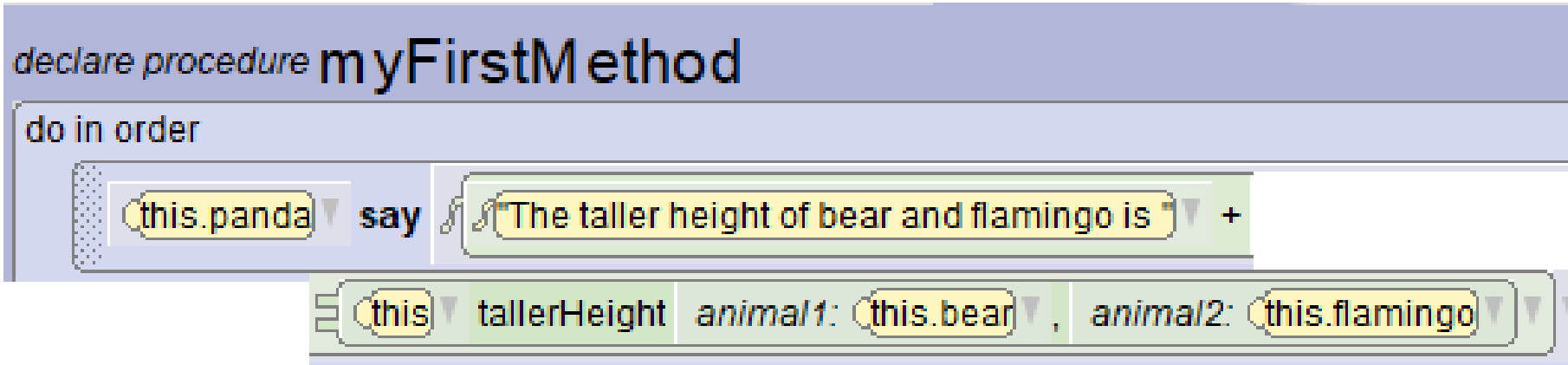

Q4. Write a function called tallerObject to return the object who is taller of two objects.

- What type of function should it be? Where do you create it?

- What is the return type?

- Need two parameters, what are their types?

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- What type of function should it be? Where do you create it?
  - Scene function
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Q5 What is the code for tallerObject?

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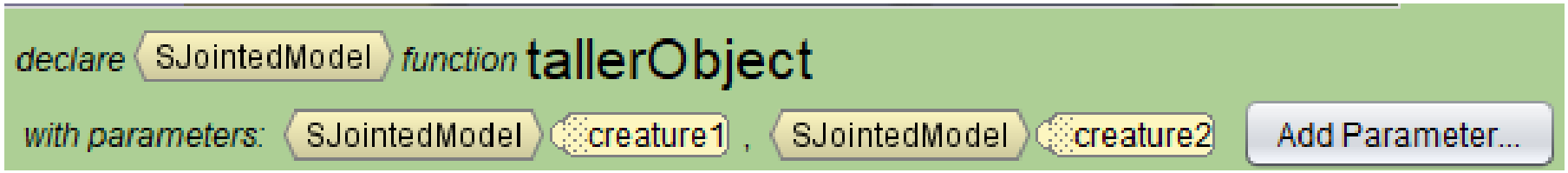

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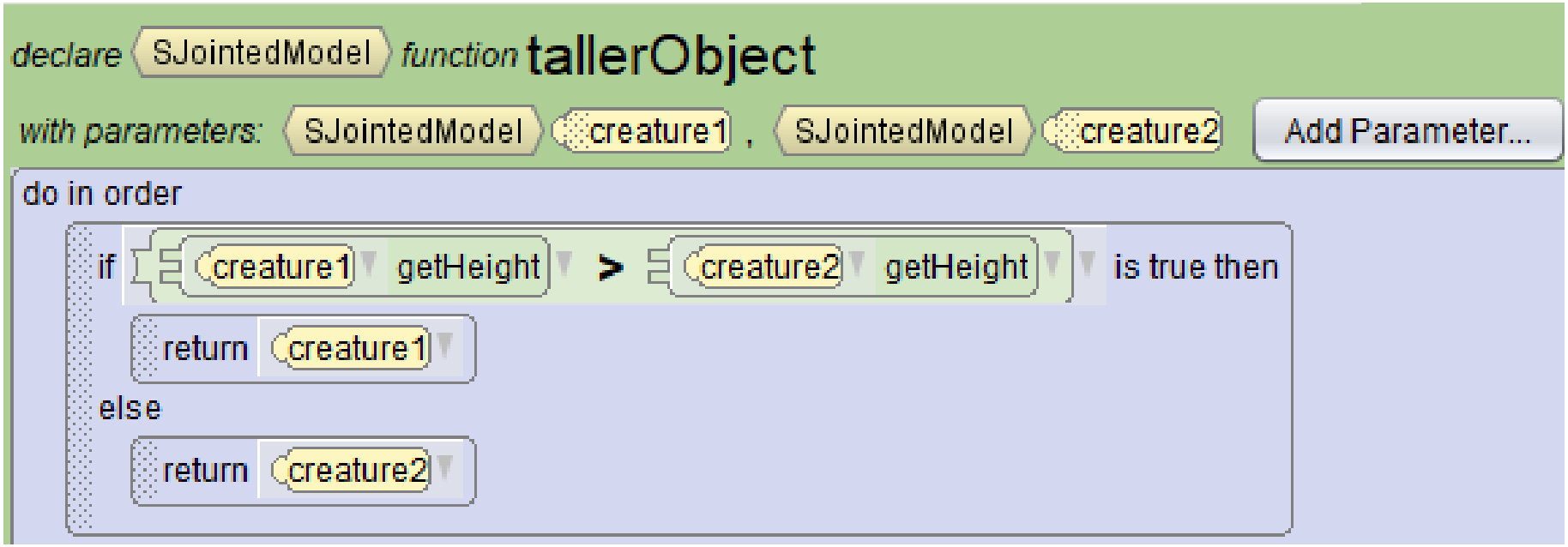

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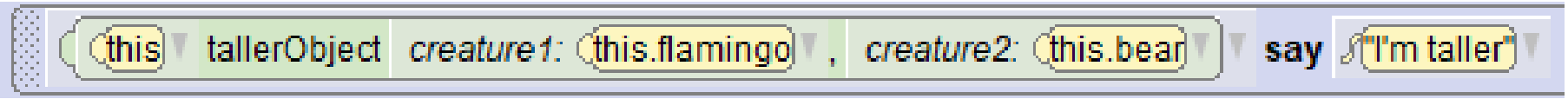

Q7 How do you write code for ?

- The taller of the bear and flamingo to turn around once
- The bear to double in size (so it is taller)
- The taller of the bear and flamingo to turn around once.

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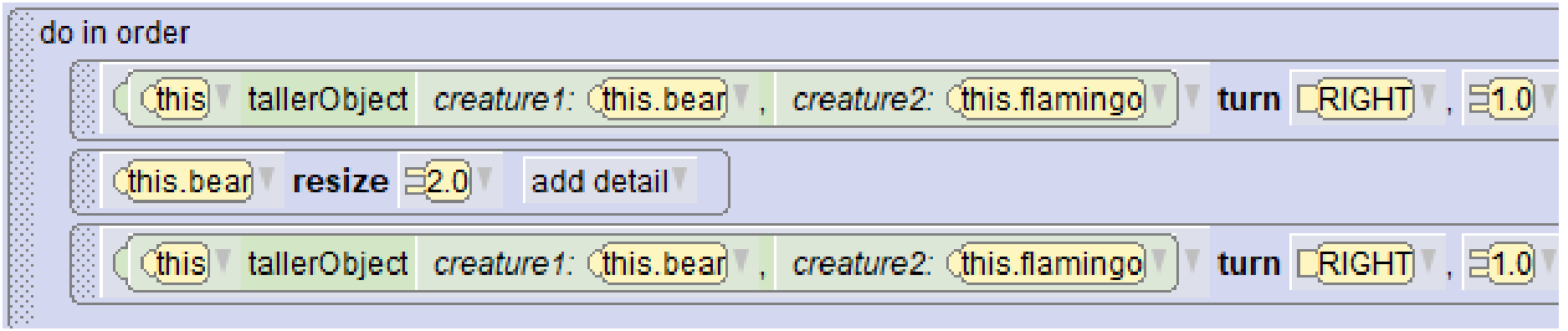


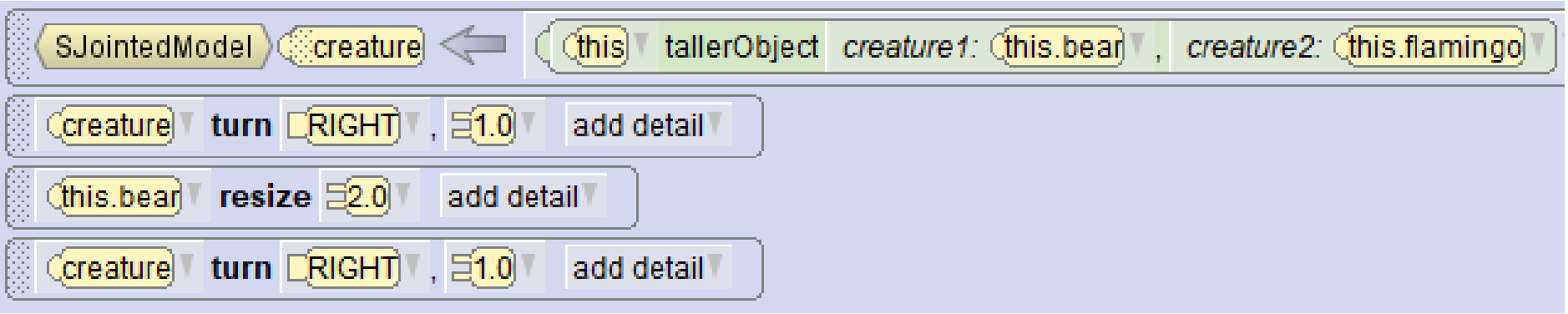
Use tallerObject function in place of an object.

Q7 When code runs…

1. Flamingo turns
2. Bear gets bigger
3. Bear turns

One more Question

What does this code do?



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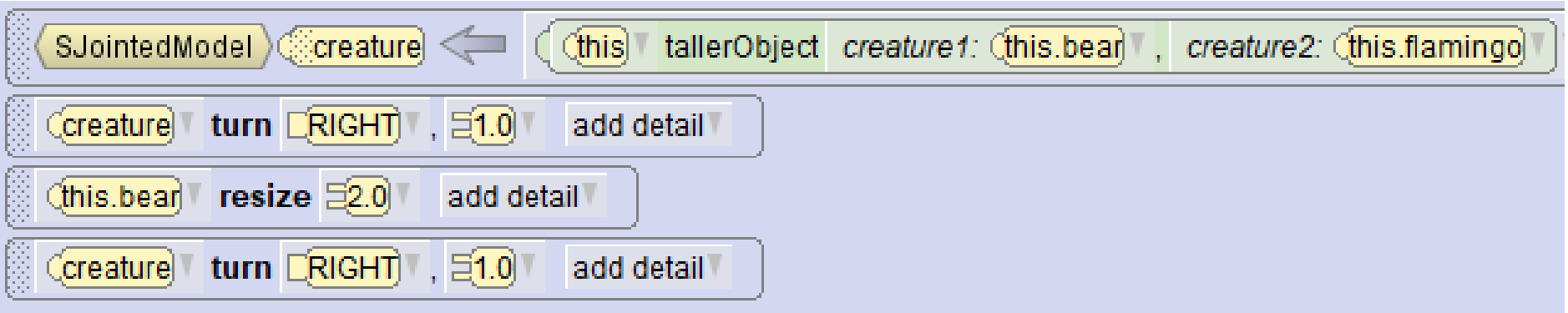
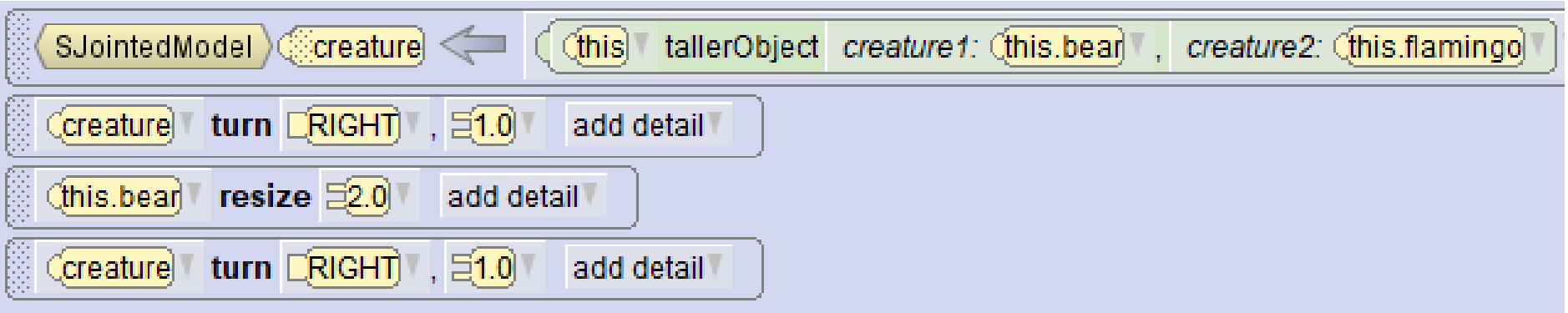


- The taller animal (flamingo) is stored in variable creature.
- Flamingo turns around, then **bear** gets bigger.
- Then Flamingo turns around again!

What does this code do?



- In the last line if we want the taller of the two to turn around, we MUST call the function again to recalculate the taller one, since the bear changed its height

Class Today

- Jumping cat calculating how high and how far to jump, and other things…