

CompSci 94

Writing your own Functions

October 22, 2024



Prof. Susan Rodger

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Review arrays

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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

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Looping in Array – when and how to use each one

- For each in
- Each in together

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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.

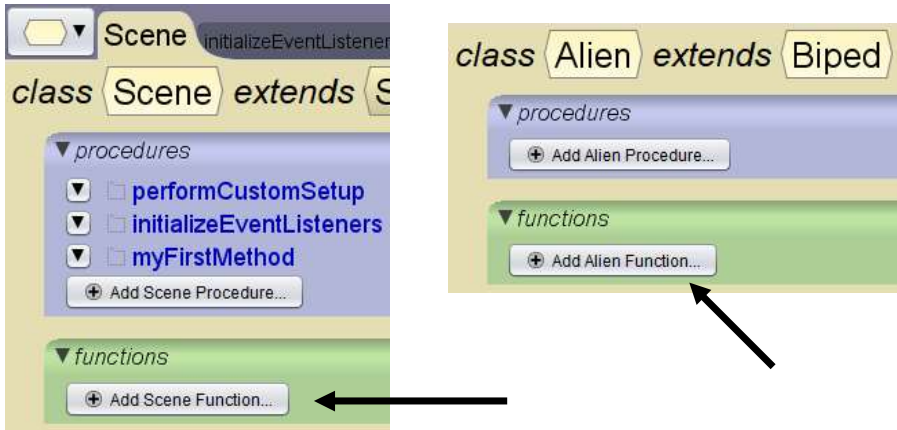
- What type of function should it be? Where do you create it?
- What is the return type?
- Need two parameters, what are their types?

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

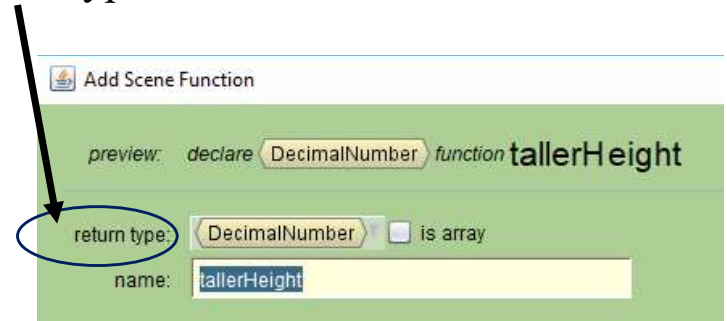
Function for Scene OR Function for character



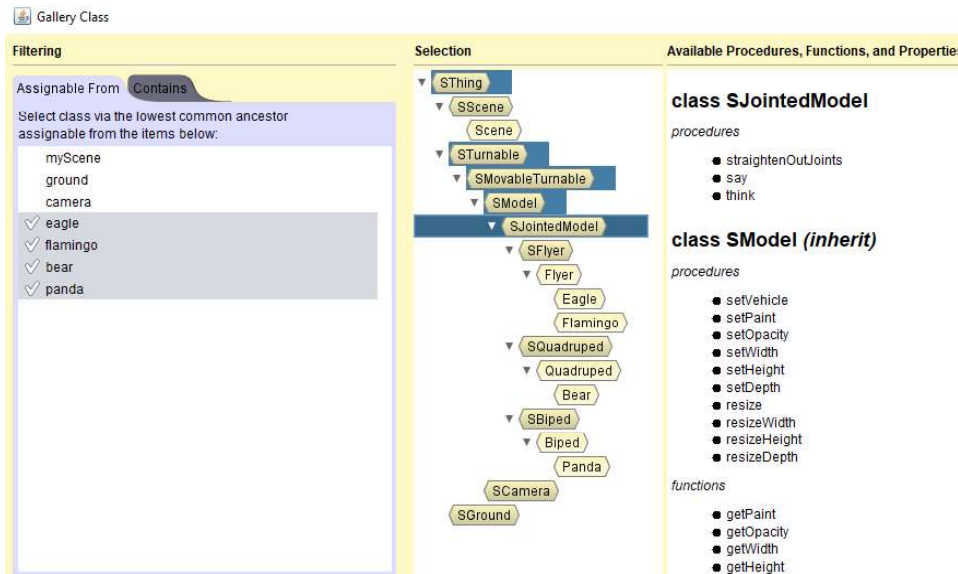
Use scene function if it involves multiple objects

Create Scene function tallerHeight

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



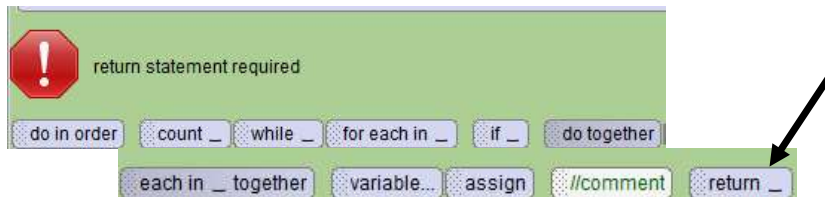
Parameters - SJointedModel



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.

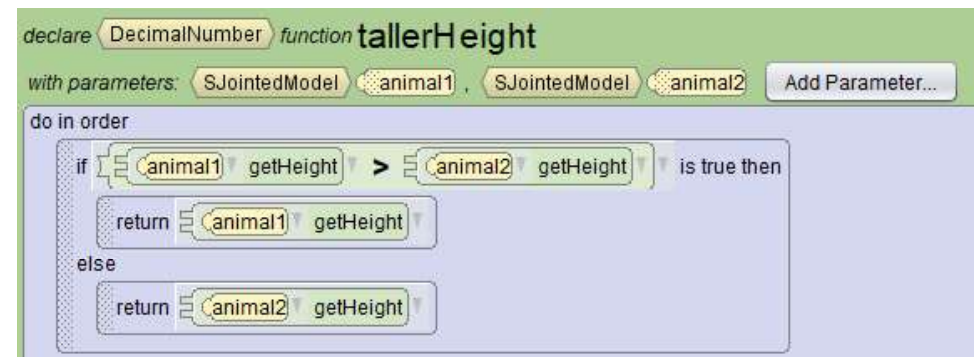


Q2 What is the code for tallerHeight?

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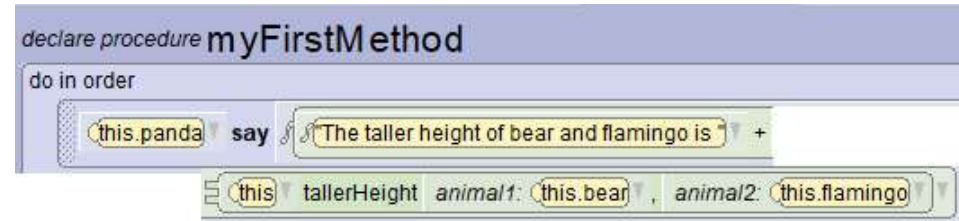


Q3 Given a bear and a flamingo, how does one use the function tallerHeight?

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

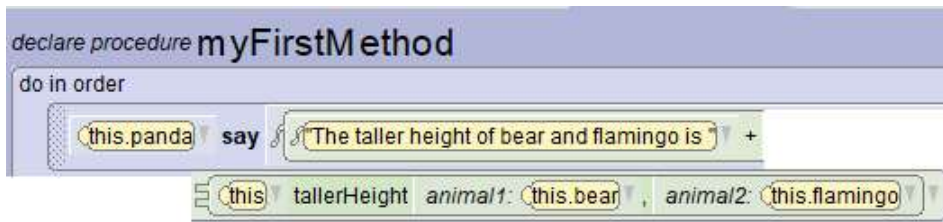
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Q4. Write a function called tallerObject to return the object who is taller of two objects.

- What type of function should it be? Where do you create it?
- What is the return type?
- Need two parameters, what are their types?

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

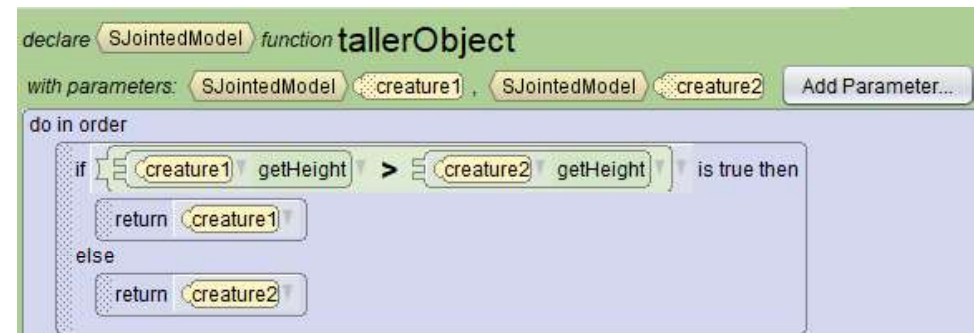
- What type of function should it be? Where do you create it?
 - Scene function
 - Like to be able to use it for any two objects
- What is the return type?
 - SJointedModel
- Need two parameters, what are their types?
 - SJointedModel
 - Then works for any creatures

Q5 What is the code for tallerObject?

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Q6 How do you get the taller of the bear and flamingo to say they are taller using function tallerObject?

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Q7 How do you write code for ?

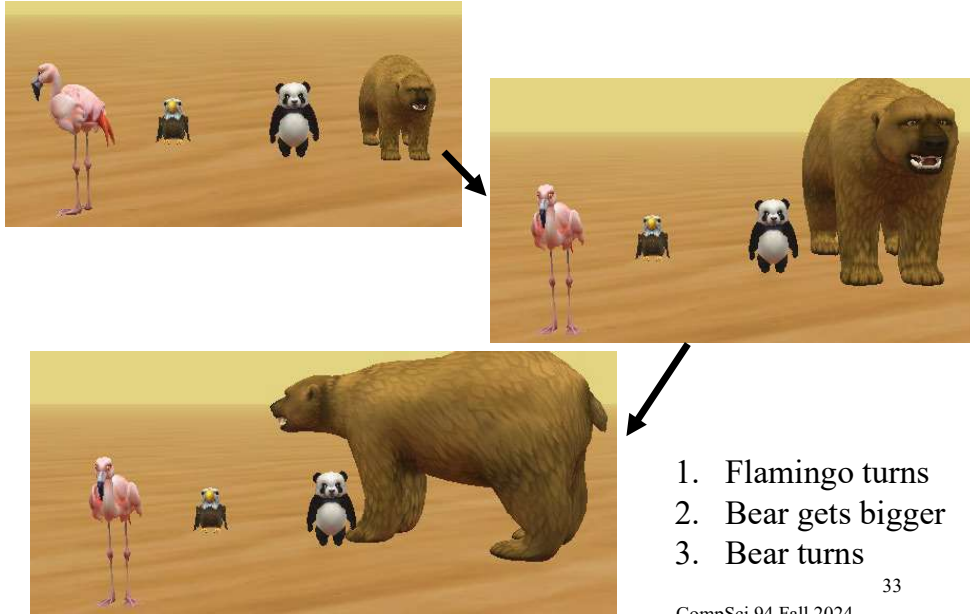
- The taller of the bear and flamingo to turn around once
- The bear to double in size (so it is taller)
- The taller of the bear and flamingo to turn around once.

Q7 How do you write code for ?



Use tallerObject function in place of an object.

Q7 When code runs...



One more Question

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What does this code do?



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What does this code do?



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

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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...

