

CompSci 94

Variables and Array Indexing

October 29, 2024



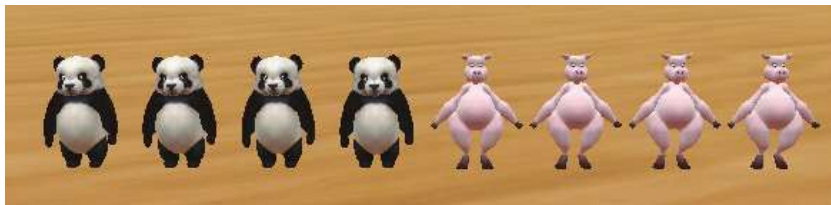
Prof. Susan Rodger

Announcements

- Assignment 4 due tonight!
- Videos and online quiz for next class

Pig and Panda arrays

- Two arrays, animals are in the arrays from left to right as seen

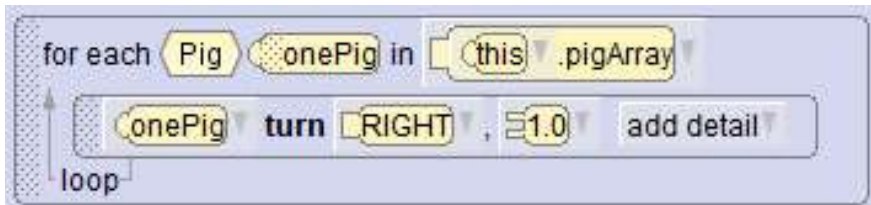


Review1 - What is the code for?

- Code for Pigs to turn right one pig at a time?

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- Code for Pigs to turn right one pig at a time?
 - Use a “for each in” loop
 - Name a loop variable – I chose **onePig**

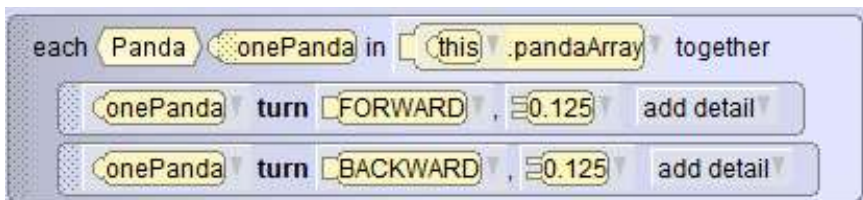


Review2 – What is the code for?

- Code for Pandas to bow **at the same time** (turn forward a little, then turn backward)?

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- Code for Pandas to bow **at the same time** (turn forward a little, then turn backward)?
 - Use “each in together” loop
 - Name a loop variable – I chose **onePanda**



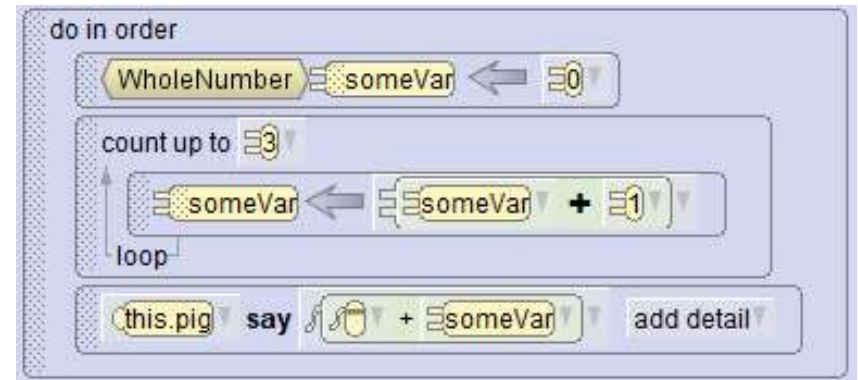
Q1 – Questions about variables

- What is the difference between a const variable and a variable?
- Which Alice construct do you use to change a variable?

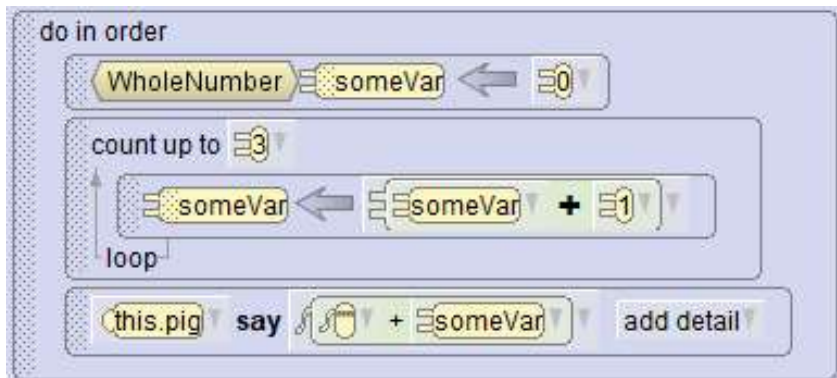
Q1 – Questions about variables

- What is the difference between a const variable and a variable?
 - Const variable can only store one value when it is created
 - Variable can store a value that can change
- Which Alice construct do you use to change a variable?
 - Assign tile

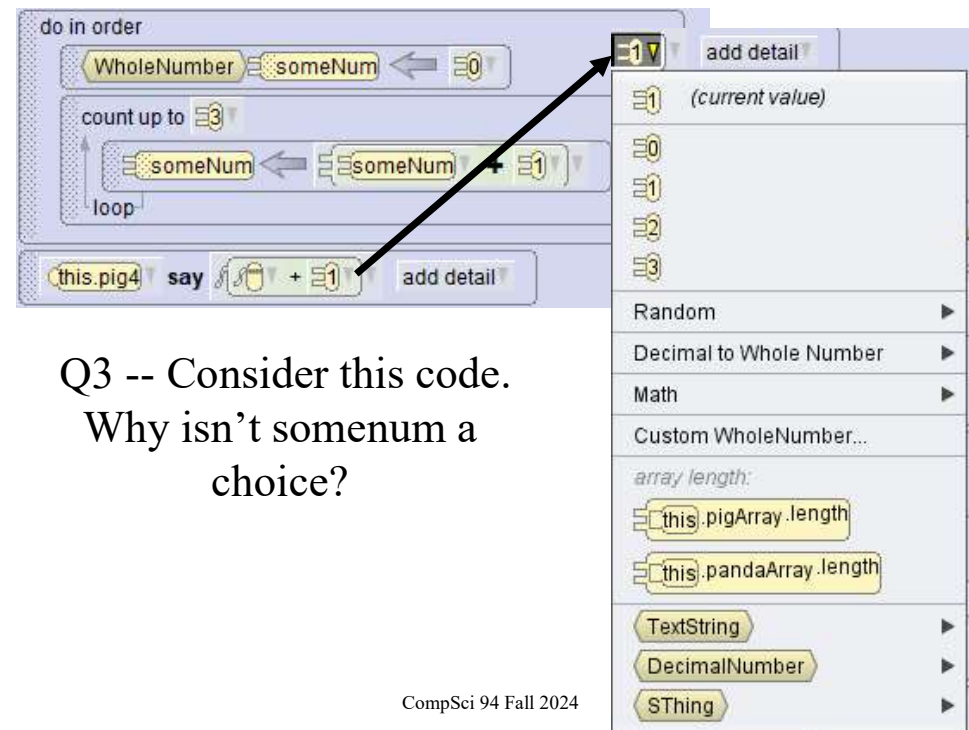
Q2 - What is the output of this code?



Q2 - What is the output of this code?



- Pig says: 3



Q3 -- Consider this code.
Why isn't somenum a choice?

do in order

Q3 – Consider this code.
Why isn't somenum a choice?

- It is not in scope! It is not in the do in order!

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Pig and Panda arrays again

- Two arrays, animals are in the arrays from left to right as seen



unmanaged

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Q4 – How do I write an **array index loop** to have each pig turn right once?

- Fill in the missing code:*

do in order

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Q4 – How do I write an **array index loop** to have each pig turn right once?

- Use a count loop
 - Create a variable set to 0
 - Use the variable to index in the array
 - Update the variable by 1 in the loop

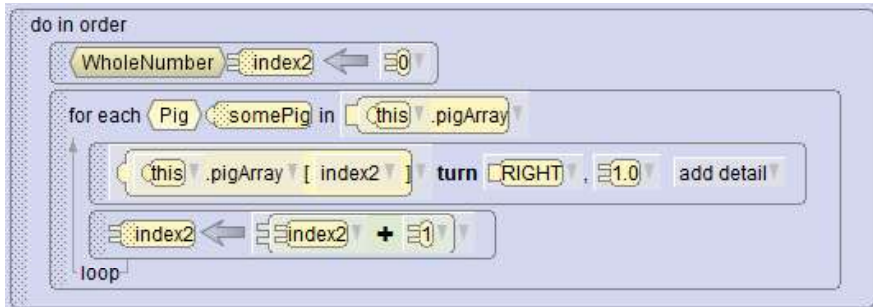
do in order

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Q4 – How do I write an **array index loop** to have each pig turn right once?

- **Or could use a for each in loop**
 - Create a variable set to 0
 - Use the variable to index in the array
 - Update the variable by 1 in the loop

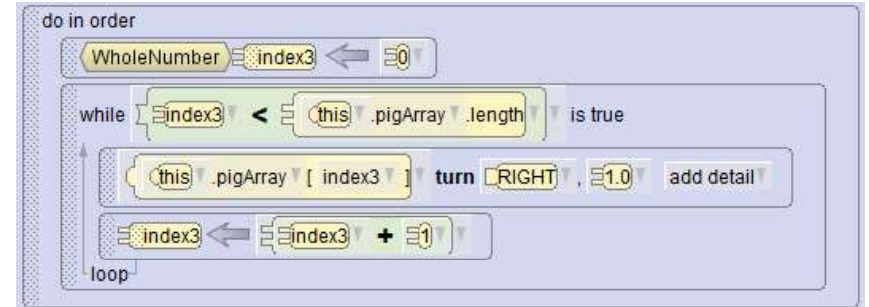


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Q4 – How do I write an **array index loop** to have each pig turn right once?

- **OR could use a while loop**
 - Create a variable set to 0
 - Use the variable to index in the array
 - Update the variable by 1 in the loop

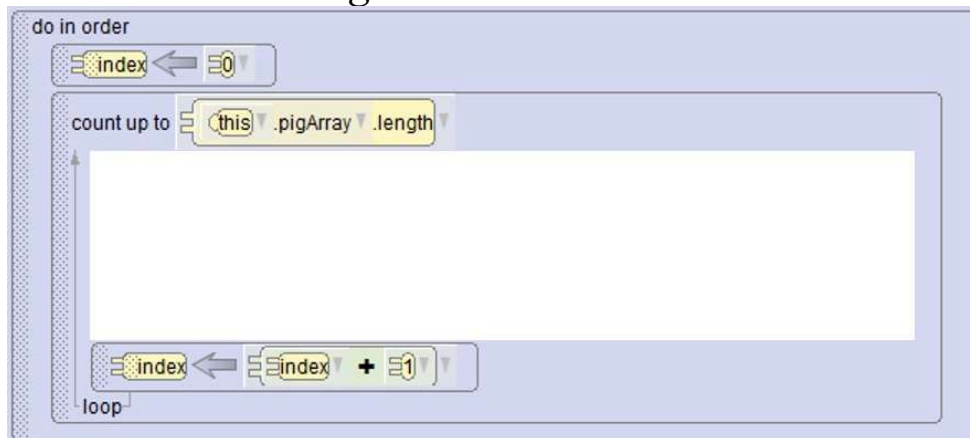


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Q5 – How do I write code to have each pig turn right once one at a time, with one of the pandas turning with each pig?

- *Fill in missing code:*

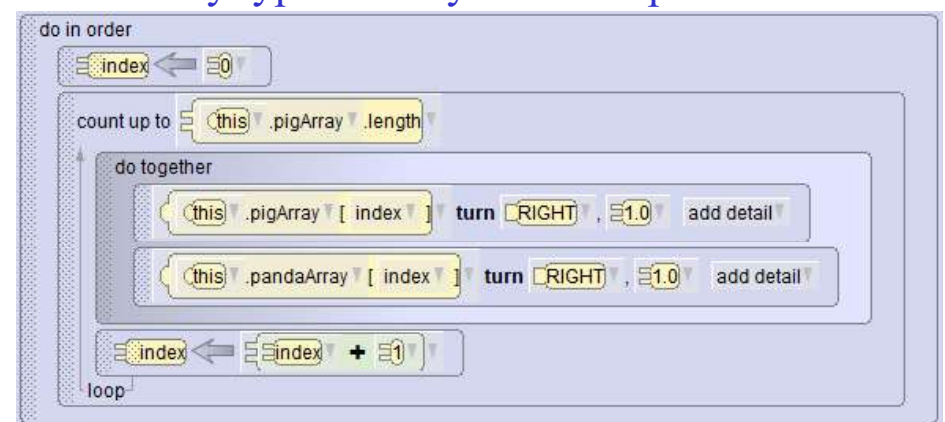


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Q5 – How do I write code to have each pig turn right once one at a time, with one of the pandas turning with each pig?

- **Use any type of array index loop**



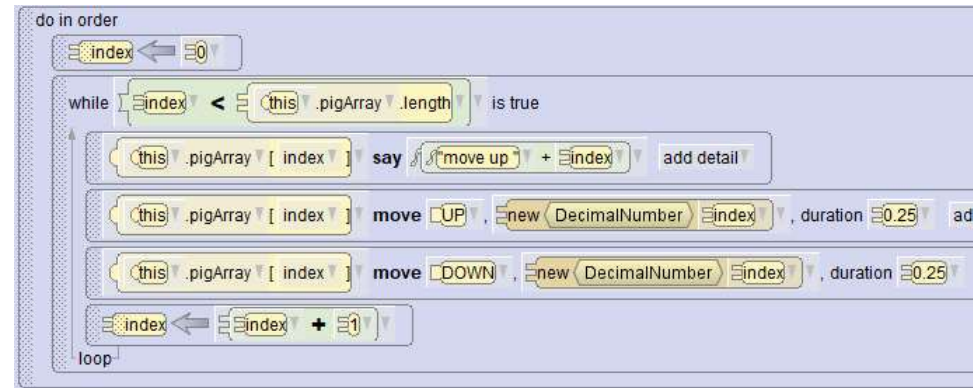
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Q5 continued

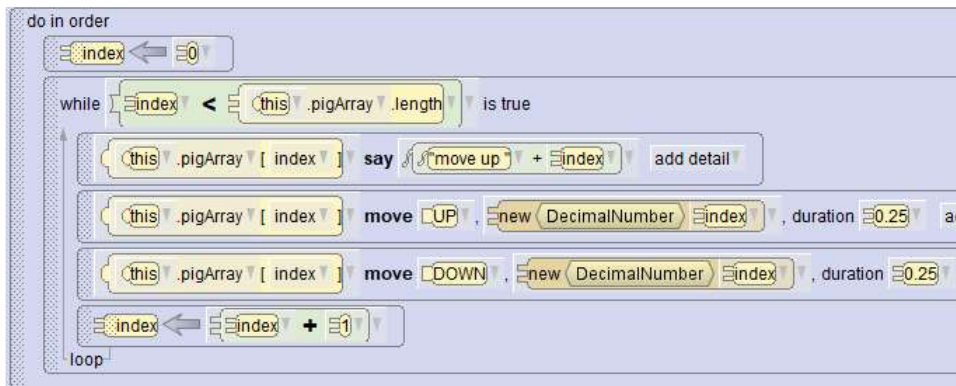
- Notice the pigs and pandas arrays must be the same size for this to work!

Q6 – What does this code do?



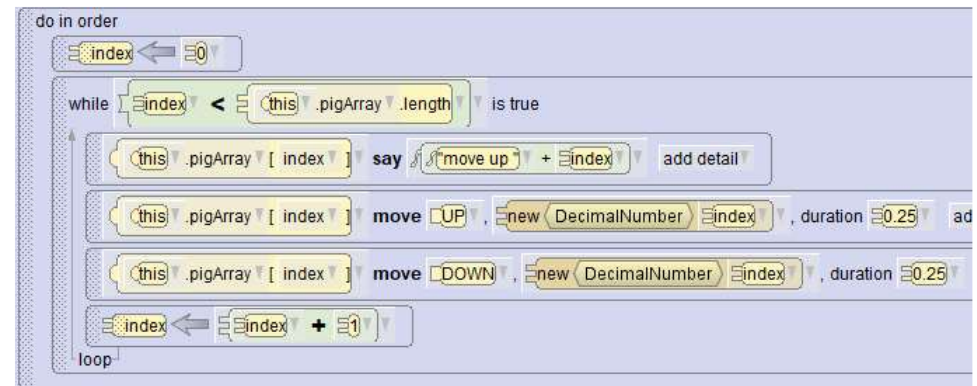
Q6 – What does this code do?

- each pig moves up and down one at a time with the next pig moving one unit more. That is, the first pig 0 units, second pig 1 unit, third pig 2 units, etc.



Q6 – What does this code do?

- NOTE: Use an array index loop in two places – One for index, one for how far to move up/down



Q7 – How do you write code to color every other panda green in array?

- Start with no color

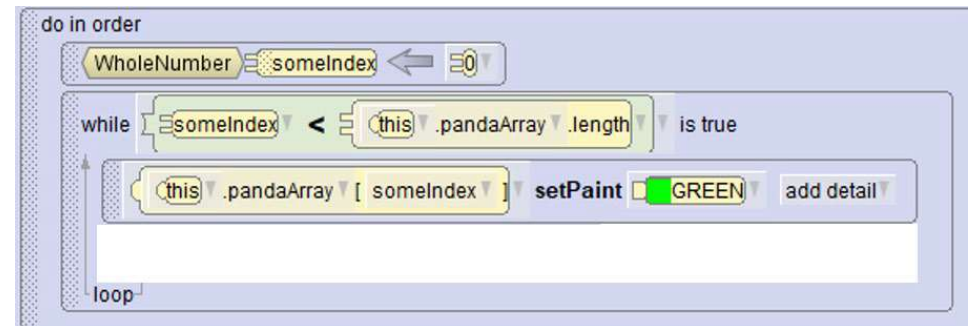


- Color every other green (1st one, 3rd one, etc.)



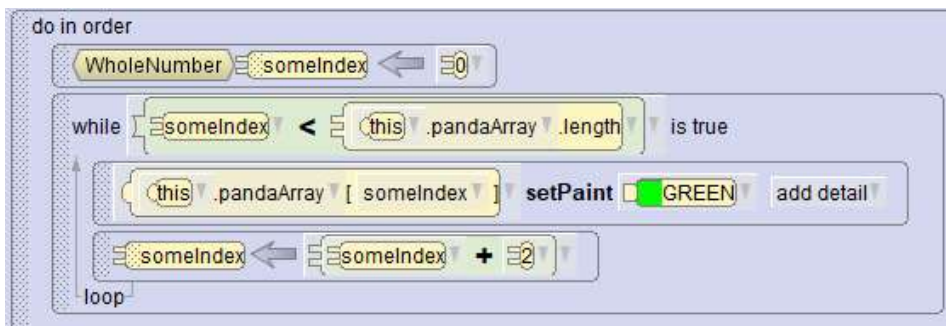
Q7 – How do you write code to color every other panda green in array?

- What is the missing line of code?



Q7 – How do you write code to color every other panda green in array?

- One way, use array index, increment by 2
- Must use while loop, doesn't work w/count loop



Another possible way?

How do you write code to color every other panda green in array?

- Another way? Does this work?



How do you write code to color every other panda green in array?

- Another way? Does this work?

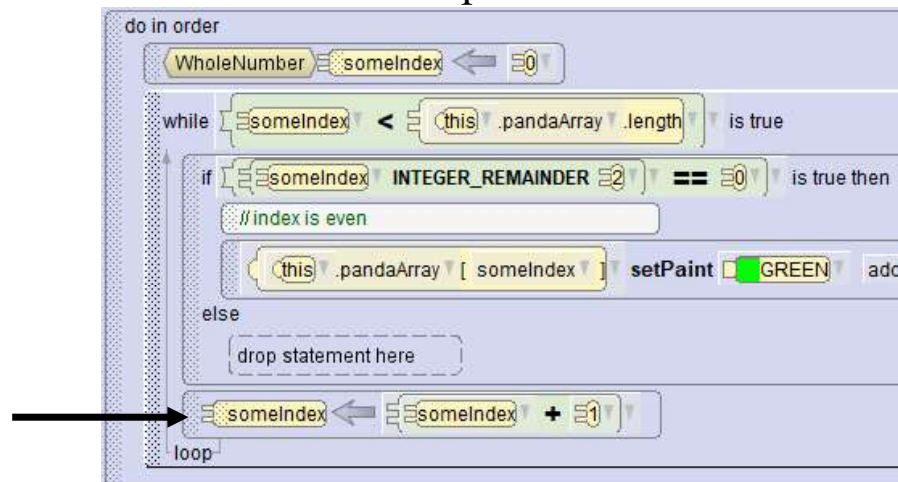


NO! Does this:



How do you write code to color every other panda green in array?

- **Correct Code** – update someIndex



Class Today

- Array of penguins

