

# CompSci 94

## Arrays, Loops with Arrays

October 17, 2024



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# Announcements

- QZ and Videos for next time
- Assignment 4 out today, due Tue, Oct 29
- Exam 2 Thur. Oct 24
  - See old tests on calendar page on Oct 24 date



# Exam 2 Logistics

- Exam 2 is on Tuesday, Oct 24
- Covers topics through today, Oct 17 lecture
- Old tests are on the calendar web page
- Exam 2 is on paper
- See Exam 2 reference sheet – part of exam
- Exam 2 is your own work
- Bring only pen or pencil



# Exam 2 Topics

- Topics from last time (procedures with parameters, etc)
- Random numbers
- if statements, logic (and, or, not)
- count loops, constant variables, Saving objects
- while loops
- Arrays, as a variable
- Scene procedure



# How to study for Exam 2

- You should practice writing code on paper!
  - Redo procedures we did in classwork or lecture
  - Start with blank sheet of paper and write code
- See old tests on course calendar page on 10/24 date
- Arrays – only understanding how to put them together and the two loops how they work



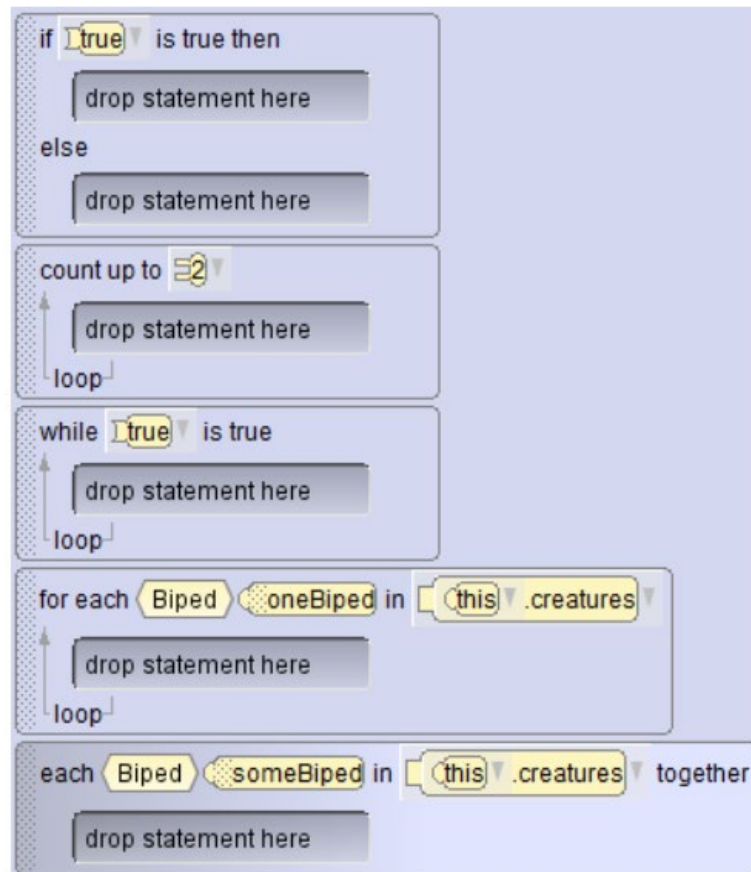
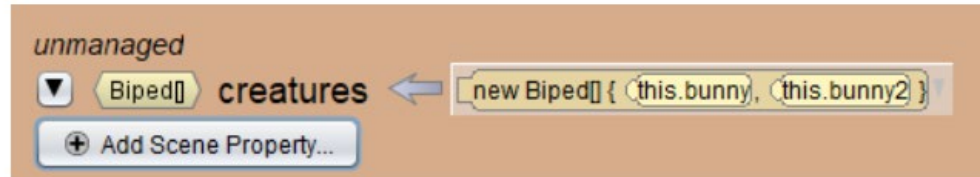
# Review Randomness

- How do you generate a random number?
- How do you store a random number?
- How do you use a random number?
- What other type of random can you create?



# If statement, loops and more

If, loops, and creating an array element.





# if statement condition choices

Given below are the condition possibilities for an if statement

if **true** is true then

- true** (current value)
- false**
- nextRandomBoolean**
- NOT true**
- NOT ???**
- BOTH true AND ???**
- EITHER true OR ???**
- BOTH ??? AND ???**
- EITHER ??? OR ???**
- Relational (DecimalNumber) { ==, !=, <, <=, >=, > }
- Relational (WholeNumber) { ==, !=, <, <=, >=, > }
- Relational (SThing) { ==, != }
- Relational (MoveDirection) { ==, != }
- Relational (TurnDirection) { ==, != }
- Relational (RollDirection) { ==, != }
- Relational (Key) { ==, != }
- Relational (Color) { ==, != }
- Relational (Paint) { ==, != }
- TextString Comparison

Comparison Operators:

- ??? < ???
- ??? ≤ ???
- ??? > ???
- ??? ≥ ???
- ??? == ???
- ??? ≠ ???

Equality Operators:

- ??? == ???
- ??? ≠ ???

String Comparison Operators:

- ??? contentEquals ???
- ??? equalsIgnoreCase ???
- ??? startsWith ???
- ??? endsWith ???
- ??? contains ???



# Looping structures - when and how to use each one

- Count loop
- While loop



# Now for today's topic - Arrays

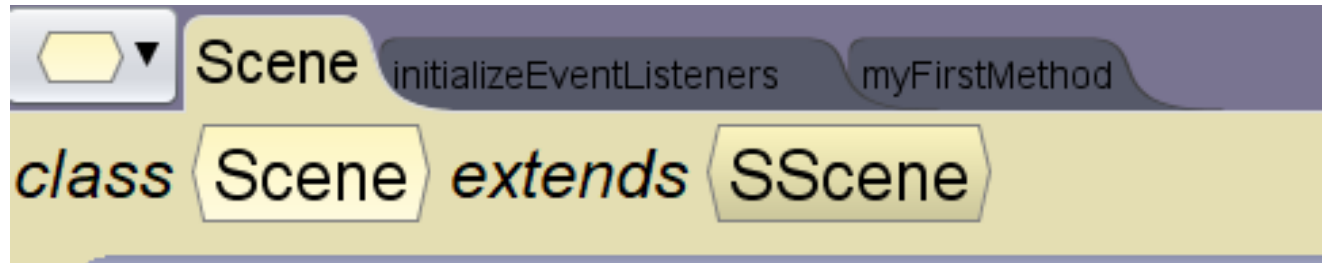


# How and Where does one create an array?

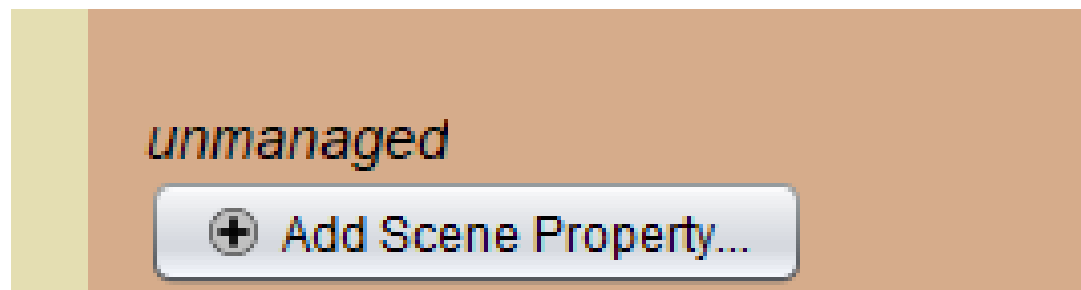


# How and Where does one create an array?

- Create as a Scene Property




- Go to bottom of page and add there.





# Example – Build array of Flyers

- Pick variable, not constant
- Pick type
- Be sure to check box by “is array”
- Name: pick name to reflect multiple things
- Initialize: add Objects into the array

 Add Scene Property >

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preview: Flyer[] **lotsOfBirds** ← `new Flyer[] { this.phoenix, this.chicken, this.flamingo, this.penguin, this.ostrich }`

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is variable: ☒ variable field ← ☐ constant field

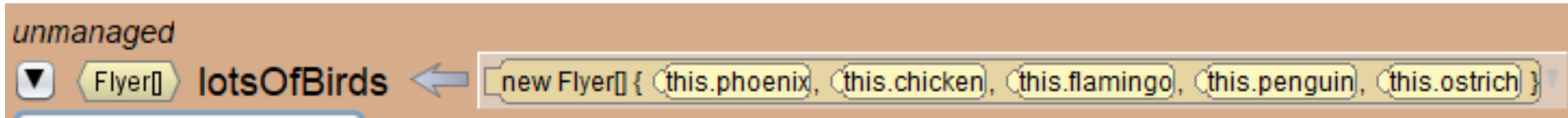
value type: Flyer ☒ is array

name:

initializer: `new Flyer[] { this.phoenix, this.chicken, this.flamingo, this.penguin, this.ostrich }`



# Result





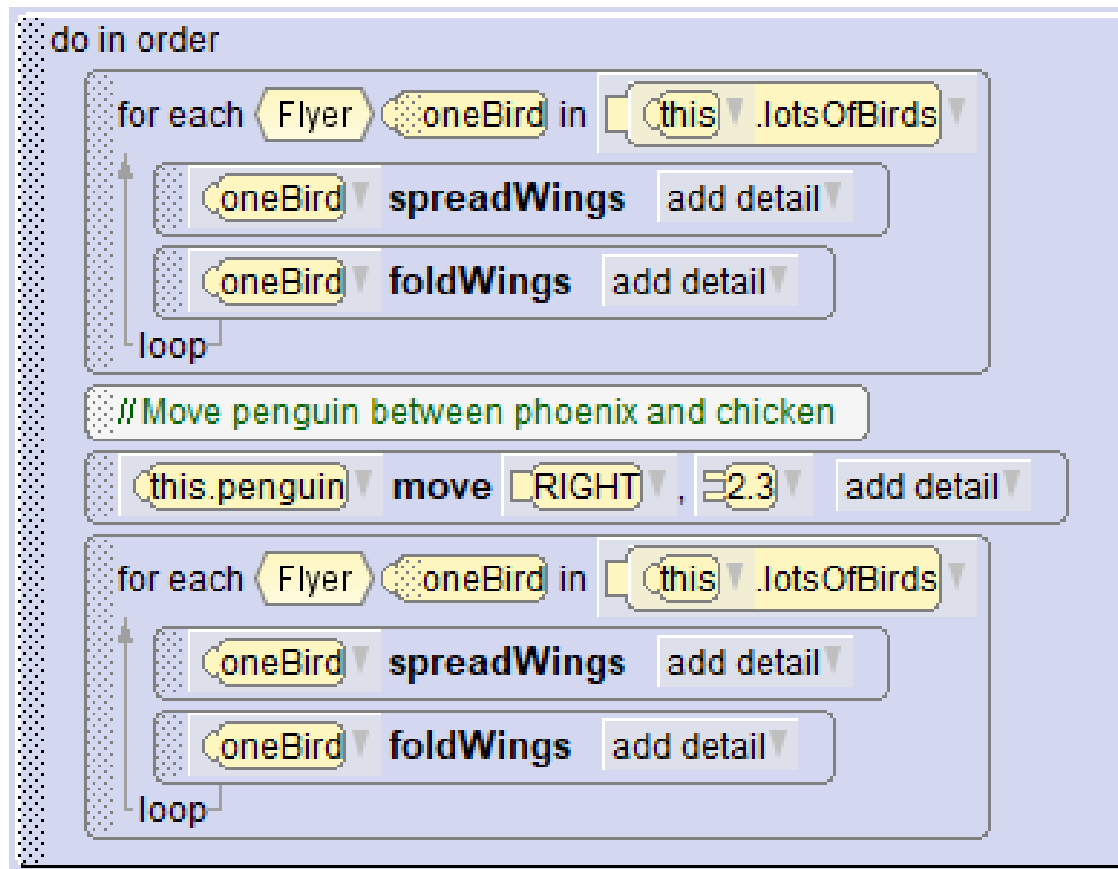
# Q1. Arrays

- What is an array?
- Why create an array?
- Can an object be in more than one array?



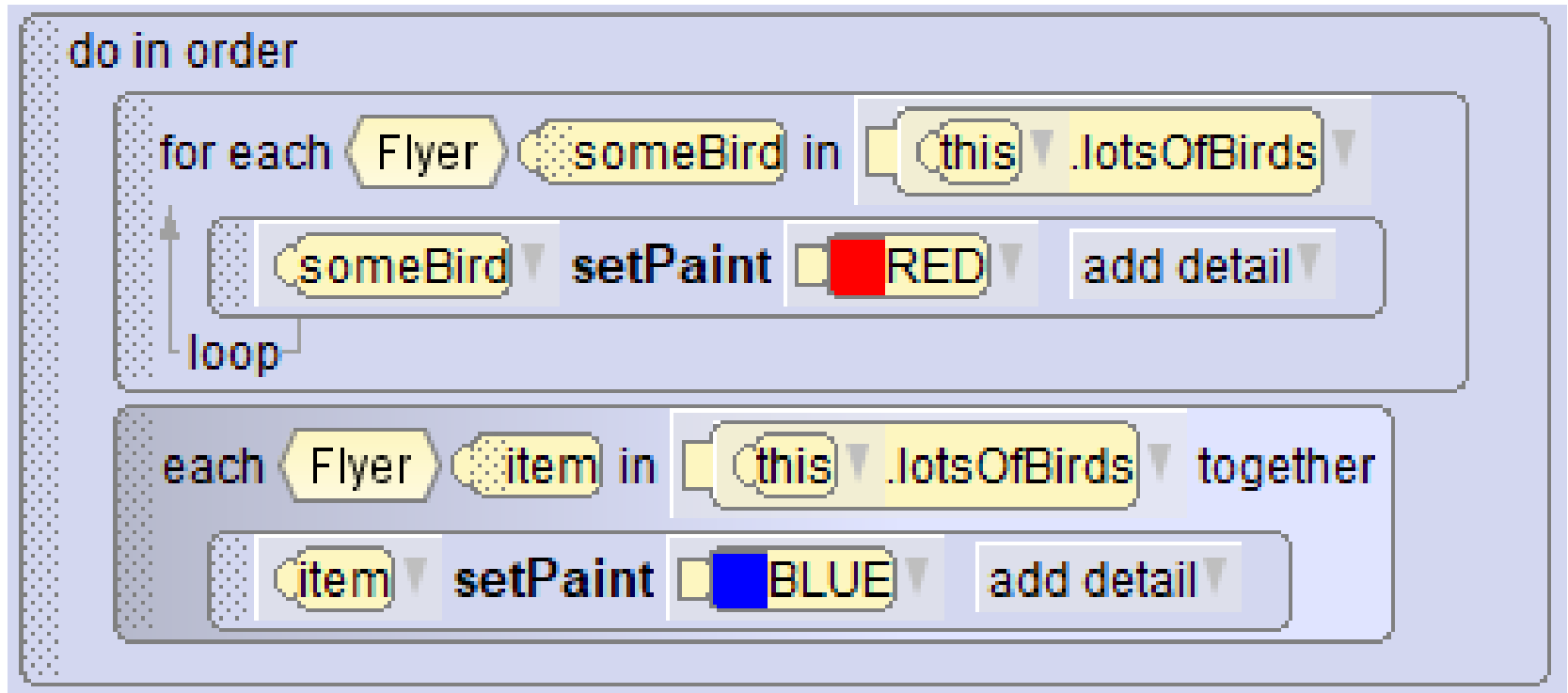
## Q2. What is the order the birds do something here?

**lotsOfBirds** ← `new Flyer[] { this.phoenix, this.chicken, this.flamingo, this.penguin, this.ostrich }`



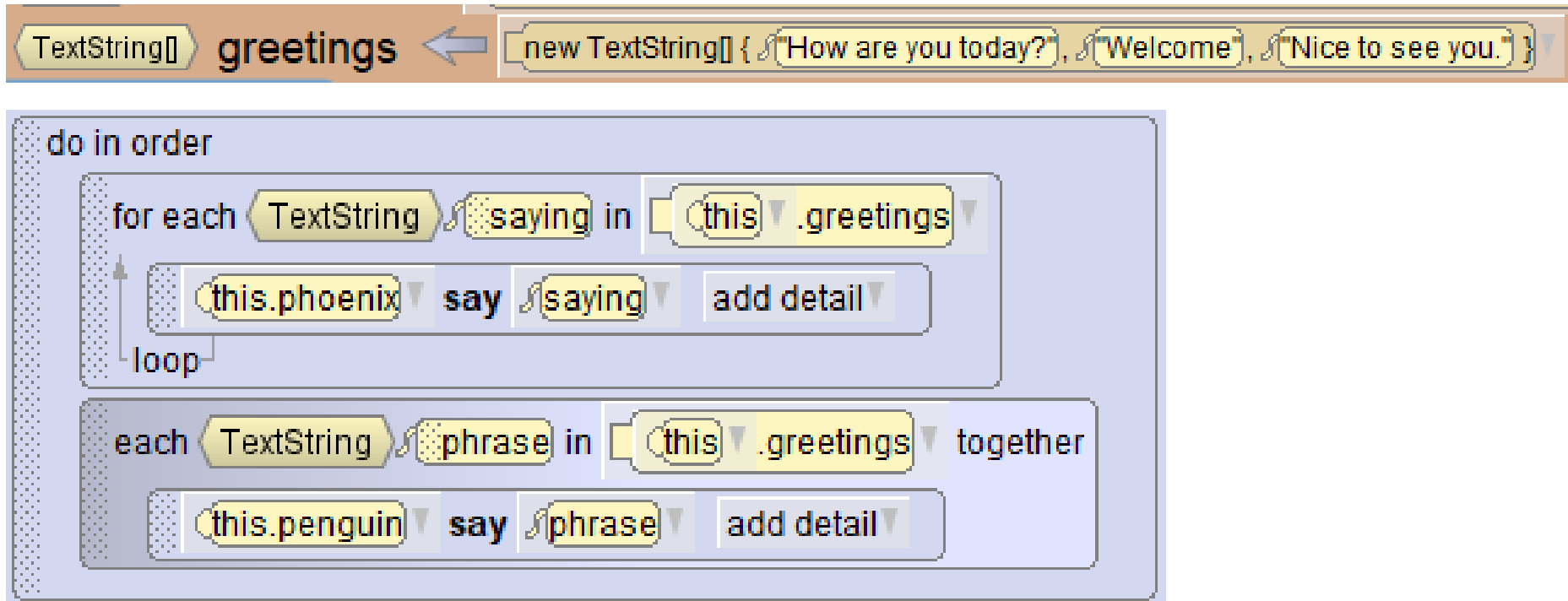


# Q3. What does this code do?



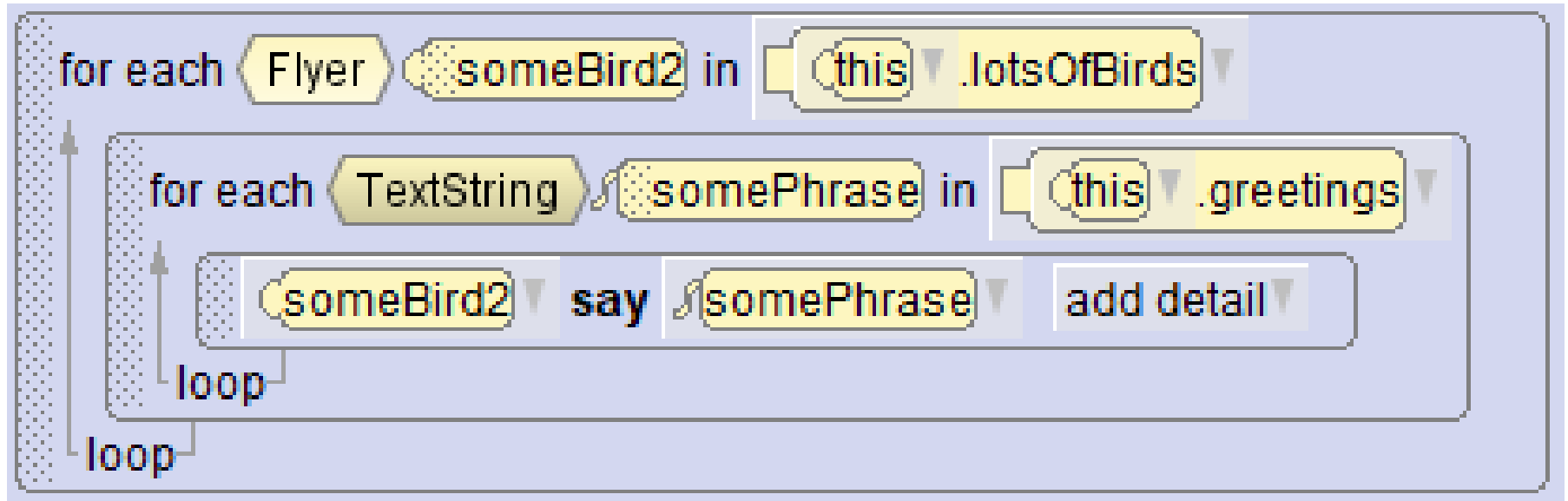


# Q4. What does this code do?



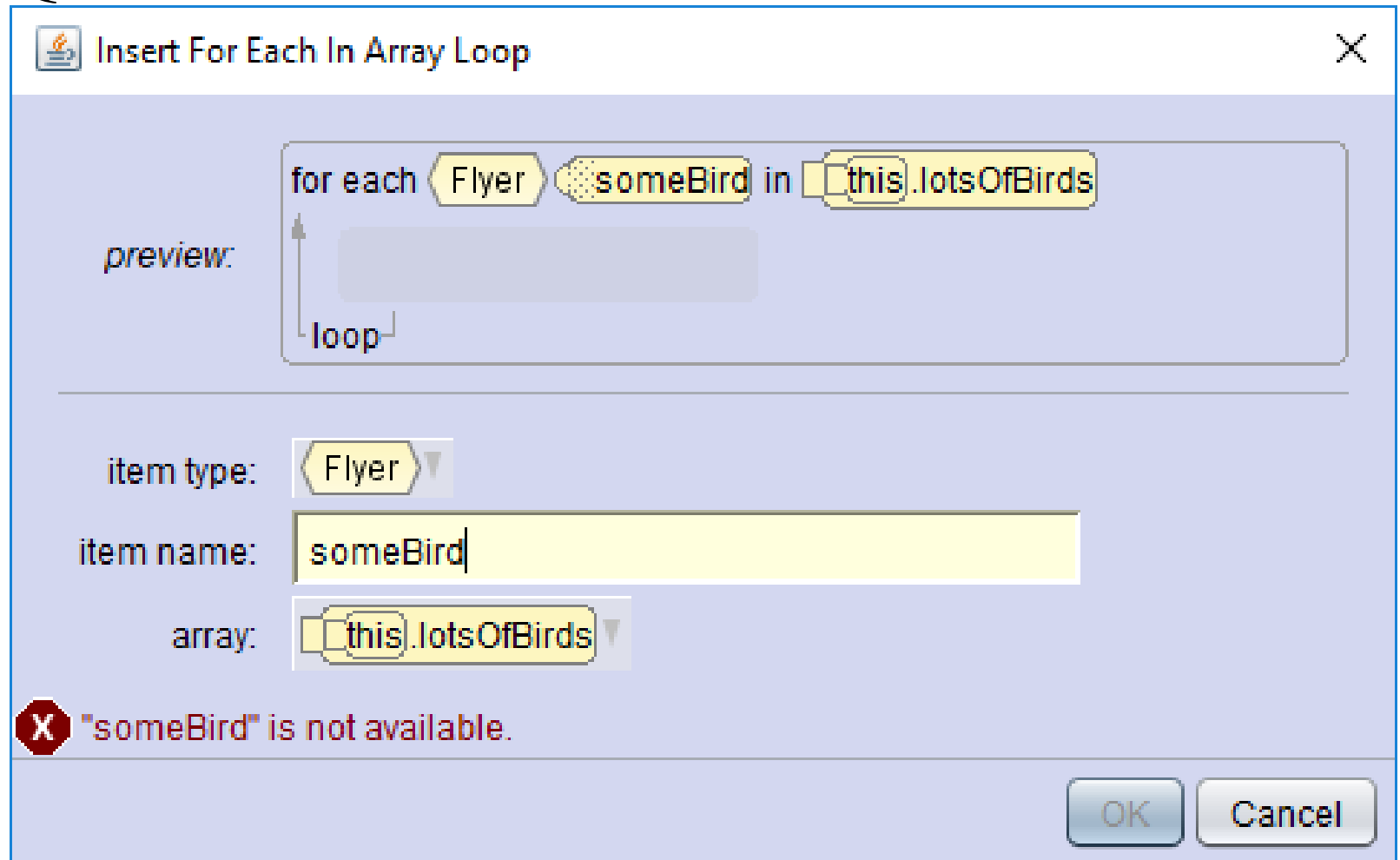


# Q5. What does this code do?





# Q6. What does this error mean?





# BE CAREFUL!

- When naming loop variable
- Don't CUT and PASTE ARRAY LOOP code