Random Numbers, Making Decisions with If statements

February 7, 2019

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Constant Variable

• What is a constant variable?

• How do you create a constant variable in Alice?

• How do you use a constant variable?
Constant Variable

• What is a constant variable?
  – Storage location
  – Can only store one value there

• How do you create a constant variable in Alice?
  – Drag in variable tile
  – Be sure to select constant
  – Give it a type and initial value

• How do you use a constant variable?
  – Use it in place of anything of the same type
Random Numbers

• What is a random number?

• In Alice, how does one get a random number in an instruction?

• Give examples of numbers in this range?
Random Numbers

• What is a random number?
  – Some number from a range of numbers

• In Alice, how does one get a random number in an instruction?
  – Put in a number first, then can select “random”

• Give examples of numbers in this range?
  – 0.5, 0.79, 1.3, 1.98
Random Integers

• How many different integers are a possibility with this statement?

![Code snippet](constant WholeNumber = someNumber ← nextRandomIntegerFromAUpToButExcludingB 2, 5)
Random Integers

• How many different integers are a possibility with this statement?
  – 3 possible numbers. They are: 2, 3, 4
  – Note this says …UpToButExcluding
If statements

• What types can you compare in an if statement?
If statements

• What types can you compare in an if statement?
  – Numbers
  – Directions
  – Paints
  – TextStrings
  – Objects
  – etc
Panda distanceTo

• What does this code do when it executes?

If the panda is more than two units from the bunny, the panda moves two units towards the bunny. Otherwise, the panda says "I'm here".

If the panda is 3 units from the bunny, can both the panda move and say "I'm here" happen?

NO! only one.
Panda distanceTo

• What does this code do when it executes?

- If the panda is more than two units from the bunny, the panda moves two units towards the bunny
- Otherwise the panda says “I’m here”

• If the panda is 3 units from the bunny, can both the panda move and say “I’m here” happen?
• NO! only one happens
Panda distanceTo

• How does one create this code?

```plaintext
if this.panda.getDistanceTo(this.bunny) > 2.0
    this.panda.moveToward(this.bunny, 2.0)
else
    this.panda.say("I'm here")
```
Panda distanceTo

• How does one create this code?

– First drag in an IF tile and select True
– Then click on True and select *decimal number compare with greater than*
– Select numbers 1.0 and 2.0
– Replace the 1.0 by dragging the function over it
Making decisions - If statement

• What happens when this code runs?
Making decisions - If statement

• What happens when this code runs?

– Panda turns red and then panda turns blue
Announcements

• Exam 1 is Feb 19
• Assignment 4 due Feb. 12
• RQ 9 due Feb 12
Class Today

• Working with random numbers and making decisions