Random Numbers, Making Decisions with If statements
February 7, 2019

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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?
  – 3 possible numbers. They are: 2, 3, 4
  – Note this says …UpToButExcluding

If statements

• What types can you compare in an if statement?
  – Numbers
  – Directions
  – Paints
  – Text Strings
  – Objects
  – etc.
If statements

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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”

• How does one create this code?
  – First drag in an IF tile and select True
  – Then click on True and select decimal number
  – Select numbers 1.0 and 2.0
  – Replace the 1.0 by dragging the function over it

• 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 distanceTo (this.bunny) > 2.0) is true then
   this.panda moveToward (this.bunny), 2.0
else
   this.panda say "I'm here"
```

– 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?

– Panda turns red and then panda turns blue

Making decisions - If statement

• What happens when this code runs?

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