Constant Variable

- What is a constant variable?
- How do you create a constant variable in Alice?
- How do you use a constant variable?

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
  – Don’t know which number until it is generated
• 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?
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 getDistanceTo(bunny) > 2.0
    moveToward(bunny, 2.0)
  else
    say("I'm here")
  ```

- 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.
Create line w/ Panda distanceTo

• How does one create **first line** of this code?

```
if (this panda getDistanceTo (this bunny) > 2.0) is true then
    this.panda moveToward (this bunny), -2.0, add detail
else
    this.panda say ("I'm here"), add detail
```

– 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?

```
if (this panda getPoint ≠ [RED]) is true then
    this.panda setPoint [RED], add detail
else
    this.panda setPoint [BLUE], add detail
```

– Panda turns red and then panda turns blue
What happens when this If executes?

if (this.bunny) isBehind (this.panda) add detail is true then
  this.bunny turn RIGHT, 0.5, asSeenBy this.panda
else
  this.panda turn RIGHT, 0.5, asSeenBy this.bunny

Execute a copy of the if again?

if (this.bunny) isBehind (this.panda) add detail is true then
  this.bunny turn RIGHT, 0.5, asSeenBy this.panda
else
  this.panda turn RIGHT, 0.5, asSeenBy this.bunny
Execute a third copy of the if?

Announcements

• Exam 1 is Oct 10
• Assignment 3 due in one week
  – Have you started yet?
• QZ9 due Sept 26 – 8:30am

Class Today

• Working with random numbers and making decisions