CompSci 94
Making Decisions with If statements
September 30, 2021

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Announcements

• Assignment 3 due tonight!
  – Don’t forget the reflect form

• Videos and QZ10 due Thursday, Oct 7 when class starts

• Don’t get behind, be sure to check your grades on Sakai for Classwork
If statements

• What types can you compare in an if statement?

![Diagram of an if statement with 'if true' followed by 'else' and two 'drop statement here' placeholders.](image-url)
If statements

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

```plaintext
Relational (DecimalNumber) { ==, !=, <, <=, >=, > }
Relational (WholeNumber) { ==, !=, <, <=, >=, > }
Relational (SThing) { ==, != }  
Relational (MoveDirection) { ==, != }
Relational (TurnDirection) { ==, != }
Relational (RollDirection) { ==, != }
Relational (Key) { ==, != }
Relational (Color) { ==, != }
Relational (Paint) { ==, != }
TextString Comparison
```
Q1 Panda distanceTo

• What does this code do when it executes?

```
if this.panda.getDistanceTo(this.bunny) > 2.0 is true then
    this.panda.moveToward(this.bunny, 2.0)
else
    this.panda.say("I'm here")
```
Q1 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
Q2. Create line w/ Panda distanceTo

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

```plaintext
define distance
  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
```
Q2 Create line w/ Panda distanceTo

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

- First drag in an IF tile and select True
- Then click on True and select *decimal number compare with greater than*

[Diagram of code structure]

- Relational (DecimalNumber) \{ ==, !=, <, <=, >=, > \}
- Relational (WholeNumber) \{ ==, !=, <, <=, >=, > \}
- Relational (SThing) \{ ==, != \}
- Relational (MoveDirection) \{ ==, != \}
- Relational (TurnDirection) \{ ==, != \}
Q2 Create line w/ Panda distanceTo

- How does one create **first line** of 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
Q3 Making decisions - If statement

- What happens when this code runs?
Q3 Making decisions - If statement

- What happens when this code runs?

– Panda turns red and then panda turns blue
Q4 What happens when this If executes?

```plaintext
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
```
Q4 What happens when this If executes?

```plaintext
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
```
Q5 Execute a copy of the if again?
(execute the same code a second time)
Q5 Execute a copy of the if again?

```plaintext
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
```
Q6 Execute a third copy of the if?

```plaintext
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
```
Q6 Execute a third copy of the if?

```plaintext
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
```
Class Today

• Working with making decisions