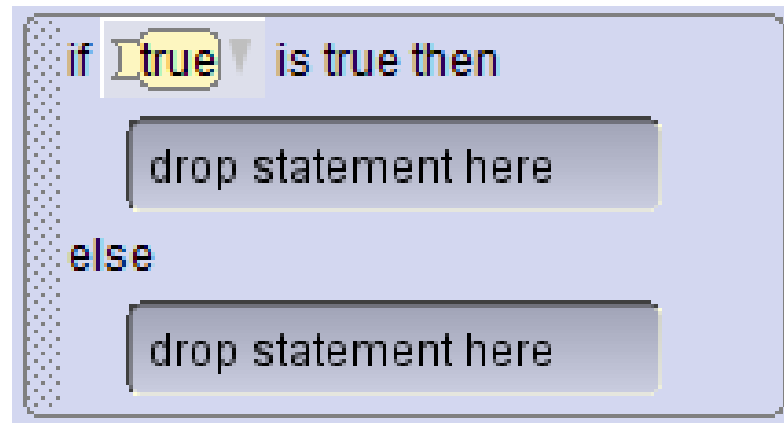


CompSci 94

Making Decisions with If statements

October 6, 2022



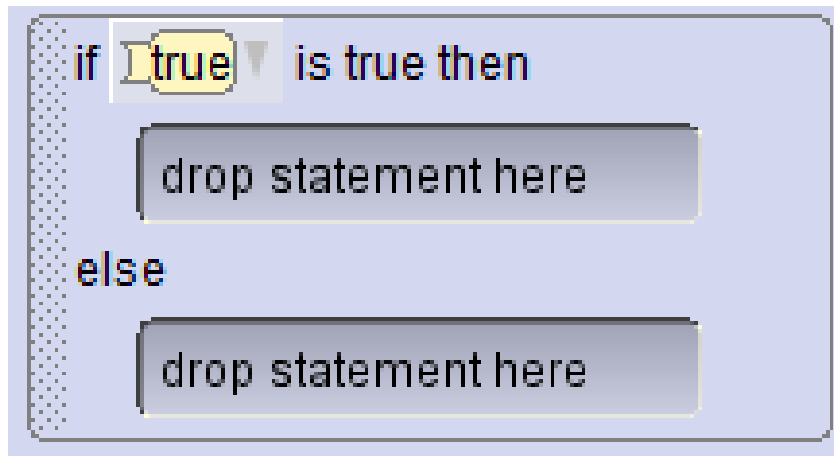
Prof. Susan Rodger

Announcements

- Assignment 3 due Oct 18!
 - Don't forget the reflect form
- Videos and QZ10 due Thursday, Oct 13 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?



If statements

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

Relational (DecimalNumber) { ==, !=, <, <=, >=, > } ▶

Relational (WholeNumber) { ==, !=, <, <=, >=, > } ▶

Relational (SThing) { ==, != } ▶

Relational (MoveDirection) { ==, != } ▶

Relational (TurnDirection) { ==, != } ▶

Relational (RollDirection) { ==, != } ▶

Relational (Key) { ==, != } ▶

Relational (Color) { ==, != } ▶

Relational (Paint) { ==, != } ▶

TextString Comparison ▶

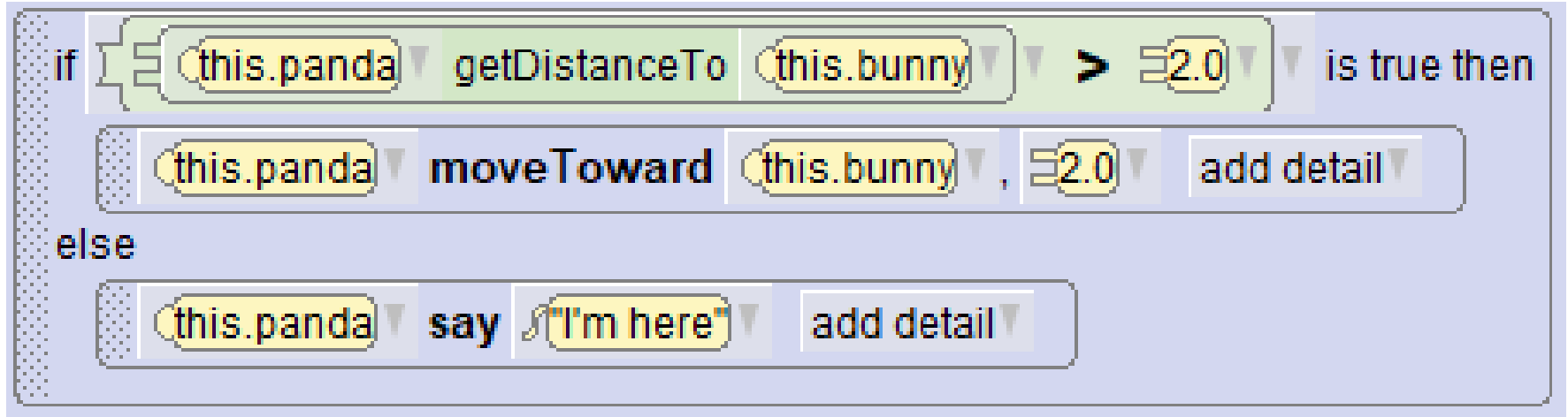
Q1 Panda distanceTo

- What does this code do when it executes?

The image shows a Scratch script for a panda object. The script is contained within a light blue rounded rectangle. It starts with an 'if' block. The condition of the 'if' block is: 'this.panda' (object) 'getDistanceTo' (method) 'this.bunny' (object) '>' (operator) '2.0' (value). To the right of the condition is the text 'is true then'. Below the 'if' block is a 'then' block containing: 'this.panda' (object) 'moveToward' (method) 'this.bunny' (object), '2.0' (value), and 'add detail' (action). Below the 'then' block is an 'else' block containing: 'this.panda' (object) 'say' (method) 'I'm here' (text) and 'add detail' (action).

Q2. Create line w/ Panda distanceTo

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



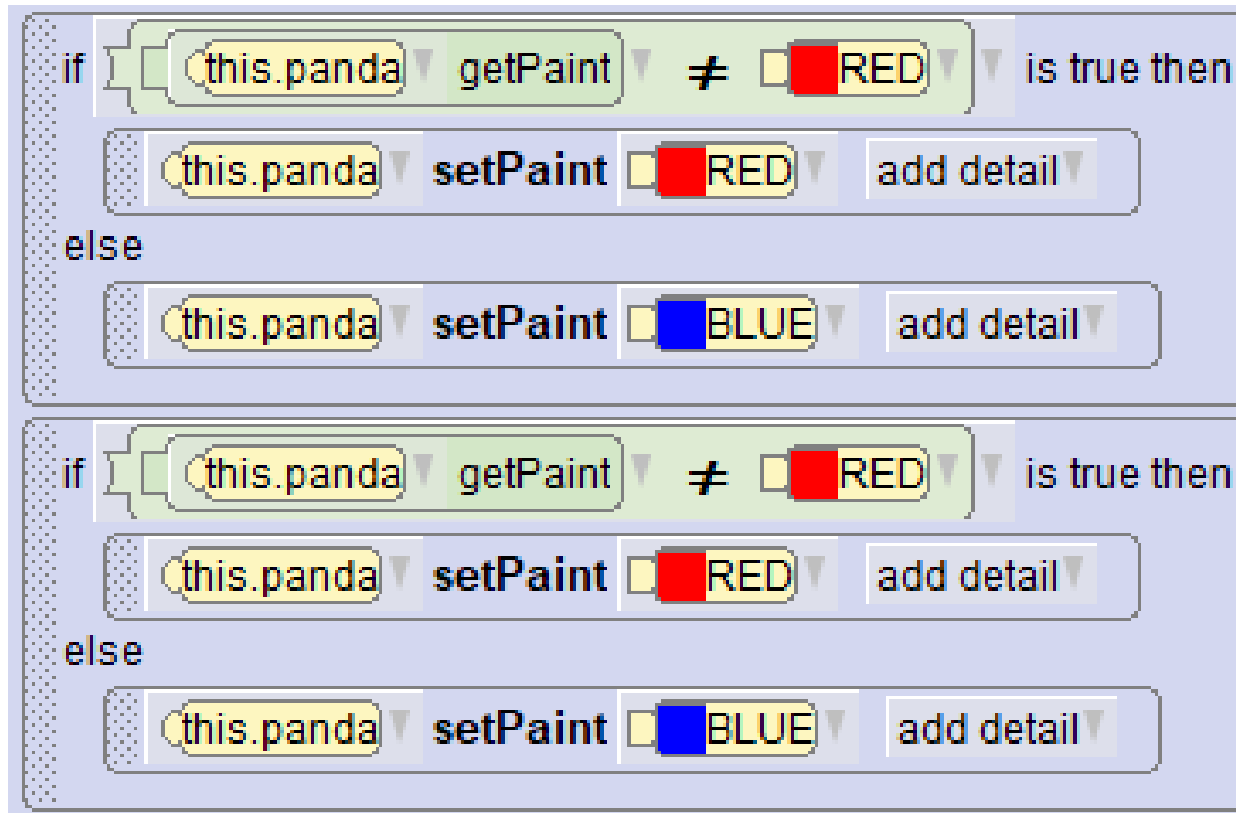
The image shows a Scratch code editor with the following blocks:

```
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
```

The first line of the code is highlighted in green, indicating it is the focus of the question.

Q3 Making decisions - If statement

- What happens when this code runs?



The image shows two identical Scratch code blocks for an if-else statement. Each block starts with an 'if' block containing the condition 'this.panda.getPaint() ≠ RED'. If this condition is true, the 'then' branch contains a 'setPaint RED' block followed by an 'add detail' block. If the condition is false, the 'else' branch contains a 'setPaint BLUE' block followed by an 'add detail' block.



Q4 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
```



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

The image shows a Scratch code editor with an if-then-else block. The 'if' block contains the condition 'this.bunny isBehind this.panda add detail is true then'. The 'then' block contains the code 'this.bunny turn RIGHT, 0.5, asSeenBy this.panda'. The 'else' block contains the code 'this.panda turn RIGHT, 0.5, asSeenBy this.bunny'.

```
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?

The image shows a Scratch code editor with the following blocks:

- if** block: `this.bunny` isBehind `this.panda` add detail is true then
- then** block: `this.bunny` turn `RIGHT` `0.5` degrees, asSeenBy `this.panda`
- else** block: `this.panda` turn `RIGHT` `0.5` degrees, asSeenBy `this.bunny`

Class Today

- Working with making decisions

