CompSci 94
More Events
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CompSci 94 Spring 2018
Class Today

• More types of events
  – Model manipulation
  – pointOfViewChanged

• Guarding events

• Counters
Setup for Lecture today

• Put in the objects:
  – Biped: Panda, whiteRabbit
  – Automobile: Hatchback, Sportscar
  – Shapes/Text: TextModel – name it counter
Event: DefaultModelManipulation

• Allows you to click on any object and move it
  – Click on it and drag it
  – Click with Shift key – move up and down
  – Click with Control (or CTRL) – turn an object
Try it! – objects moved and turned
Event: pointOfViewChanged

- Pick a character and events can happen based on this character's location changed.
Event: PointOfViewChanged (cont)

• I picked Panda
Whenever panda close to whiteRabbit

• Whenever the panda is close to the white rabbit, the white rabbit should tell him
• The event is with respect to the panda

• Move whiteRabbit? Move Panda?
Event Corresponds to Panda

- When you move the whiteRabbit close to Panda, nothing happens.
- When you move the Panda close to the whiteRabbit, something does happen!
Counter

• Want the Panda to count the cars by getting close to each car

• We need a 3D text to display the count. This is a 3D text showing a “String” as a 3D model. Note you cannot add a number to a string.

• We will also need a number property to add to and then redisplay the new number
Create the 3D text counter

- 3D text counter
  - it's an object
  - Has a text field
  - set it to “0”
- Note cannot add a number to a string
- “0” + 1 doesn’t compute!

- Make it darker, I painted it Blue
Need to add a Number property to the 3D counter

- Under `textModel` add a property
Under textmodel add 2 procedures

• setupCounter
  – What things do we need to do?

• updateCounter
  – What things do we need to do to update the counter?
Code for setupCounter and updateCounter

declare procedure setupCounter

do in order

// Turn on counter

declare procedure updateCounter

do in order

// update the number

// update the 3D text with new number

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Interactive Story: Counting Cars

• Want the Panda to first come close to the whiteRabbit who will tell him to count the cars by touching them. At this point we show the counter.
• The panda visits the cars and counts the two cars.
• Then the panda visits the whiteRabbit and this time he says “well done”
First update eventListener

- Have rabbit tell panda to count and initialize the counter
Create new `pointOfViewChangeListener` for panda

- Count a car when the panda is close to it
Run your program

- Have the panda get close to whiteRabbit, more than once, what happens?
- Have the panda get close to the cars, what happens? How many cars are there?

Can you count the cars? Count them by touching them.
We need to **guard the events** so they only happen once, or when we want them to

- We only want the rabbit to tell the panda once to count the cars!
- We only want to count a car once!
- We need to make something happen the first time both of these occur, and then check for that later…. 
Guard getting close to whiteRabbit

• First set the 3D text to “hello”, then change it the first time the panda is close to the whiteRabbit.

• Change it to “0” in setupCounter
Guard getting close to whiteRabbit

- Check to see if contents are hello
- Change it to “0” in setupCounter
- This event can only happen once!
Guard getting close to cars

- Change something the first time panda is close to them so you can check it.
- Change the opacity of the car by 10% or more – I decided to set to 0% so invisible
Guard for the whiteRabbit to just say “great job” once

- Add two conditions, now it can only happen once
This lecture covered

• Two new types of events:
  – ModelManipulation
  – pointOfViewChanged

• How to guard an event so it only happens once, or when you want it to

• Counter that displays its count