CompSci 94
Classwork: A Simple Game
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The Game

• The panda tells us to pick up the three diamonds to stop the bunny from hopping.
• The bunny then starts randomly hopping up and down (The bunny is just moving up and down, a random height each time).
• Click and move the panda close to each diamond and pick it up (move the diamond to the Panda’s hand when close to it).
The Game

• Display a count of how many diamonds have been picked up, as the panda picks them up.

• Once all three diamonds have been picked up, the panda says Great Job! And the bunny stops hopping.

• Think about how you would build this world before looking at the hints. Which objects? Which events? Which procedures? What will be your game control?
1) Setting up the scene

• Add in any ground cover, I used sand
• Drag in these objects:
  – Biped: panda, bunny
  – Props: diamond (put three of them in)
  – Shapes/Text – Textmodel (used to display counter)
• See next slide on where to place them
Placement of objects

- Bunny is on the right, Panda on the left.
- 3D text is in the sky.
- The three diamonds are all near the front.
The story in pictures

- First panda speaks and counter set to 0
Move panda close to each diamond to pick up

- Notice bunny is randomly hopping straight up and down
Game over

- Panda has all the diamonds, bunny stopped jumping!
Hints: The Counter

• Counter
  – You need a number (create it as a textModel property) to go with your textModel
  – Create TextModel procedure for setupCounter
    • Initialize both the number property to 0 and the TextModel to show the 0 as the word “0”
  – Create TextModel procedure for updateCounter
    • Add one to the number
    • Display the value of the number as a string
Hint – Procedure Bunny Jump

• Bunny Jump procedure
  – The bunny should jump up some random amount
  – The bunny should move back down the SAME amount
  – Generate ONE random number and use its value twice – How? create a variable first that has the random number
  – There is NO WHILE and NO IF in here, just have the bunny jump once
Hint - MyFirstMethod

• MyFirstMethod starts when you click run, so put the starting part in here.

• MyfirstMethod should start the story with:
  – Setup your counter
  – Panda will talk and tell you what to do
  – Bunny starts jumping and keeps jumping until all the diamonds are picked up

  • Hint: while (some condition that means the diamonds are not all picked up), keep jumping

  • What do you know becomes true when all the diamonds are picked up?
  • Bunny stops jumping and Panda says “Great job!”
Hint – How to move the Panda

• There are two ways you could move the Panda
  – AddDefaultModeManipulation
    • This is probably easier, you can click on the Panda to move it – recommend you do it this way
  – Use the four arrow keys
    • This is clunkier movement
Hint: Picking Up Diamonds

• What are the things you need to do when you pick up a diamond?
  – Move it to the panda’s hand
  – Glue it to the panda’s hand
  – DON’T update the counter, do it in the event later
  – Fix your guard (such as change the opacity of the diamond)
  – HINT: Write a panda pickup procedure to pick up ONE item which is a parameter.
Hint: Picking Up Diamonds (2)

• Need an event for each diamond or One event that has an if statement for each diamond

• What type of event? Since the panda is moving and we want to know when it is close to a diamond – use the pointOfViewChanged Listener/Event

• If the panda is “close to” diamond then pick it up and update the counter, and display the counter (Hint: use pickup procedure! And call updateCounter)
Hint: Picking Up Diamonds (3)

- NOTE: after picking up the diamond it is still “close to” the panda. This event listener executes every time the panda moves to see if the diamond is “close to” it. So your counter might still be updating!!!! Getting large!

- You will need to “Guard” the if in some way so that the if will only be true once. (so the diamond is picked up once and the counter is updated ONLY once.)

- If the panda is “close to” diamond AND something else is true then do the update
Hint: Picking Up Diamonds (3)

• The *something else* you need to make false after you pick up the diamond.

• For example, you could change the opacity of the diamond slightly, to 0.9 when you pick it up and the *something else* could be to check if the opacity is > .91. Then the if condition will only be true one time.

• There are other guards you could use – variables that change values.

• You will need separate if’s for the other two diamonds