Announcements

- Next time Demos and review
- Be A UTA for CPS 4 – Fall 2005
- Research study – id number emailed to you this week

Final Exam

- Alice book Chaps 1-2, 4-10
- Mix of MC, short answer, write code for a function or method
- No html on final
- Closed book, closed notes
- Will give you a list of properties, methods and functions for an object

Final Exam – Time, Date

- Final exam is Saturday, May 7, 2-5pm
- Alternate exam times (must sign up)
  - Monday, May 2, 2-5pm
  - Wednesday, May 4, 2-5pm
What we will do today

- Lecture on Chap 10, Sec 2
  - Arrays, an ordered list
  - ArrayVisualization
- Classwork

What is an array?

- An array is a collection of objects or information organized in a specific order
- The individual components (elements) are of the same type (all object or all number, etc.)
- Analogy – Music CD
  - Collection of songs listed in order
  - CD player allows you to
    - Play songs in order
    - Play songs by specifying its number
    - Play songs in random order

Arrays in Alice

- In Alice, array is a data structure to organize objects or information
- An array is not visible, it is a way of organizing
- But….
  - Alice has a 3D model to help you “see” the array

Example – Create a visualization of an array of people

- Add 5 people to the world
- Add an array visualization
- Not an array yet, must add people to the array

- Positions in array numbered starting with 0
Initialize array - Add Alice to Array in position 0

- Alice automatically moves to the 0 position!

Add Soldier to the Array

- Soldier moves automatically to position 1 (which is the 2cd position)!

Add RandomGuy, Skater and Rockette

- The array initialization is complete!

- Set isVisible for arrayVisualization to false
  - Array not seen

Setting elements in array

- Objects in an array are called **elements**

- Use “let” to set a position in an array

- Using “let”.
Accessing elements in an array

• Can specify an element at a particular location in the array

Repeat for all items in the array – in order

• Use “loop” – complicated version
• Note: index in loop is used in body
• What does this do?

Array vs. List

• Array
  – Elements are ordered
  – Can access a particular element – 3
  – Use “Loop” - loop over elements – one at a time, OR every second element, etc

• List
  – Elements are not ordered
  – Use “For all in order”, “For all together” – does something to each element in the list – just don’t know the order this occurs

Classwork today – Sorting animals

• Fix setup – add one line

world.setup No parameters

// setup all tennis balls to face the camera

No variables

// for all world positions, every (sp) item_from_positions together

For all world_positions, every: item_from_positions together

item_from_positions turn to face camera more...

item_from_positions turn left 0.5 revolutions more...

• Now tennisball6 is to the right of tennisball
Classwork (cont)

• AnyBallToRight obj Ball
  – Use “For all in order”
  – Compare Ball to each ball in the list
  – Ball and ball comparing to must both be yellow (active)
  – If there is any ball to the right of Ball return true
  – Return false at the end, only checking all balls in the list.

Classwork (cont)

• rightMostBall
  – Use “For all in order”
    – Check each ball in the list. If there is a ball that does not have any ball to the right of it, then return that ball.
    – There is only one active ball that does not have an active ball to the right of it.