CompSci 4
Chap 2 Sec 2
Jan 22, 2009

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Announcements

• Skip Chapter 3
• Read Chapter 4, Section 1
• Reading Quiz due next time
  – RQ 1-4 turns off 8:30am Tuesday
• Assignment 3 out
  – Storyboard due next Tues
  – World due next Thurs
    • Turn in on Blackboard and write web page
Last Time

• Began the animation process
  – Storyboards

• We will continue using the alien example from last time

• Show alien animation

• Today, we will implement the story
Step 2: Implementation

• Implementing an animation requires
  – Setting up the initial scene in Alice
  – Writing the Program (script)
Create the Initial Scene
Techniques and Tools

• Mouse used to
  – Setup the initial scene
  – Approximately position objects in the scene
  – Resize objects (helps to find tiny objects)

• Camera Navigation is used to
  – Set the camera point of view
  – Always create DummyCamera object of original BEFORE moving the camera

• Scene Editor’s Quad View
  – Position one object relative to another object
Writing a Program

• “Writing” a program (script)
  – A list of instructions to have the objects perform certain actions in the animation

• Our planned storyboard (todo list) is
  Alien appears and talks.
  Robot turns to face alien, moves forward
  Alien drops down out of sight.
  Robot faces camera, turns red and says “we have a problem”

• Now translate design steps to program instructions
Translating the Design

• Some steps in the storyboard can be written as a single instruction
  – robot turns to face alien
  
  ```
  robot turn to face alienOnWheels more...
  ```

• Other steps are composite actions that require more than one instruction
  – Alien appears and speaks
    • Alien moves up above the rock
    • Alien says something
  
  ```
  alienOnWheels move up 1 meter more...

  alienOnWheels say Slithy toves? more...
  ```
Actions

• Sequential
  – Some actions occur one after the other
    • First: aliens moves up above the rock
    • Second: alien says something

• Simultaneous
  – Some actions occur at the same time
    • Robot moves forward while some of its legs move
Action blocks in Alice

sequential

simultaneous
Coding the robot program

- Things to note:
  - Nesting of DoTogether and DoInOrder blocks
  - Arguments for the move instruction – direction, distance
Testing

• Important step in creating a program – run it to be sure it does what you expect it to do

• Recommend you use **incremental development**
  – Write a few lines of code and then run it
  – Write a few more lines and run it
  – Write a few more lines and run it

• This process allows you to find any problems and fix them as you go
Comments

• While Alice instructions are easy to understand, it is often desirable to be able to explain (in words) what is going on in a program.

• Use comments to explain to the human reader what a particular section of code does.
Comments use `//`

- Comments appear in green
- Alice ignores comments when program runs
- Comments make the program easier to read
Comments (cont)

- Comments can describe a large block of program code
- Comments can describe a small subsection of program code

- Show movement.a2w world
- Classwork
Classwork today

• Lecture on Chap 2, Sec 2

• Classwork
  – Create three worlds
    • Snowman, Snowwomen
    • Movement – Monkey, ball, Chicken, horse and helicopter
    • Fish and island

• Get checked off