CompSci 94
Review for Exam 2
April 5, 2018

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Class Today

• Review for Exam 2 – on April 10
• Questions on Assignment 6

• Classworks 1-18 must be checked off by April 12
Events 1

```
declare procedure sceneActivated

do in order
    this myFirstMethod
```

```
declare procedure timeElapsed

do in order
    drop statement here
```

```
declare procedure keyPressed

do in order
    if event isKey $ is true then
        drop statement here
    else
        drop statement here
```

Events 2
Events – when does it start, how does it work?

- sceneActivated
- addTimeListener
- keyPressed
Events – when does it start, how does it work?

- **sceneActivated**
  - Starts when the world starts and executes all the code in it and then stops

- **addTimeListener**
  - Specify a time, such as 1.0 and then the event executes over and over, every 1.0 secs

- **keyPressed**
  - Every time you press the particular key, the event starts executing
Events – when does it start, how does it work? (part 2)

• addObjectMoverFor

• addMouseClickOnObjectListener

• addDefaultModelManipulation
Events – when does it start, how does it work? (part 2)

• **addObjectMoverFor**
  – Must specify one item that the user can now move with the four arrow keys

• **addMouseClickOnObjectListener**
  – Specify an array of objects that you can click on, then the variable `getModelAtMouseLocation` is the object you clicked on

• **addDefaultModelManipulation**
  – Then you can click and hold on any object and move it
Events – when does it start, how does it work? (part 3)

- `addPointOfViewChangeListener`
- `addCollisionStartListener`
Events – when does it start, how does it work? (part 3)

• addPointOfViewChangeListener
  – Must specify one item. Whenever that item moves, the event starts.

• addCollisionStartListener
  – Specify two arrays, then whenever one item from one array collides with one item from the other array, then the event starts
  – Uses the variables: $getSthingFromSetA$, an object from the first array, and $getSthingFromSetB$, an object from the second array, such that these are the two objects that collided.
Billboard and counter

- Add a billboard of instructions
- A counter
Billboard and counter

• Add a billboard of instructions

• A counter
  – Need a number variable and a 3D text object
  – Update the number, then display it in the 3D text
  – Write procedures
    • initializeCounter, updateCounter
A Countdown Timer
A Countdown Timer

• Need a number and 3D text object
• Update the number by subtracting and then update the 3D text to display it
• Write Procedures:
  – InitializeTimer, UpdateTimer
• Need an addTimeListener Event
  – Will update every specified time unit
If statements

• When do you guard an if statement?

• How do you guard an if statement?
If statements

• When do you guard an if statement?
  – In an event that starts a lot, so it will only be true at certain times

• How do you guard an if statement?
Looping structures - when and how to use each one

- Count loop

- While loop

- For each in

- Each in together
Looping structures - when and how to use each one

• Count loop
  – When you know exactly how many times the loop will execute, like 4 times

• While loop
  – When the loop stops based on a condition

• For each in
  – Use with an array, to get each item in the array to do something one at a time

• Each in together
  – Use with an array, for each item at the same time to do something
Randomness

• How do you generate a random number?

• How do you store a random number?

• How do you use a random number?
Randomness

• How do you generate a random number?
  – When you use numbers there is an option for random to choose a “random” number from a specified range

• How do you store a random number?
  – Store it in a variable

• How do you use a random number?
  – Access the stored value in the variable
Arrays

• How do you create an array?

• Where should you create an array?

• How do you change a value in an array?

• What is the advantage of using an array?

• How do you find the tallest element in an array?
Arrays

• How do you create an array?
  – Create a variable and check the box for array

• Where should you create an array?
  – In Scene Properties

• How do you change a value in an array?
  – You change the value at a particular index in the array to a new value.

• What is the advantage of using an array?
  – You can add more items to it, and the program should just work.

• How do you find the tallest element in an array?    See lecture March 20
Changing Scenes with a Curtain

• Setup two or more scenes
• Camera

• How to change scenes
Changing Scenes with a Curtain

• Setup two or more scenes

• Camera
  – Turn it to the right until can’t see scene 1
  – Drop camera markers for each scene

• How to change scenes
  – Drop Curtain down
  – Glue curtain to camera
  – Have camera turn and orient To second camera marker
  – Change ground color/texture
  – Raise curtain
How to study for the exam

• Practice problem solving
• Redo a classwork, or a procedure or function for a classwork
• Try redoing something from a lecture
• Reading in book
• Understand topics – reread over lecture notes
• Look at old tests but think – how would I do this in Alice 3