Class Today

- Review for Exam 2 – Exam is Thursday
- Questions on Assignment 6
- Classworks 15-20 must be checked off by November 29
- Look at Exam 2 Spring 2018
  – Lot of reading code, some writing code
Events – when does it start, how does it work?

- sceneActivated
- addTimeListener
- keyPressed

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

- addObjectMoverFor
- addMouseClickOnObjectListener
- addDefaultModelManipulation

- 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

- 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

Billboard and counter

• Add a billboard of instructions
• A counter

Events – when does it start, how does it work? (part 3)

• addPointOfViewChangeListener
  – Must specify one or more items. Whenever any of those items move, 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
  – Need a number property and a 3D textString (object)
  – Update the number, then display it in the 3D textString
  – Write procedures
    • initializeCounter, updateCounter
A Countdown Timer

- Need a number and 3D textString (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
  - Need if, update only if game is on

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
  - When you know exactly how many times the loop will execute, like 4 times

- While loop
  - When the loop stops based on a condition
  - Use with an array, for each item at the same time to do something

Looping in Array – when and how to use each one

- 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

- Indexing loop
  - Use when you need the position of array item
  - Use with count or while loop, use array.length
  - Create index variable, initialize it and update it
Randomness

• How do you generate a random number?

• How do you store a random number?

• How do you use a random number?

• What other type of random can you create?

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?

• 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

• What other type of random can you create?
  – Random boolean

• How do you create an array?
  – Create a variable/property 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 Oct 25
Changing Scenes with a Curtain

• Setup two or more scenes
• Camera

• How to change scenes

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