

CompSci 94

A game with two levels

November 12, 2024



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CompSci 94 Fall 2024

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Announcements

- Assignment 6 (Final project) is out – see deadlines on Assignment page
- TODAY, Nov 12: deadline to request an assigned partner
- Added 4th free extension!
- Exam 3 is Nov 19
 - See exam 3 study materials on Nov 19 date on our calendar page
 - Some review today, some next time

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Exam 3 Logistics

- Exam 3 is on Tuesday, Nov 19
- Covers topics through Thursday, Nov 14 lecture
- Old tests are on the calendar web page
- Exam 3 is on paper
- See Exam 3 reference sheet – part of the exam
- Exam 3 is your own work
- Bring only a pen or pencil

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Exam 3 topics

- Topics from last time (loops, arrays, ifs, procedures, parameters, etc)
- Array index loops (see penguin classwork)
- Writing functions
- Event programming
- Changing Scenes (we do on Thursday)

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Events 1

The screenshot shows three event listener blueprints for a class 'this':

- addSceneActivationListener**: Declares a procedure **sceneActivated** with 'do in order' containing **this myFirstMethod**.
- addTimeListener**: Set to 1.0. Declares a procedure **timeElapsed** with parameter **event getTimeSinceLastFire**. The 'do in order' block contains a 'drop statement here' placeholder.
- addKeyPressListener**: Declares a procedure **keyPressed** with parameters **event isLetter**, **event isDigit**, **event getKey**, and **event isKey key:** . The 'do in order' block contains an if-else statement:
if **event isKey S** is true then
 drop statement here
else
 drop statement here

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Events 2

The screenshot shows three event listener blueprints for a class 'this':

- addMouseClickOnObjectListener**: Set of visuals includes **new Visual[] { (this.bunny, this.panda, this.panda2, this.panda3) }** and **add detail**. Declares a procedure **mouseClicked** with parameters **event getScreenDistanceFromLeft**, **event getScreenDistanceFromBottom**, and **event getModelAt**. The 'do in order' block contains an if-else statement:
if **event getModelAtMouseLocation == this.panda** is true then
 drop statement here
else
 drop statement here
- addCollisionStartListener**: Set of visuals includes **new SThing[] { (this.bunny) }** and **new SThing[] { (this.panda, this.panda2, this.panda3) }** and **add detail**. Declares a procedure **collisionStarted** with parameters **event getSThingFromSetA** and **event getSThingFromSetB**. The 'do in order' block contains a 'drop statement here' placeholder.
- addDefaultModelManipulation**: A simple block with no parameters or code.

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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 any key or the particular key, the event starts executing

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

- addMouseClickedOnObjectListener
- addCollisionStartListener

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

- addMouseClickedOnObjectListener
 - Specify an array of objects that you can click on, then the variable *getModelAtMouseLocation* is the object you clicked on
- 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: *getSthngFromSetA*, an object from the first array, and *getSthngFromSetB*, an object from the second array, such that these are the two objects that collided.

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

- defaultModelManipulation

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

- defaultModelManipulation
 - This lets you click on any object and drag it around.
 - Warning: You cannot guard this!

How do you create a Scorer (or counter)

- A scorer/counter

How do you create a Scorer (or counter)

- A scorer/counter
 - Need a 3D textModel (object)
 - Need a textModel property of type number
 - Update the number, then display it in the 3D textModel
 - Write procedures
 - initializeScore, updateScore

How do you create A Countdown Timer

How do you create A Countdown Timer

- Need 3D textModel (object)
- Need textModel property of type number
- 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

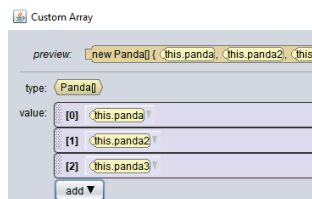
Looping in Array – when and how to use each one

- For each in
- Each in together
- Indexing loop

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Q1) Given an array of pandas, how do I create an array of objectMarkers that match the pandas in the same order



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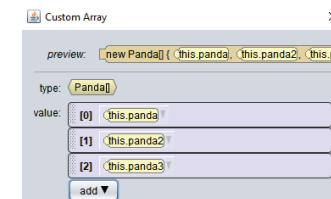
Looping in Array – when and how to use each one

- 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 when need to change item in array
 - Use with count or while loop, use array.length
 - Create index variable, initialize it and update it

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Q1) Given an array of pandas, how do I create an array of objectMarkers that match the pandas in the same order

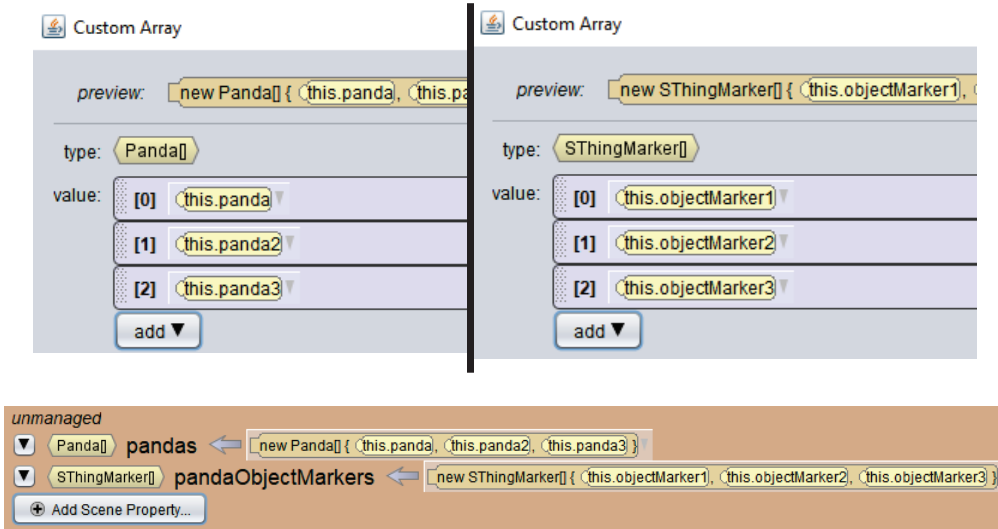


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- Click on each panda in array in order and create object marker for it.
- Then create scene property, check array, and put object markers in the same order

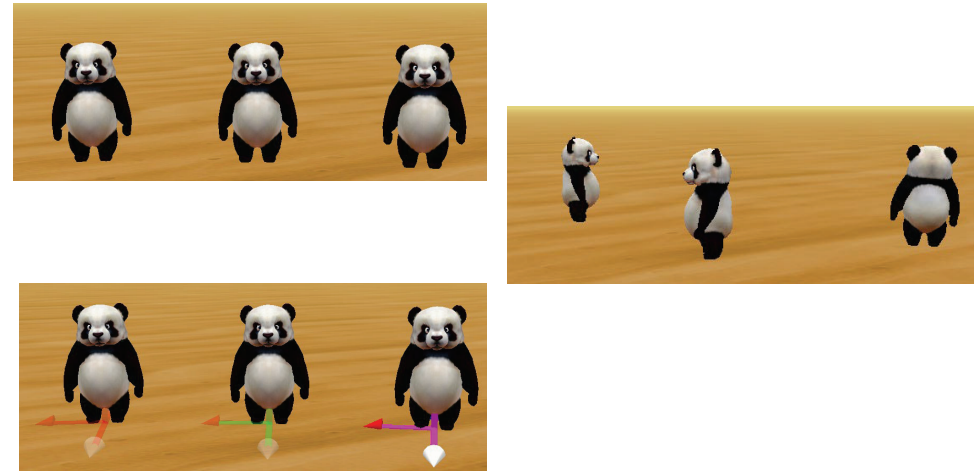
Q1) corresponding arrays



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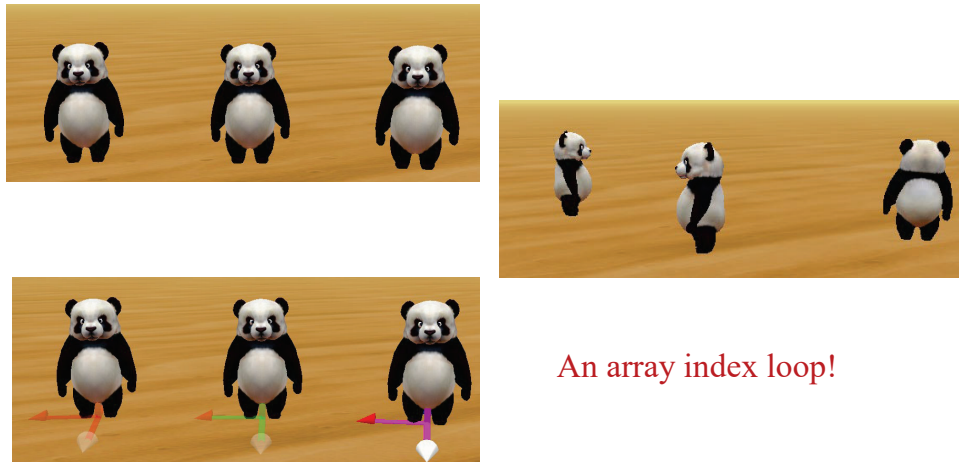
Q2) Given pandas moved, what type of loop do you use to get them all back to their objectMarkers?



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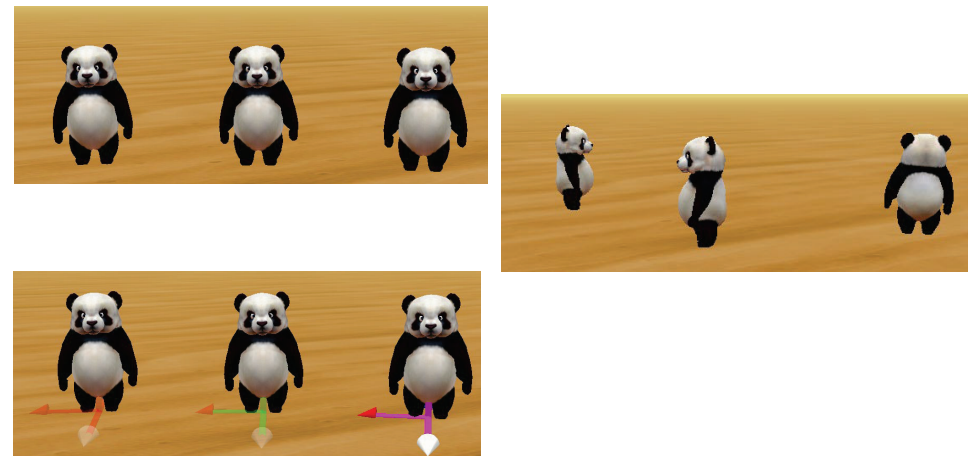


An array index loop!

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Q3) Given pandas moved, explain in words how to get them all back to their objectMarkers?



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Q3) Given pandas moved, explain in words how to get them all back to their objectMarkers?

- Use indexArray Loop
- Loop over all the pandas
 - For the current panda, have it move And Orient To the panda Object Marker that is in the indexed position
 - Update the index

Q4: If we want to play a two level game, what might be the best game flow?

Q4: Flow of game state for two level game

- Start in setup for game one
- Change to levelone – play game
- Change to setupLevelTwo
- Change to leveltwo – play game
- Change to gameover

Class Today

- Build game with two levels

