

CompSci 94

Classwork: Random Numbers

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Overview of Story (not complete)

- The pig, tortoise and hare all resize randomly and say how tall they are.
- The panda randomly jumps up and down twice.
- The hare randomly jumps up and down twice.
- The pig and tortoise face each other and the tortoise tells the pig a random amount to turn
 - This happens again with the bunny telling the panda to turn, and the pig telling the hare to turn.
- All the characters turn and face the camera.
- At the same time they all do two random jumps.

Use the steps that follow to build this program!

1) Setting up the scene

- Add in any ground, I used sand. (use a light color with a good contrast.)
- Drag in these objects as in the picture
 - Biped: hare, pig, panda, tortoise, bunny

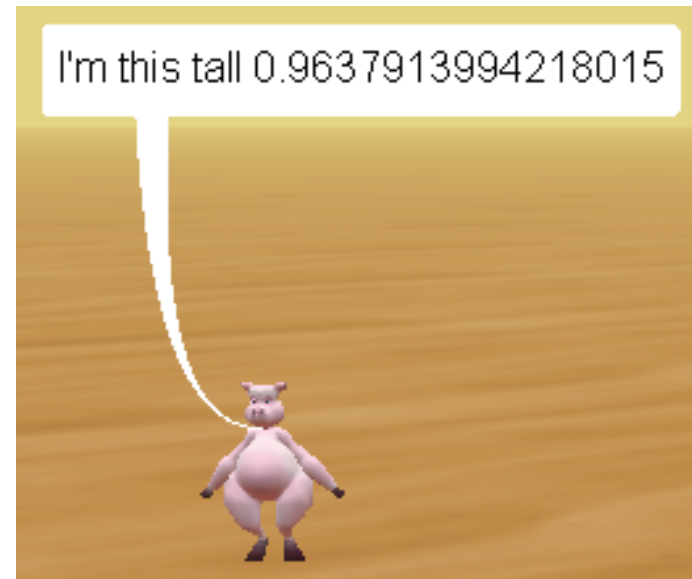


That is it for the setup!

- Now follow the steps to write the code for this story.
- For this classwork, we will continue to add code to myFirstMethod, slowing building the story

2) Randomly Resize animals

- In myFirstMethod put in a **do in order**
- For the pig
 - Generate a random number between 0.25 and 2.0
 - Resize the pig with this number
 - Have the pig say how tall it is
 - See example, the number is different each time you run



2) Randomly Resize (cont)

- For the hare:
 - Generate a random number between 0.25 and 0.75
 - Resize the hare with this number
 - Have the hare say how tall it is
- For the tortoise:
 - Generate a random number between 1.0 and 3.0
 - Resize the tortoise with this number
 - Have the tortoise say how tall it is
- Play and test out your world
 - The three animals should all resize and say the amount

Animals resized example



3) Write the **biped** randomJump procedure

- This procedure has **NO** parameters
- RandomJump should have the biped randomly jump up a **random** amount between 0.25 and 3.0, and back down the same amount (Use a constant variable!)
- The duration of the jump should be a **random** amount between 0.25 and 1.5 (use another constant variable!)

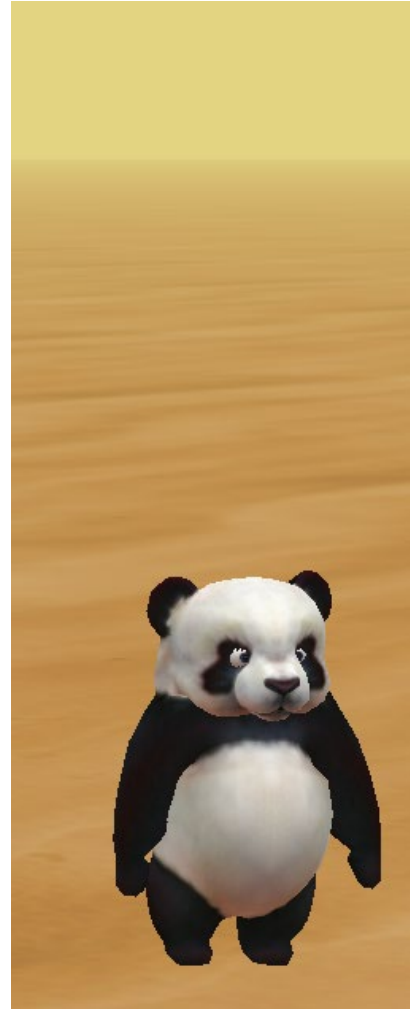


Test RandomJump Proc

- To test RandomJump , call it twice on any Biped, **at the beginning** of myFirstMethod so you can focus on it. Does it work? Are the jumps different in speed and height?
- Once it is working delete this testing call.

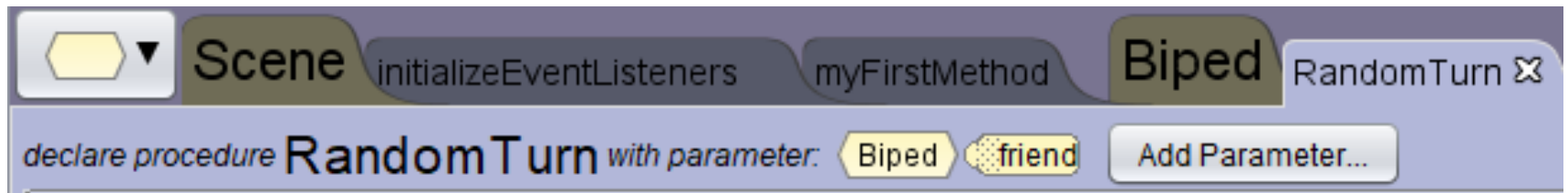
4) Continue the story, Add more code in myFirstMethod after your other code

- Have the **panda** jump randomly **twice**
- Then have the **hare** jump randomly **twice**
- Run your world more than once to see if the panda and hare jump different amounts and different speeds.



5) Write the **Biped** randomTurn procedure

- This procedure has **one parameter**, of type Biped named friend



- Have the object (called this) and friend turn and face each other at the same time.
- The object (this) should say “How far do you want me to turn?”
- (more on next slide)

5) randomTurn procedure (cont)

- A random number between 0.25 and 3.0 should be generated.
- The friend should then say “Turn” (the random number) “times”.
 - (If the random number was 2.1, then the friend would say “Turn 2.1 times”)
- Then the object (this) turns that random amount (you can pick the direction to turn, right or left)

Test TurnRandom

- Add testing code at the beginning of myFirstMethod
- Have the panda call TurnRandom with the pig as the friend. Does it work?
- Run it more than once to test it!
- Once it works, REMOVE this testing code.

6) Continue the story, Add code in MyFirstMethod at the bottom

- Have the pig randomTurn with the tortoise.
 - This means to pass tortoise as the friend
- Have the panda randomTurn with the bunny
- Have the hare randomTurn with the pig
- See next page for example with pig and tortoise

Pig and Tortoise RandomTurn



7) Finish the story in myFirstMethod

- At the same time have all five animals turnToFace the camera
- Then at the same time have all five animals do a RandomJump
- **Then again**, at the same time have all five animals do another RandomJump
- Play your world. They should all jump different amounts and different lengths both times.

All jumping

