CompSci 94
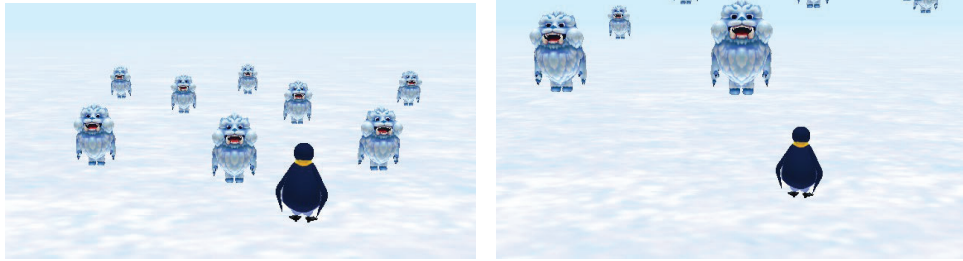## Classwork: Game with Collisions
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1) The Game

- There are a lot of babyYetis and one penguin. The game starts right away with the yetiBabiesjumping around. The player controls the penguin with the arrow keys to collide the penguin with every yeti. If a collision occurs the yetiBaby disappears. The goal is to get rid of all the yetiBabies
- Follow the steps that follow to build this game.

2) Setting up the game

- Use any ground
- Drag in these objects:
  – Biped: yetiBaby(8 of them), penguin
- Create a yetiBaby array as a Scene property named yetiBabies
- See next slide on where to place the yetiBaby's and penguin

Placement of objects

- Spread the yetiBabies out
- Put the penguin in the front facing the yetis

3) Write a **yetiBaby** procedure named **moveRandom**

- In this procedure the yetiBaby should move random up/down once and forward/backward once. Details:
  - NO parameters, NO LOOP in this procedure
  - Generate a random number for the height **to move up/down** between 0.5 and 2.0
  - Generate a random number for **how far to move** forward/backward between 0.5 and 2.0
  - The yeti moves forward a random amount
  - Then moves up random amount and then down the same amount.
  - Then moves backward the same amount it moved forward.
  - Make all moves fast in 0.25 seconds

4) Create a SceneActivationListener

- In a **while true** loop
  - Have all the yetiBabies at the same time execute moveRandom forever
- Run your world, they should move forever

5) Create a keyPressListener

- If the user presses the left arrow key, the penguin should move to its left 0.25 in 0.1 secs, fast!
- Do the same for right arrow key (right), up arrow key (forward), down arrow key (backward).
- Play the world and press the arrow keys.

Penguin sluggish? Fix keyPressListener

- Make sure your if statements above are nested.
- In the add detail, there are lots of choices.
  - Select MultipleFire – lets you hold two keys down at once
  - Select Combine – lets the penguin keep moving if you hold the key down
- Run your program again, try moving the penguin

6) Detect when Penguin collides with a yetiBaby

- Add a collisionStartListener event
  - One array is the yetiBabies
  - One array is the penguin
- You need to figure out which yetiBaby collided with the penguin and make that yetiBaby invisible
  - You will need to loop over all the yetiBabies and compare each one to the getSthingFromSet. If match, make that one invisible.
- Now play your game, can you get all the yetis?

7) Determine when game is over

- Write a **Scene** Function named **isAnyYetiVisible** that returns a **Boolean** type
- This function should loop through all the yetiBabies one at a time. If any yetiBaby is visible, return **true**
- If the loop ends and you have not returned yet, then that means they are all invisible, so return **false**

8) Add code in myFirstMethod

- Add in a do in order
- Then while any yetiBaby is visible, just wait.

```
declare procedure myFirstMethod
do in order
  do in order
    while  this  isAnyYetiVisible  is true
      // wait til game over
    loop
```

- Then have the penguin face the front and say "got them all"
- Then all the yetiBabies reappear at the same time
- Play your game now.

12) One more thing to fix

- In the sceneActivationListener, for the while true loop where the yetiBabies are moving randomly
  - Change the **true** condition in the **while loop** to
    - while isAnyYetiVisible is true

- Then the yetiBabies should not be moving at the end of the game.
- Play your game!