Day3: GreenFoot Morning

Penny

Key controlled movement, Relationships between actors Platforms, Object detection
Recap (Greenfoot CoderGirl Class)

• Remember what you have learned:
  • Fields/Variables (constructors, scope, getters and setter)
  • Loops
  • Superclass and subclasses (super and this)
  • Methods (and parameters)
  • Randomizing
  • Conditional if statements
  • Movement and turns
  • Objects and Worlds

• Remember resources
  • Command list
  • Ctrl-space for list of methods
DEMO
Game

DEMO
First
Version
CliffWorld

- Open Greenfoot
- Open Penny Scenario
- Create a New Subclass of World: **CliffWorld**
  - Select **Stride**!
  - Use cloud background image
- Create 2 New Subclasses of Actor: **Mover** and **Platform**
Mover Class Constants

- Create constants for the mover for vertical acceleration and sideways speed.
  - Use command `v` to add a variable
  - Use the commands `ctrl-shift-n` and `ctrl-shift-s` to make it static and final
- Use command `/` to comment your constants
Mover Class Field Variable

- Create a field variable for vertical speed
- Write a setter method for vertical speed
- Change sideways speed constant name to sSpeed
Mover methods side to side

- Move right
- Mover left is symmetric
• Mover and Platform will be abstract classes
• Create a subclass of Mover: Penguin
• Create a subclass of Platform: Cliff
• Use the addObject method to add a new Cliff and Penguin to CliffWorld
Subclasses Check Keys

- Penguin method to check for left and right arrow key input
- call method from act()
- Run it
Mover methods

- Need to check if mover is still on the platform
- Write `onGround` method
- How to use it?
  - Experiment with having Penguin class call the `onGround` method
  - Experiment with penguin placement and constant value
  - Consider how the Penguin will fall
  - Add a getter for `vSpeed`
How did you use onGround()?

• One possibility for checkFall() method. Remember to call it from act()

• How does it work?

• How can we adjust it?

• How can we improve it?
Mover fall method

• Add fall method to the Mover class
  • Remember how FlappyBird fell?
• Call it from the onGround() method of the Penguin class
  • Other Mover subclass may fall for different reasons
• What about hitting the bottom boundary?
Cloud

• What are the clouds behaviors?
• How do we make the cloud move?
• Consider methods and fields available to Cloud.
• Experiment and Run
Cloud Motion

- Does the cloud move back and forth between boundaries?
- $||$ is the OR operator (arabic keyboard?)
- How to deal with bouncing off boundaries?
Cloud Behavior

- What else does a cloud do
  - It can catch penguins!
- Experiment and Run
Assignments - Margaret needs to code some additional solutions

• Make your game match the demo
  • Make the Penguin jump when the space is pressed
    (hint: you can use the shift key to select and copy entire methods from previous projects)
  • Add another cliff

• Look for code that can be placed into reusable methods
  • atBottom(), gameEnd()

• Experiment with clouds and cliffs

• Add charms for Penguin to grab when jumps
  • Different scenery and actors?
  • Arrows accelerate and break?
  • Keyboard to control clouds?