Counting Game: Overview

Initial State
- Numbers in random locations

User moves rat
- Use arrow keys

Must get numbers in order
- Number is said
- Number becomes larger
- Ignores if not correct

Timed
**Rat Scripts**

Rat very simple!
- Moves in response to arrow keys
- Does nothing else!

(Set rotation to only face left-right)

**Number Scripts**

Scripts for Sprite Ten

Scripts for Sprite Eleven

Scripts for Sprite Twenty

Goal: Simple code, similar across all Numbers

Initial state: All go to random location

Wait until turn in sequence (receive signal)
Wait until touching mouse character
Play sound and increase size
Signal next number in sequence
Timer Scripts

Timer continuously shows elapsed time

How to know game over?
- Receive signal from Twenty
- How to stop loop?
- Uses private, local variable to track if “all done?”
- Both scripts run together!
- Stop loop when done!

Identify Game: Overview

User shown 1-5 objects
- Random number
- Random locations
- Random costumes

User must click right number
- Correct: Says number
- Wrong: Hide and try again
- Increment Guesses

Repeat with new objects
Stage Scripts

Stage controls overall action
- Descriptive names for messages
- Can tell who is sending/receiving

Stage sets Global Variables
- Stage picks “How many” objects should be shown
- Stage picks “Costume” the objects should switch to

Stage tells Numbers and Objects when ready

Stage tracks counts of Guesses and Questions

Objects Scripts

Each Object determines for itself if it shows
- Each Object has private variable
  - My_id
  - Makes remaining code identical across Objects
- Shows if “How many >= my_id”

Use global variable Costume so all change to same costume
Global Shared vs Local Private Variables

For all sprites: (Global, shared)
- All sprites see same variable
- When one sprite changes value, all sprites see new value
- Use when want to communicate info between sprites
- Naming: FirstLetterCapitalized

For this sprite only: (Local, private)
- Only this sprite sees variable
- Multiple sprites can have own variables with same name
  - Each contains different values
- Use with similar sprites; same code, unique data/behavior
- Naming: lower_case_letters

Numbers Scripts

Number Sprites each determine if they are right answer

Each Number has private variable: my_id
- Each has own value!
- Makes remaining code identical across Numbers

When time to show itself:
- Waits until clicked with mouse
- If my_id is right answer, tell Stage we are done
- Otherwise, tell Stage to try again

Tip: Draw a box around number and letter sprites so they are easier to click!
Today’s Summary

Today’s Topics

• Try to write simplest code possible (might not be your first attempt, so be willing to restructure!)

• Multiple scripts can run concurrently; can use variables to communicate information between
  - Example: all done? Variable in Counting Game

• Use Global Variables to pass information between Sprites
  - Example: How Many? And Costume in Identify Game
  - All Sprites see same value

• Use local variables when each Sprite should have own value
  - Example: my_id variable in Identify Game
  - Helps make later code identical across similar Sprites

• When developing similar Sprites, perfect a small number
  - Copy to make other identical Sprites

Today’s Announcements

Announcements

• Homework 3 Due today

• Homework 4 Available
  - Complete code we started for you
  - Managing a Grocery List
    - Calculate Total

• Programming Project 1 Available today: Due 2 weeks from Friday
  - Create visual effects for music or a poem