CSC151.02 2014S, Class 05: Drawings as Values

Overview

- Preliminaries.
  - Admin.
  - Homework.
  - Questions.
- Representing images.
- Thinking about drawings through composition/decomposition.
- The underlying representation.
- Pure approaches vs impure approaches.
- Lab.

Preliminaries

Admin

- Lab partners assigned for the week. (This is a "same sex" week as part of our broader partner preference experiment.)
- We had a family emergency this weekend, so it will take me a few more days to respond to your introductory surveys. (Yours is my largest class, so you folks are last.)
- Study break in the CS commons at 8pm tonight. Home-made (well, probably apartment-made) snacks.
- The TC Corps is hiring! Contact [tranchri] or [cohnhan] for details.
  - Probably other people, too.
- I’ve graded your first quiz. I’ll return it during class, possibly while you are doing lab.
  - No other attendance.
- I’ve changed my homework grading strategy a bit, to "Excellent, Very Good, Good, Fair, Poor" (it’s more or less the same as the old check system, but with new words). Updates to the handouts will follow.
- Note that if you use the "Source" version of an EBoard, you should see the stuff within a minute or two of me updating it.
- I think I’ve responded to all of the lab writeups I’ve received.
  - Please send lab writeups to me. Your graders don’t need to see them.
- We will continue today’s lab tomorrow.
- Extra credit:
  - Thursday at 4:15: Spencer Liberto, Lea Marolt Sonnenschein, and Daniel Torres on Ushahidi and more.
  - CS Table Friday at Noon: The ACM Code of Ethics.
  - Convo Feb. 5. (Ill give my "Why go to convo” lecture closer to the date.)
Others?

Homework

- HW 2 is due tomorrow night.
- Reading: Procedures as values
- Today’s lab writeup (due Friday): Exercise 4, parts a, c, d, f, and g
  - Email subject: CSC 151 Writeup 3: Drawings as Values (YOUR NAME(s) HERE)
  - You can, but need not, write up the lab with your partner.

Questions on HW 2

Representing images

- Images are the primary problem domain for this class.
- We’ll give you a model of what the computer can do
- We’ll ask you to write algorithms to make certain kinds of images
- There are LOTS of ways to think about images

Thinking about drawings through composition/decomposition

- New data type!
  - What kinds of values does the data type include?
  - What do I use them for?
  - How do we describe them to the computer?
  - How does the computer describe them to us?
  - What operations can I perform on these values?
- What kinds of values does the data type include?
  - Circles, squares, rectangles, ovals, and combinations thereof
- What do I use them for?
  - To make "interesting" images (or at least images)
  - "As ways of describing images"
- How do we describe them to the computer?
  - drawing-unit-circle (diameter 1, centered at 0,0)
  - drawing-unit-square (side length 1, centered at 0,0)
  - Apply the operations below to other drawings
- How does the computer describe them to us?
  - (drawing circle ? ? left top width height)
  - As pictures, if we use (image-show (drawing->image DRAWING WIDTH HEIGHT))
- What operations can I perform on these values?
  - (scale-drawing AMT DRAWN
  - (hscale-drawing AMT DRAWING)
  - (vscale-drawing AMT DRAWING)
Can we group more than two drawings? Yes.
Is drawing-unit-circle already defined? Yes.

The underlying representation
See above.

Notes from Lab
All of the procedures create a new drawing; they don’t modify the original drawing.
The combination of scaling and shifting seems odd. Why?

Samuel A. Rebelsky, rebelsky@grinnell.edu

Copyright (c) 2007-2014 Janet Davis, Samuel A. Rebelsky, and Jerod Weinman. (Selected materials are copyright by John David Stone or Henry Walker and are used with permission.)

This work is licensed under a Creative Commons Attribution 3.0 Unported License To view a copy of this license, visit http://creativecommons.org/licenses/by-nc/3.0/ or send a letter to Creative Commons, 543 Howard Street, 5th Floor, San Francisco, California, 94105, USA.