IM 2250 Programming for Digital Media, Fall 2014

Programming Exploration 5 (interactive toy)

First iteration due Monday, 10/20 at 5:59 P.M. Second iteration due Monday, 10/27 at 5:59 P.M.

Objective

Continue to build your skills in designing and implementing interactive experiences using Processing by designing and implementing an interface and user experience.

Description

For your fifth programming exploration you will design and implement an interactive toy using Processing. You may interpret "toy" quite broadly to include a game, an information appliance, or a display that provides visual delight. Your toy should be designed with a particular end-user persona in mind and must be interactive, e.g. involve some form of human to computer communication. The interaction should involve one or more responses to physical manipulation with the keyboard, mouse, or optionally, a game controller. The toy's response to user interaction need not be as complex as social interaction, but it should be significantly more than a trivial activity (e.g. changing colors of an object).

Select a problem or activity that you feel strongly about. Try to draw upon a personal interest if possible, take your time to develop something that's not immediately obvious that will provide your user with delight.

The project must make use of object-oriented techniques along with at least two of the following techniques covered in class: user interaction using the keyboard and/or mouse processed with event handlers and object methods that respond to events; movement that utilizes some form of steering behavior (seek, arrive, pursue, flee, flock, etc.); fonts; sound; images; or video. Given that we're not covering some of these topics until 10/20, your first iteration may be a partial implementation, but process documentation must indicate the direction you're headed in.

The first iteration is a rough-draft of your sketch, it should work, but it may be feature incomplete. Convert your entire process sketch folder into a zip archive prior to uploading to Blackboard.

The second iteration must be feature complete and run without logic errors. Don't forget to include process documentation for both iterations in the form of a PDF document in your sketch folder that includes a description of the toy, design sketches, challenges faced along the way, reflections on the experience, etc. Convert your entire process sketch folder into a zip archive prior to uploading to Blackboard.

Process documentation

Include process documentation in the form of a PDF document (other formats are not acceptable) in your sketch folder, include your name in the document name. This document should includes a description of your objects and reveal some of the process you went through developing your sketch. What is your overarching objective? Who is the end-user (real or fictional)? Why are you building the toy (besides the fact it has been assigned)? Where and how do you imagine users will interact with the toy? How does the actual end-user's experience compare with your original vision? What was one particular portion of the code you are most proud of? Describe how that part works. Include design sketches, notes, etc. if appropriate. If you scan the sketches and diagrams you made as you were figuring things out, you already have a lot of what should be in your process documentation.

Assigned reading

Please browse through the following prior to designing and implementing the code for your toy, as some of these techniques may be useful in your design:

- **Studio Session 5 (steered vehicles)** sketches, available in Blackboard, Course Materials > Code examples
- "2D Transformations" in the tutorial section on *processing.org*
- "Trigonometry Primer 1" in the tutorial section on *processing.org*
- "PShape" in the tutorial section on *processing.org*
- "PVector" in the tutorial section on *processing.org*

Optional reading

Browsing through the following may provide inspiration and they are also valuable resources as you begin to prepare for the final project:

- If you're interested in movement, path-following, autonomous agents, etc.see *The Nature of Code* by Daniel Shiffman, a print copy is on reserve in the library or see http://natureofcode.com
- If you're interested in data visualization, check out *Visualizing Data: Exploring and Explaining Data with the Processing Environment* by Ben Fry, a print copy is on reserve in the library
- If you're looking for inspiration, the projects in the exhibition section on *processing.org* is a good start
- Take a look through *Form+Code in Design, Art, and Architecture* by Casey Reas, Chandler McWilliams, and Jeroen Barendse, a print copy is on reserve in the Snell Library and it's also available online via the library

Grading rubric

14 points for both iterations	Outstanding	Good	Satisfactory	Poor
Execution Points: 3 / 2.5 / 2 / 1.5	The program works without any bugs.	The program works with some minor cosmetic bugs.	The program works with some minor cosmetic bugs and possibly minor logic bugs.	The program has some logic bugs and may not always run as expected.
Code Points: 3 / 2.5 / 2 / 1	The code is exceptionally well organized and very easy to read. The code uses modular objects that could easily be reused in other sketches.	The code is fairly easy to read. The code is very well designed and and some or all of the objects could be reused in other sketches.	The code is reasonably organized but may be difficult to read. Some of the objects could be reused in other sketches.	The code is poorly organized and difficult to read. The code is poorly designed and is not organized for reusability.
Process Documentation and Comments Points: 3 / 2.5 / 2 / 1	The process documentation is exceptionally written and clearly explains the design process, what the code is accomplishing and how. Comments are very useful in understanding the code.	The process documentation is well written and explains the design process, what the code is accomplishing and how. Comments are somewhat useful in understanding the code.	The process documentation provides an adequate explanation of the design process, what the code is accomplishing and how. Comments may be limited in their helpfulness.	The process documentation may be inadequate with an incomplete explanation of what the code is accomplishing and how. Comments do not help the reader understand the code.
Delivery Points: 1 / 1 / 1 / 0	Both iterations were uploaded to Blackboard before the deadline.	Both iterations were uploaded to Blackboard before the deadline.	Both iterations were uploaded to Blackboard before the deadline.	One or both iterations were uploaded to Blackboard after the deadline.
Creative Approach Points: 4 / 3 / 2 / 1	The toy provides an original and very enjoyable experience without any problems.	The toy provides a very enjoyable experience without any problems.	The toy provides an enjoyable experience with some problems.	The toy provides an experience that may not be original.