Introduction to Creative Coding

Week 5 - Data, Libraries, and Hacking Code
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Resources for each week available at:
https://github.com/VizRCA/intro-to-creative-coding

Topics

Week 5

- Recap week 4
- Data examples and challenges
- Library experiment
- Hacking discussion and experiment

Recap wk 4

Images and Pixels

An image in Processing is an array of pixels. Use **PImage** class.

Get comfortable with nested **for** loops when manipulating pixels! Use **get()** and **set()**.

- image_example.pde
- imageFilters_example.pde
- pixelPush_example.pde
- extractPixel_challenge.pde

Recap wk4

Video and Camera

Using the examples:

- basicVideo_example.pde
- tintVideo_example.pde
- movieOverview_example.pde
- torchMovie_example.pde
- pixelMovie_example.pde

Tools

Data file input

Example

Data Input: Text files

Open **importText_example**

This sketch reads a text file in the data directory and presents a poem line by line. Key points:

- String [ ] lines;
- lines = loadStrings ("daffodils.txt");
- lines[i]

Example

Data Input: Formatted text data

Open **csvData_example**

Comma Separated Values (CSV) data can be imported into Processing. This is easy to find or export from excel. Key points:

- Read the data
- split() the data
- Convert to useful type

Example

Data storage: Tables

Open **tableDataMap_example**

This uses Processing **Table** class. It can natively read **tsv** and **csv** data files. You then use commands to get and set data from the table.

Challenge

Read and display data file

Open csvRead_challenge

Complete the method stubs:

- readData()
- computeColumnMinMax()
- plotTable()

Need to map the data from the range in the file to the range for display.

Experiment

Data Viz

Open animate_cities_csv

Try to change how this script presents data, e.g.:

- States use different colours
- Change the mapping
- Change the speed of display

Resources

Structured Data Types
XML and JSON

Text files work well, but commonly data is stored in files that allow more order to be indicated within the file. These include JSON and XML.

- xmlData_resource
- jsonData_resource

Tools

Libraries: Motion Capture

Custom libraries can be found on the internet. The following is an example of reading and playing back motion capture bvh files.

Open **p5f_sample.pde**

Note, this uses Processing in 3D mode, something not covered yet.

You can discover what the library can do by looking at the docs or the source code.

Experiment

Make a thing with a library

1. Get into groups of 2 or 3
2. Take 5 minutes, think of something you want to make
3. Find a library that will assist your idea
4. Make it!

Feel free to find the library first then think of an idea. Examples of libraries include:

- Computational Design: Toxiclibs,
- Computer Vision: OpenCV, BoofCV,
- Sound: Minim, Beads

Discussion

Hacking stuff

How would you take a aspect of this work and make it work in your project?

How do you look at code to understand it?

Where can you make changes?

Is there a structure to the code?

Experiment

Hack some stuff

Look in the hacking folder

Pick something to play with

Try pull aspects out of it and make something of your own.