Creative Coding S2017

This Github repository will house assignments, homework, notes, and other handouts for Creative Coding.

Course Description

Creative Coding employs computer programming as a means of creative expression. “Algorithmic” and generative art, interactive web apps, data visualizations, and virtual reality are just a few examples of the creative potential of code explored through projects. Students will develop foundational computational thinking skills in the areas of abstraction, boolean logic, algorithms, complexity, and data analysis.

Course Objectives

1. Develop a deeper understanding of object oriented programming.
2. Successfully collaborate on a programming project using version control (Git).
3. Explore JavaScript libraries and APIs for creative, interactive web development.
4. Manipulate and analyze (through visualization) large data sets.
5. Communicate coding’s enormous potential for innovation and creativity.

Grade Breakdown

5% - TED Tech Talks

10% - Class Participation

10% - Homework

15% - Quizzes

15% - Project 1 - Useless Web

15% - Project 2 - Data Visualization

15% - Project 3 - Virtual Reality

15% - Portfolio

Weekly Overview

Week	Overview	Description
1-2	Introduction to Javascript and P5.js	HTML, CSS, variables, data types, functions, control structures, boolean logic, operators, arrays, binary, hexadecimal notation
3	Objects & Git	Introduction to Object Oriented Programming, version control, remote repositories, cloning, committing, pushing
4-6	Project 1: Interactive P5.js	Students will demonstrate proficiency with JavaScript fundamentals by creating interactive web pages.
7	Data	Working with data, search & sort algorithms
8-11	Project 2: Data Visualization	Students will find personally-relevant data set and code a interactive data visualizations on the web. Students will work in teams and must demonstrate proficiency with version control (Git): push, pull, branches, merges
12-15	Project 3: Virtual Reality	Students will create virtual reality worlds using three.js or other 3D JS libraries.

TED Tech Talks

TED Tech Talks are weekly lectures given by students to educate the class about a highly creative, innovative application of computer programming.

Project Evaluation

The following criteria are used to evaluate creative assignments:

- **Meets Requirements**: Does the project follow directions and fulfill all aspects of the assignment? Are materials turned in on time?
- **Correctness**: To what extent is your code free of bugs?
- **Design and Style**: To what extent is your code written well (i.e., clearly, efficiently, elegantly, and/or logically)? To what extent is your code readable (i.e., commented and indented with variables aptly named)?
- **Creativity**: To what extent is the project unique, inventive, and imaginative?
- **Effort**: Is there evidence that you invested time and energy in the project?

Late Work

- Late homework or quizzes will not be accepted.
- Late projects will receive a 5 point deduction for each day that the project is late.

Plagiarism

In the age of the internet, and particularly in the realm of computer programming, it is very easy to copy/paste code. **For projects**, sharing code and building off of previous work is permissible, and even encouraged, so long as:

- The code is open source.
- **You give proper credit** by including a comment in your code with a URL or clear description of the source code. Credit is also required for “adapted” code.
- The copied/adapted code **cannot make up a substantial portion** of the project.
- When in doubt, ask!

Homework and quizzes are different. Unless noted otherwise, these assignments must be **completed individually**. Evidence of copying from other students or plagiarizing existing work may result in no credit, and possibly more serious consequences, as outlined by Newman’s academic policies on plagiarism.

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[1] Ideas regarding coding evaulation were adapted from Harvard's CS50 AP CS Princpiles Course found here: http://cs50.wiki/file/view/Grading+CS50.pdf

[2] Ideas regarding coding citations were adapted from MIT's Academic Integrity Guidelines found here:* https://integrity.mit.edu/handbook/writing-code

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External Editor:

- Download Atom
- Setup localhost or use IIS on Windows

Reference:

- p5.js reference
- JavaScript Basics
- Daniel Shiffman's p5.js tutorials

Tools:

- [Repl.it: Shareable JavaScript editor / console] (https://repl.it/languages/javascript)
- [JSFiddle: another online Javascript editor (good for collaboration)] (https://jsfiddle.net/)