

HNRS 2200

COGITATIONS ON COMPUTATION

Honors Nature of Science, Technology, & Mathematics

Spring 2019

Assignment 0131

OK, time to put our recent learnings to practice. With computer programming, no amount of reading, watching, and guidance compares to striking out on your own.

Background Reading/Viewing

For the JavaScript option, continue to use Khan Academy's *Introduction to JavaScript: Drawing & Animation* lesson for reference:

<https://www.khanacademy.org/computing/computer-programming/programming>

If you want to give the “stretch” option, Python with Turtle, a try, the resources are less guided but just as informational:

<https://docs.python.org/3.3/library/turtle.html?highlight=turtle>

What to Do: “Faces and Places”

Write the following programs using one of the available language options:

1. *Self-portrait*—Convincing likeness not required :) Write a program that generates a portrait of yourself. The final picture can be cartoony but should still be recognizably a face; please nothing too abstract (nor emoji-like).
2. *LMU building*—Write a program that generates a picture/sketch of an LMU building of your choice. Aside from overall size or shape, prioritize the building's signature details over just plain detail—the elements that make the building recognizable as that building.

For both programs, take as much advantage as possible of variables, functions, conditions, and (if you get there) loops to make your code as efficient and flexible as possible. Avoid “brute force.” Choose function parameters that give you a good balance between flexibility and complexity.

JavaScript Option

Make sure your code runs as-is when copy-pasted into the Khan Academy computer programming environment:

<https://www.khanacademy.org/computer-programming/new/pjs>

Python Option

Make sure your code runs as-is when copy-pasted into a fresh Python with Turtle REPL in *repl.it*:

https://repl.it/languages/python_turtle

What to Submit

Work on your programs in their respective environments and, when done, do a select-all + copy-paste of the code into Brightspace. The Brightspace assignment is configured for multiple plain text submissions; provide one submission for each program. If you end up making multiple submissions for a program, please indicate which one should be graded.

In terms of points, provide a program that fulfills the given specifications and you should be generally good. The following are the most likely reasons for deductions:

- *Brute force*—Code that very clearly would have been done better with variables, functions, conditions, or loops
- *Incorrect indentation*—Code that incorrectly reflects its structure (e.g., unindented lines that actually belong “inside” a function, conditional statement, or loop)
- *Cryptic names*—“Code” here doesn't mean “cryptogram:” make sure that other human beings can easily read what values your variables and parameters are supposed to hold and what tasks your functions fulfill.