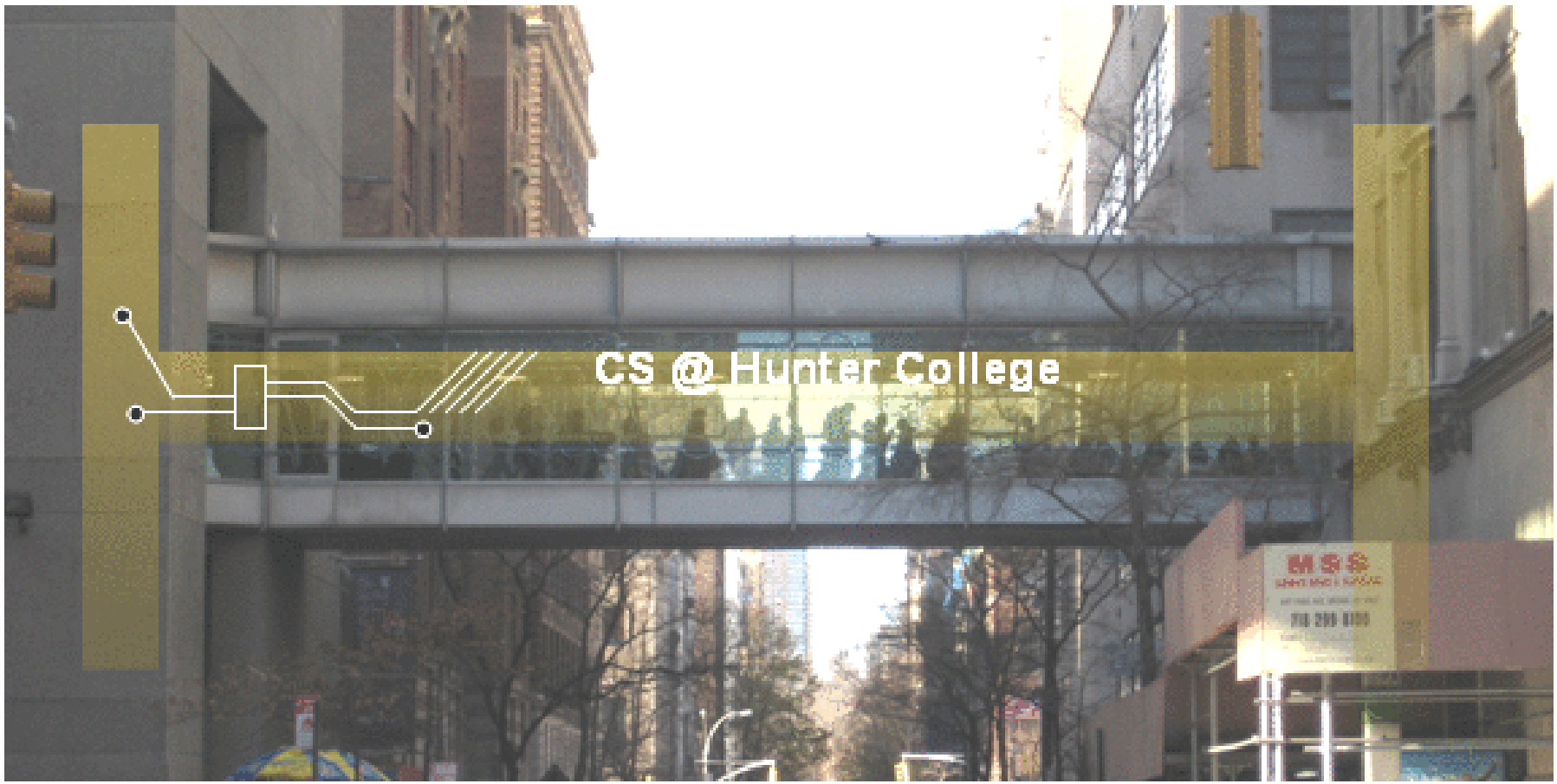
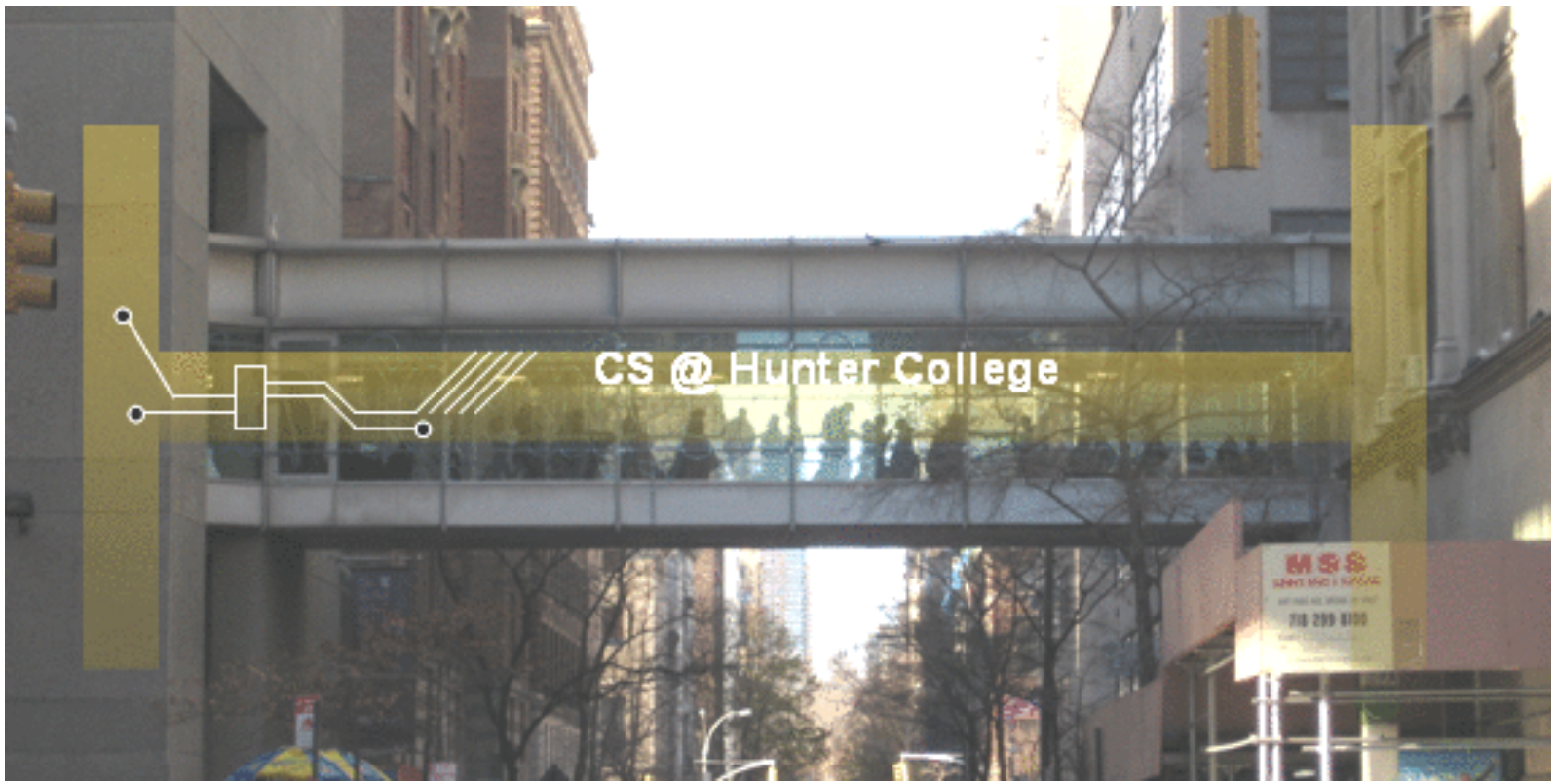
CSci 127: Introduction to Computer Science



hunter.cuny.edu/csci

Welcome



Acknowledgments

Thank you to the amazing support of:

President Raab

Dean Polsky
Arts & Science

Judy Spitz
WiTNY

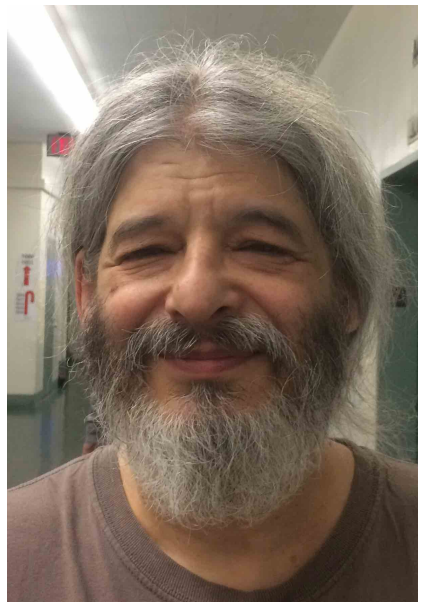
Introductions: Course Designers

Dr. Katherine St. John

Professor,
Course Coordinator

Dr. William Sakas

Associate Professor,
Chair



Prof. Eric Schweitzer

Undergraduate Program
Coordinator

Introductions: Instructors

Katherine Howitt

Tuesday Thursday
Lecture Lab

Raj Korpan

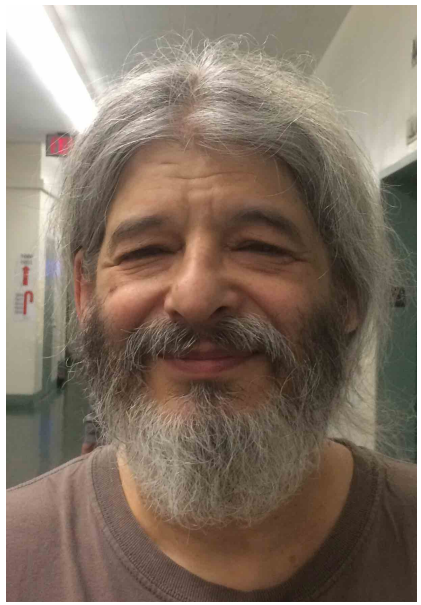
Monday Wednesday
Lecture Lab

Introductions: Undergraduate Teaching Assistants

Mandy Yu
Monday Wednesday

Tyler Robinson
Tuesday Thursday

Introductions: Advisors



Eric Schweitzer
Undergraduate Program
Coordinator

Justin Tojeira
Internships &
Upper Division

Syllabus

CSci 127: Introduction to Computer Science

Catalog Description: 3 hours, 3 credits: This course presents an overview of computer science (CS) with an emphasis on **problem-solving and computational thinking through 'coding'***: computer programming for beginners. Other topics include: organization of hardware, software, and how information is structured on contemporary computing devices. This course is pre-requisite to several introductory core courses in the CS Major. The course is also required for the CS minor. MATH 12500 or higher is strongly recommended as a co-req for intended Majors.*

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(Show syllabus webpage)

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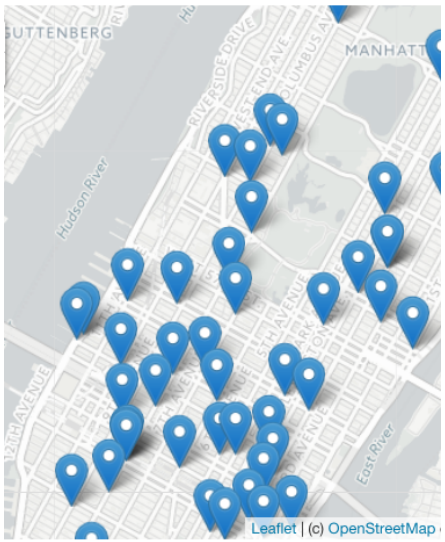

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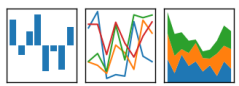

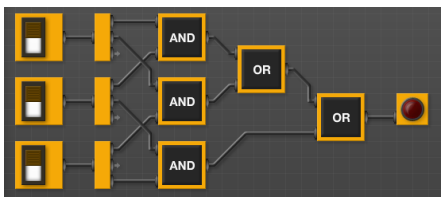

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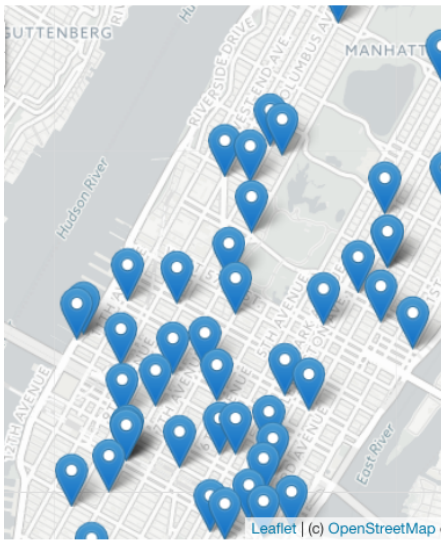

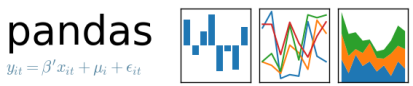

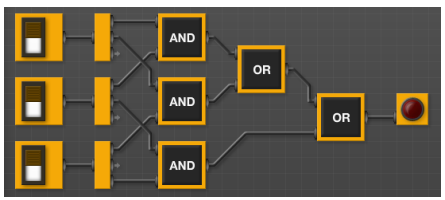

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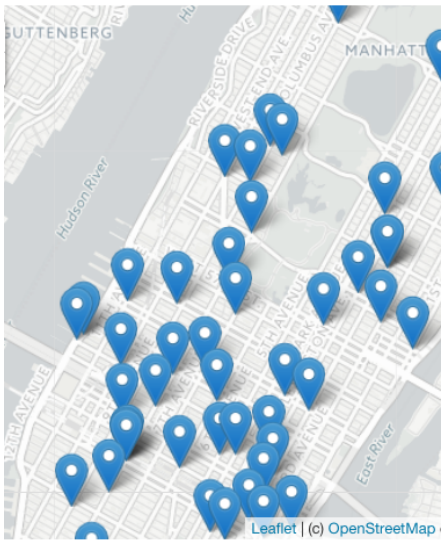

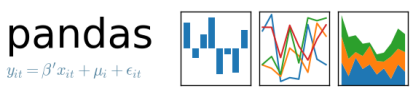

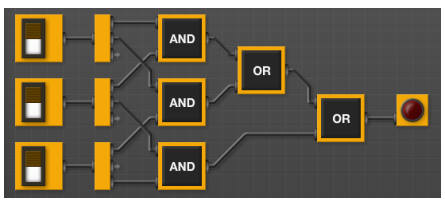

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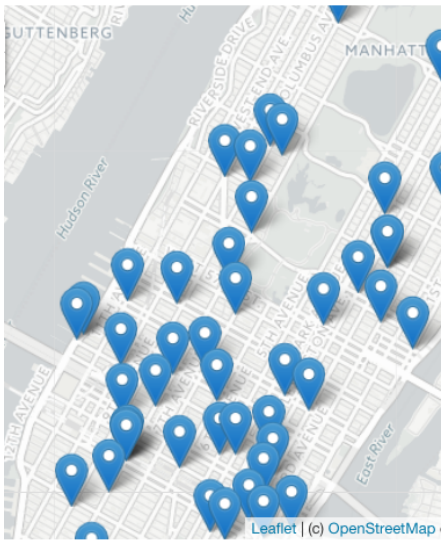

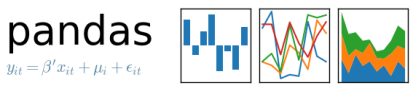

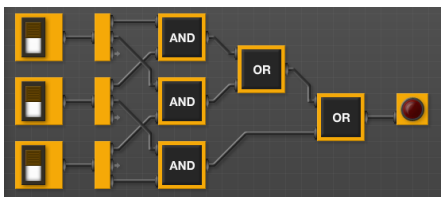

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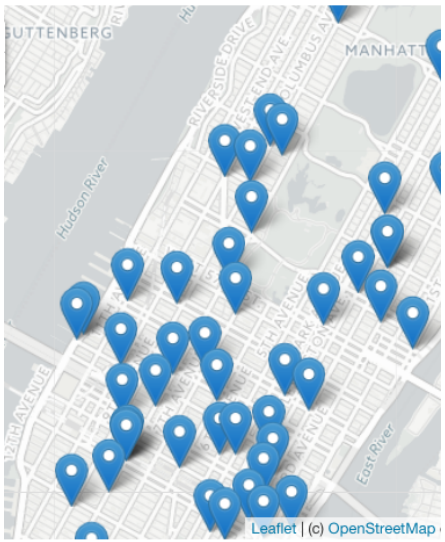

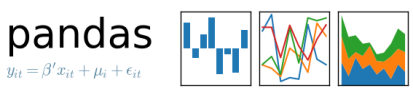

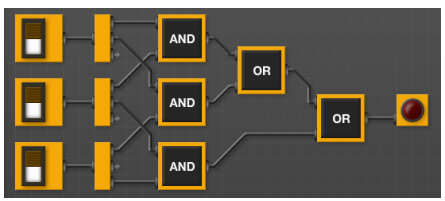

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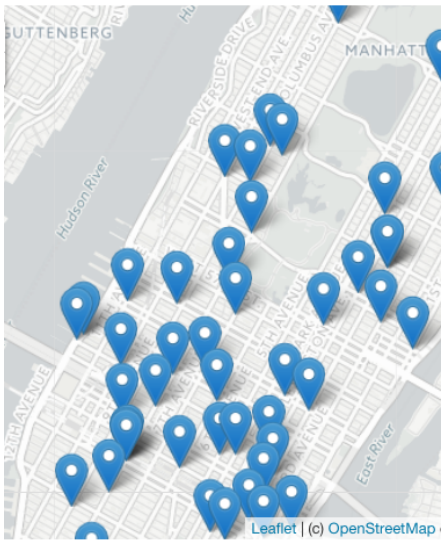

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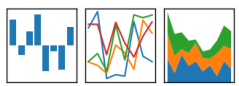

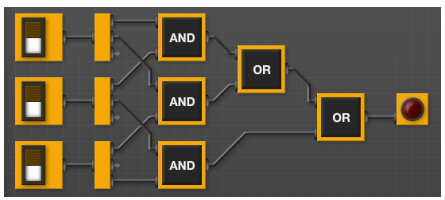

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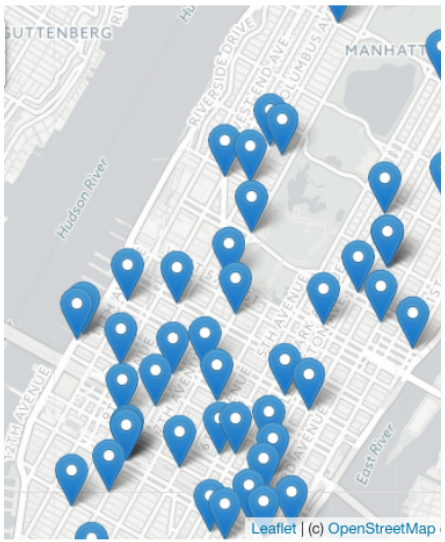

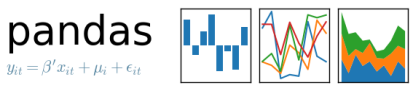

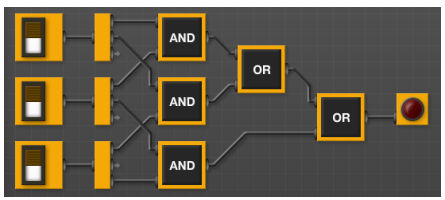

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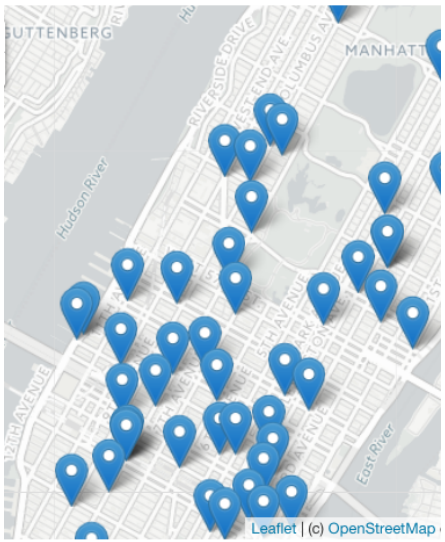

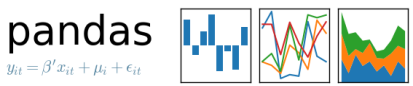

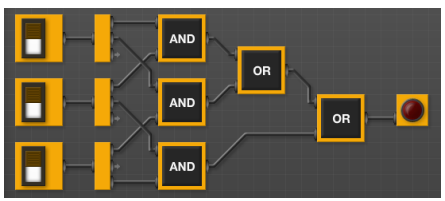

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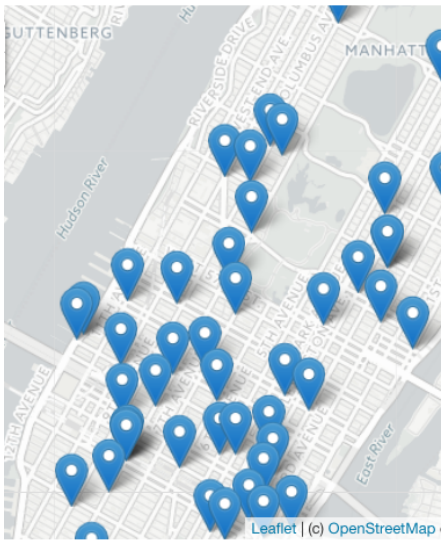

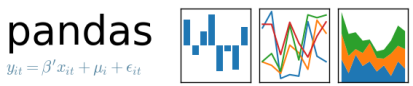

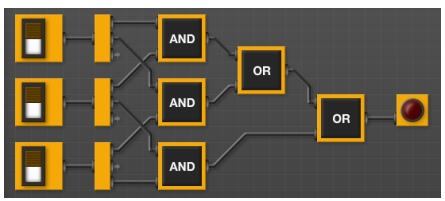

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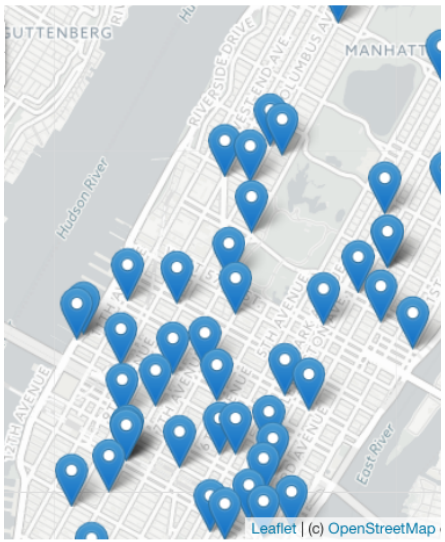

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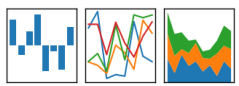

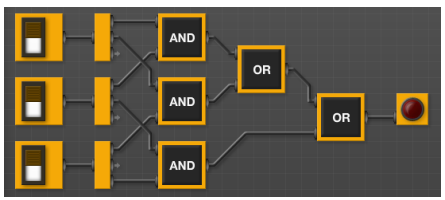

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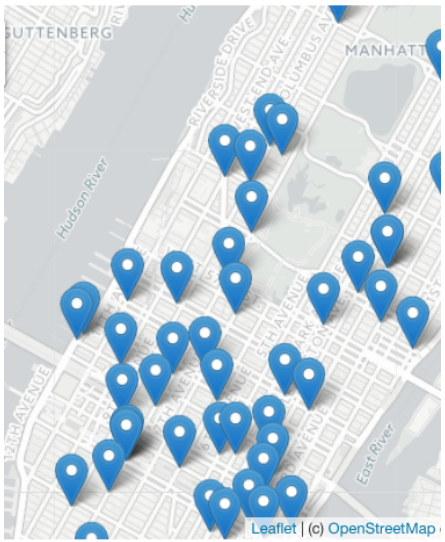

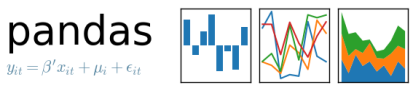

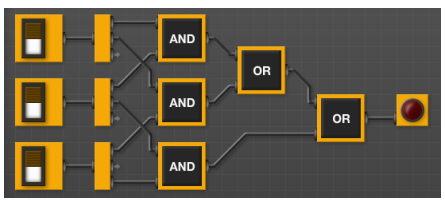

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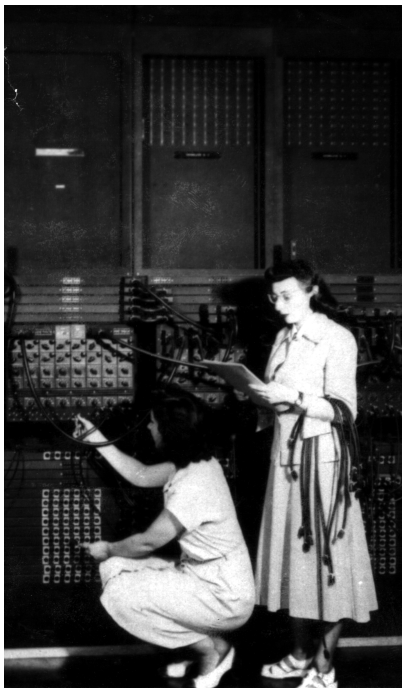
Class Structure

Lecture:

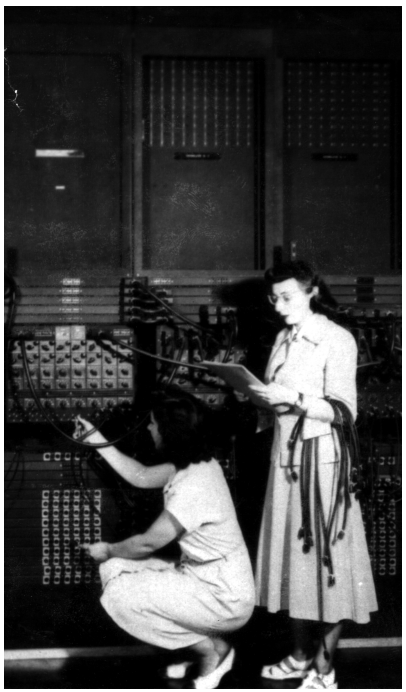
- Twice a week.



First "computers"

ENIAC, 1945.

Class Structure



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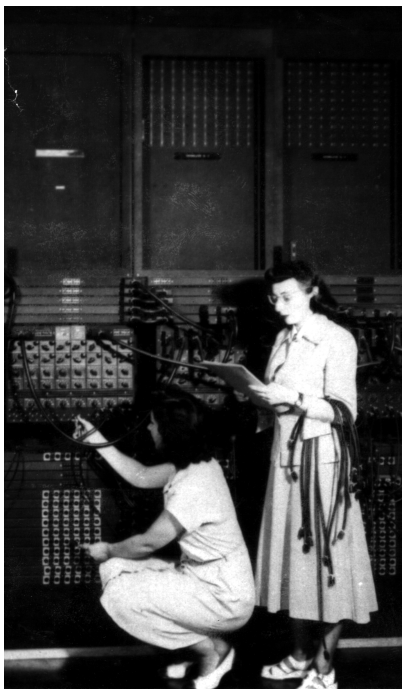

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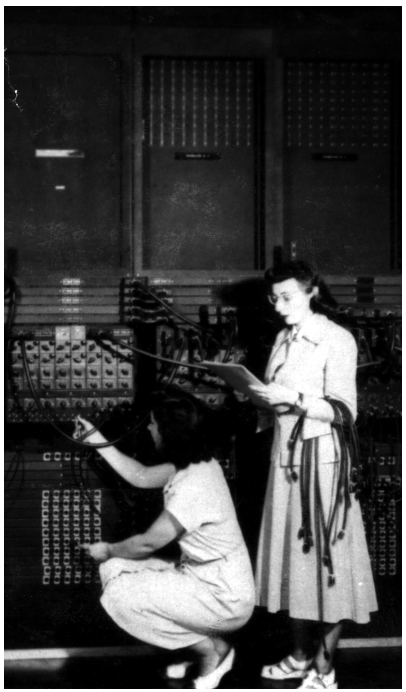

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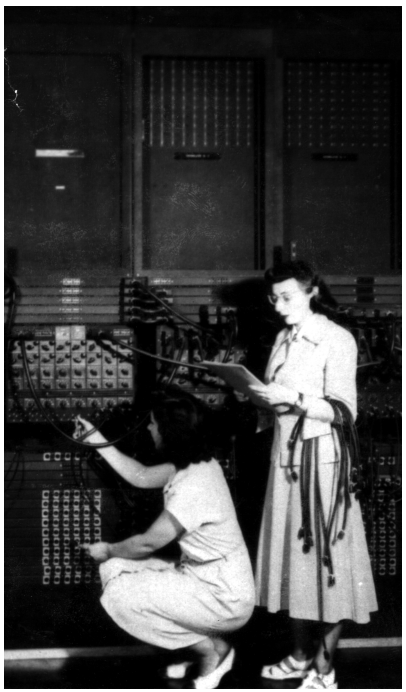

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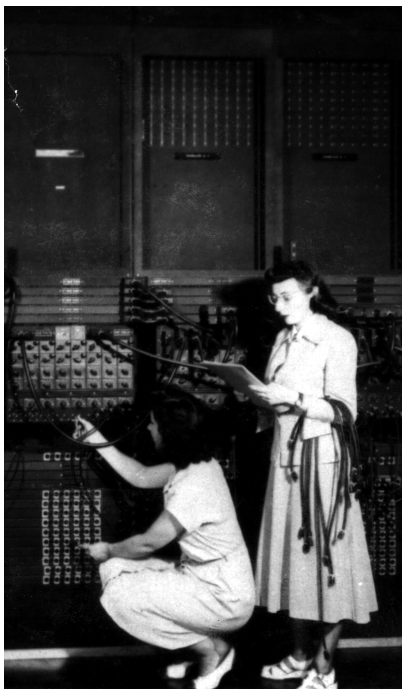

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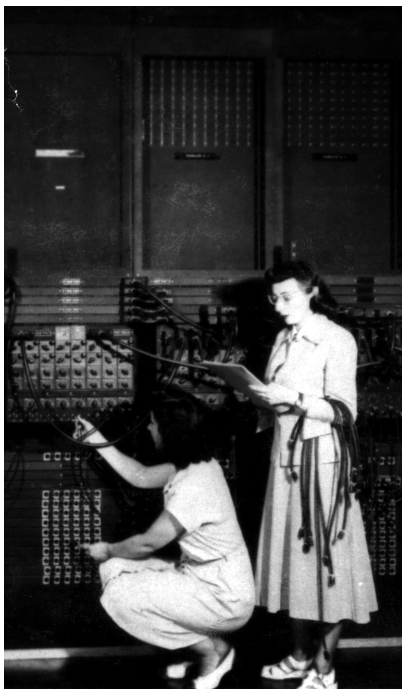

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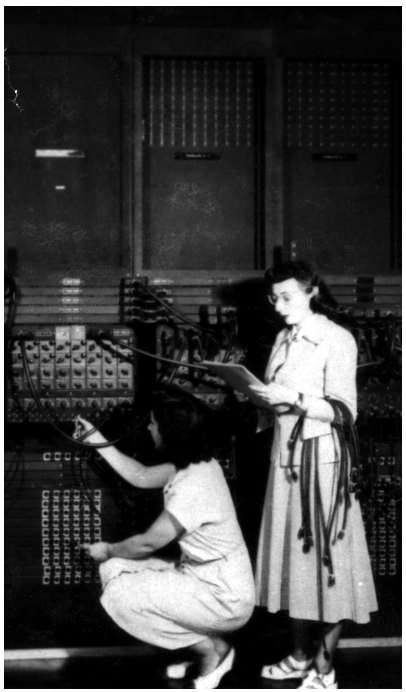

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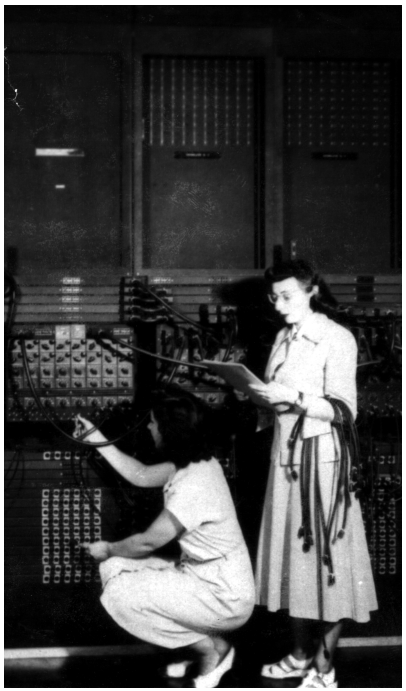
- Labs found on course website (show)

Class Structure

Quizzes:



First "computers"

ENIAC, 1945.

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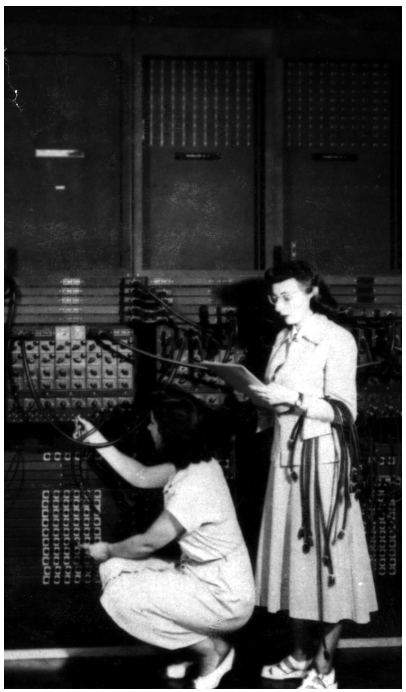

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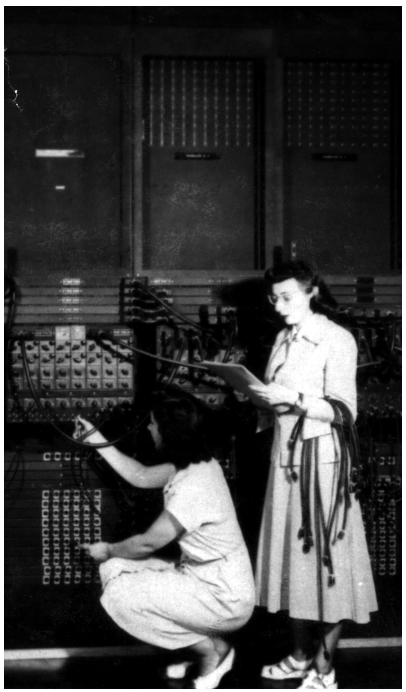

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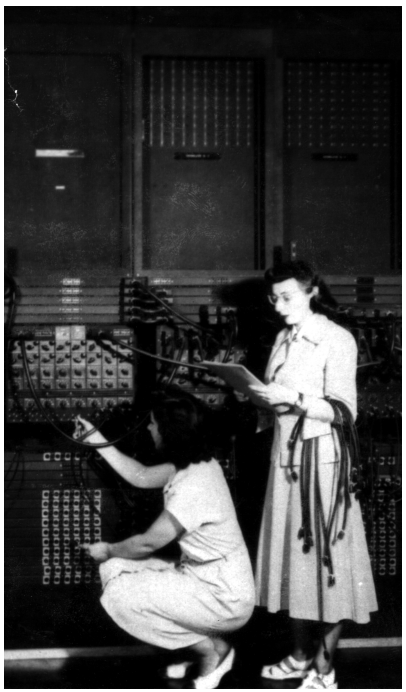

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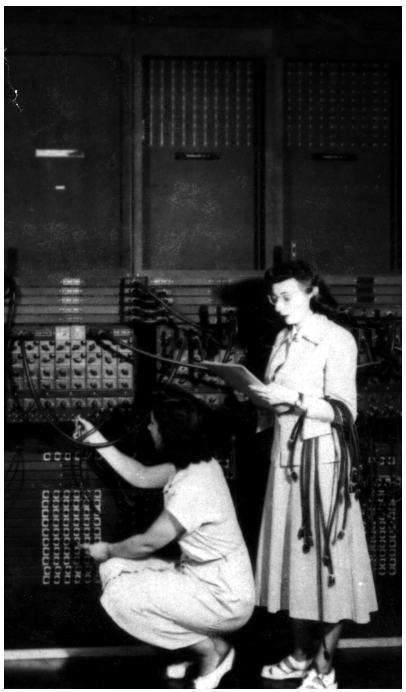

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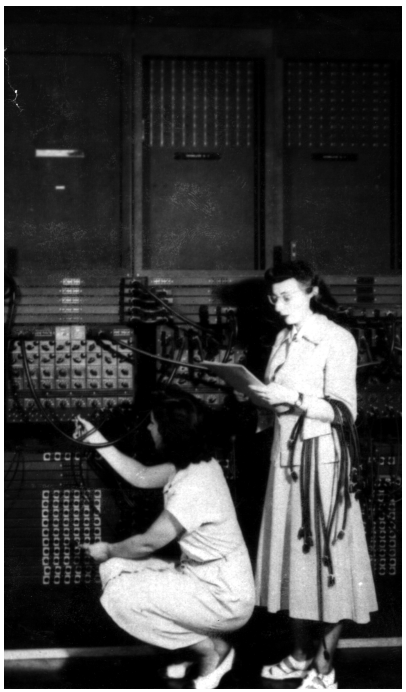

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  While counter-intuitive, it gives a "mental scaffold" to store new material.

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Introductions: Your Turn

- Introduce yourself to the class.
- Tell us your names & an interesting fact.

Today's Topics

- Introduction to Python
- Definite Loops (`for`-loops)
- Turtle Graphics
- Algorithms

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- The first lab goes into step-by-step details of getting Python running.
- We'll look at the design and basic structure (no worries if you haven't tried it yet in lab).

First Program: `Hello, World!`

Demo in `pythonTutor`

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#Date:  September 1, 2017
#This program prints:  Hello, World!

print("Hello, World!")
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- Output to the screen is: `Hello, World!`
- Can replace `Hello, World!` with another string to be printed.

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```
#Name:  L-M Miranda
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#This program prints intro lyrics

print('Get your education,')
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Spring18 here in Assembly Hall
Who is L-M Miranda?

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- Can use single or double quotes, just need to match.

Turtles Introduction

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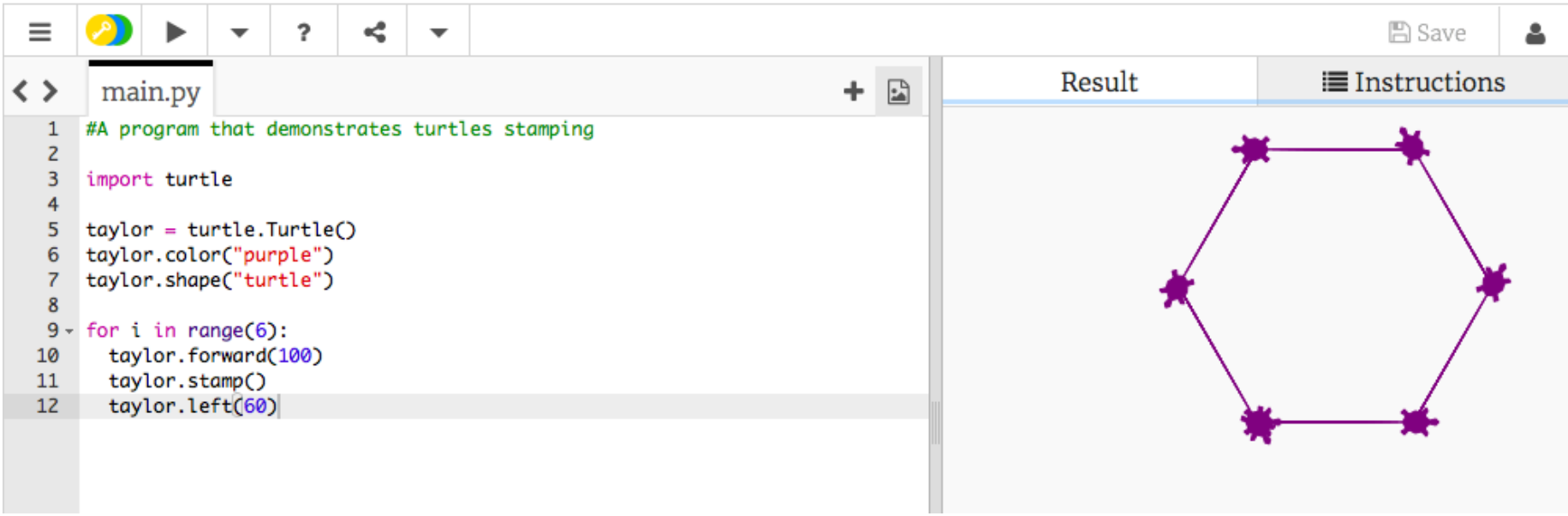
- (Fancier turtle demo)

Turtles Introduction



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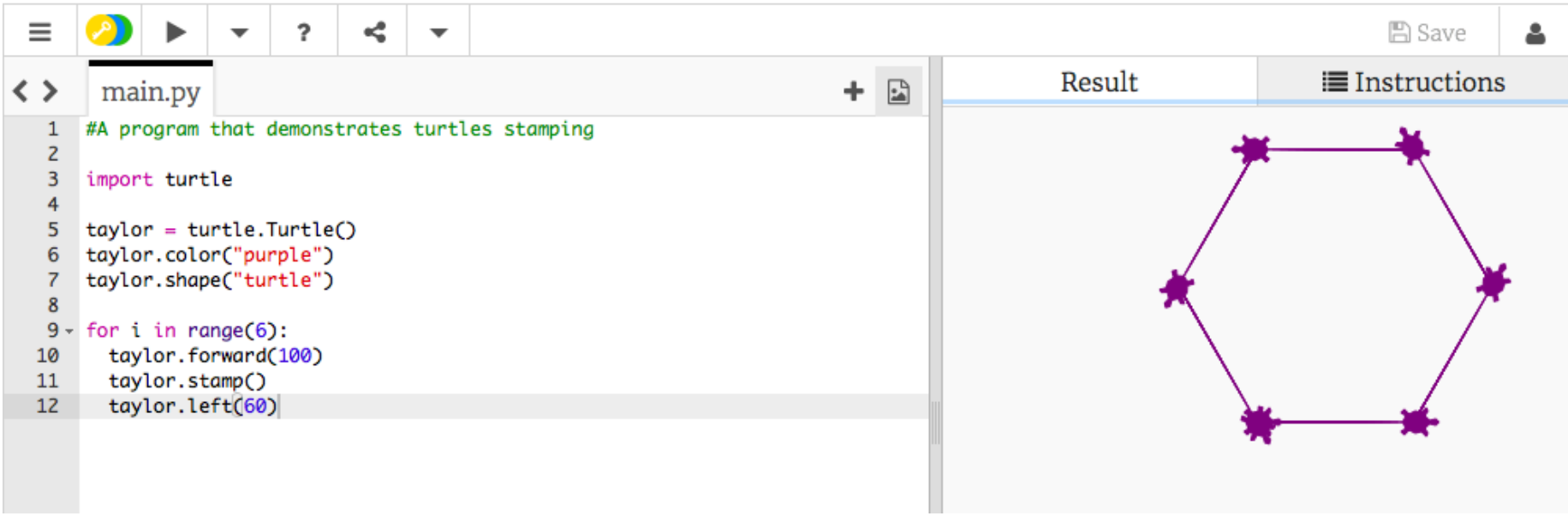

- Creates a turtle, called `taylor`.
- Changes the color (to purple) and shape (to turtle-shaped).

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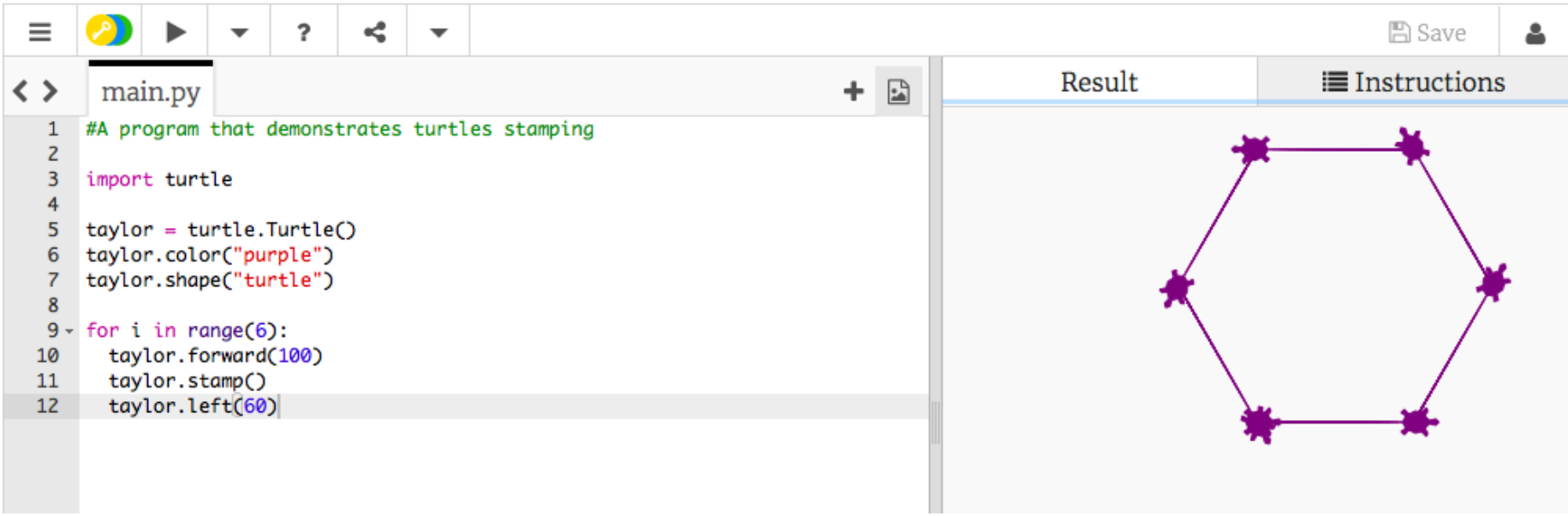

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- Changes the color (to purple) and shape (to turtle-shaped).
- Repeats 6 times:

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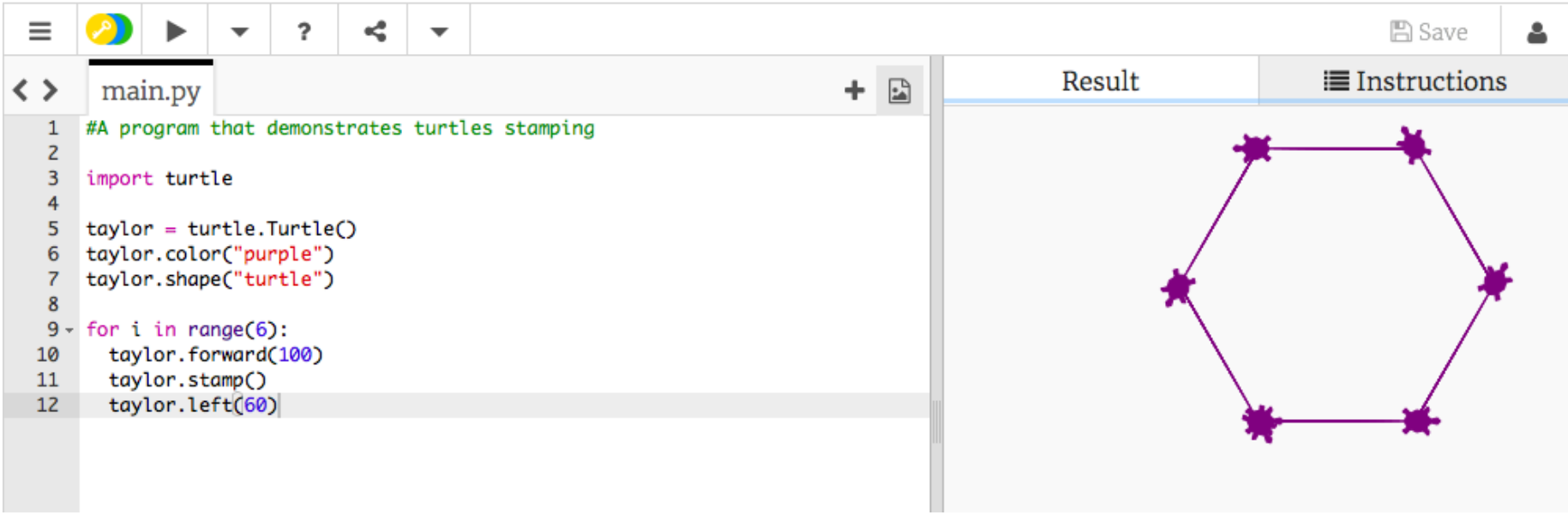

- Creates a turtle, called `taylor`.
- Changes the color (to purple) and shape (to turtle-shaped).
- Repeats 6 times:
  - Move forward; stamp; and turn left 60 degrees.

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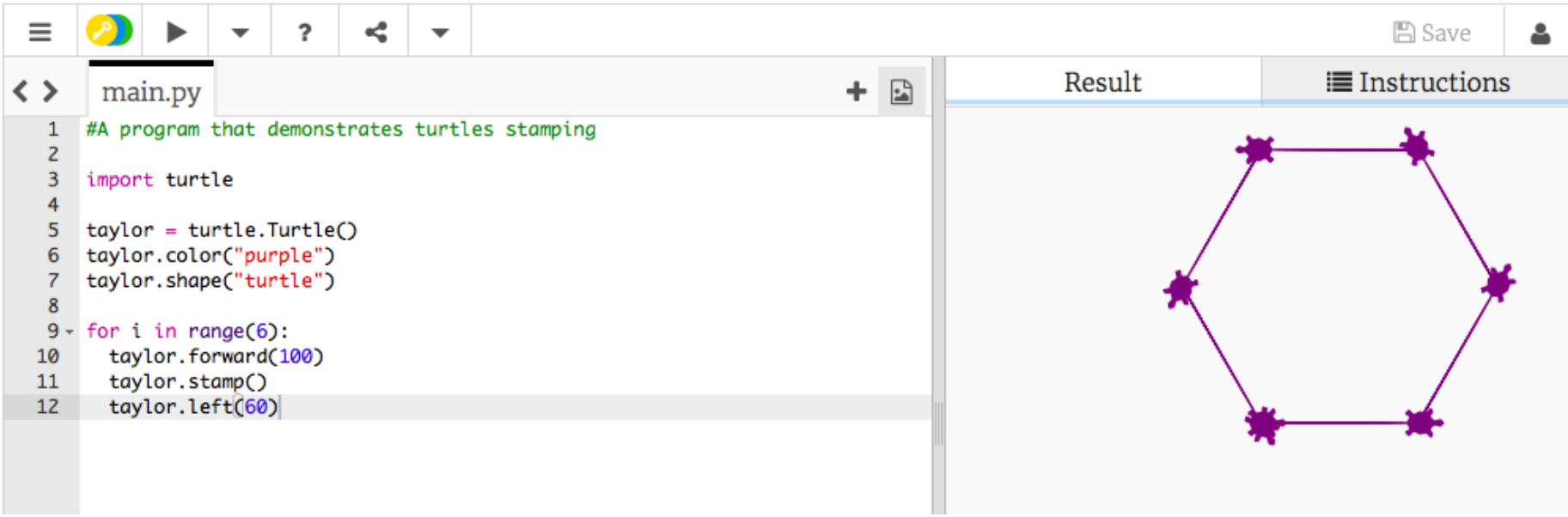


- Creates a turtle, called `taylor`.
- Changes the color (to purple) and shape (to turtle-shaped).
- Repeats 6 times:
  - Move forward; stamp; and turn left 60 degrees.
- Repeats any instructions **indented** in the "loop block"

Challenge Question

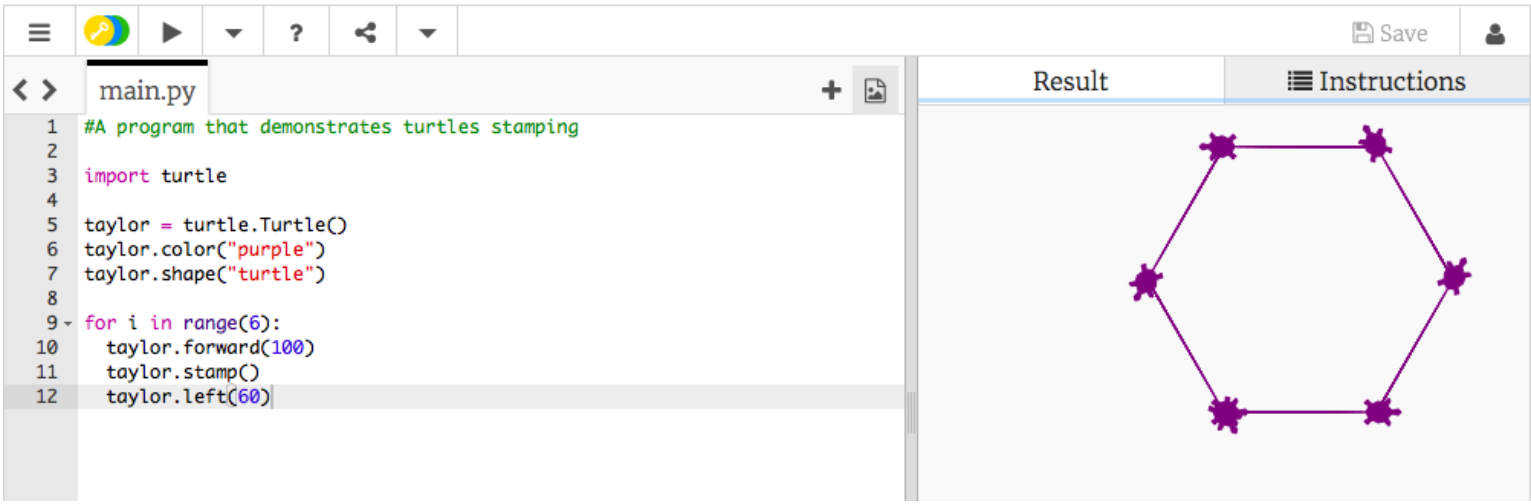
On a piece of paper (ungraded):

1. Write a program that will draw a 10-sided polygon.
2. Write a program that will repeat the line:

   ```
   I'm lookin' for a mind at work!
   ```

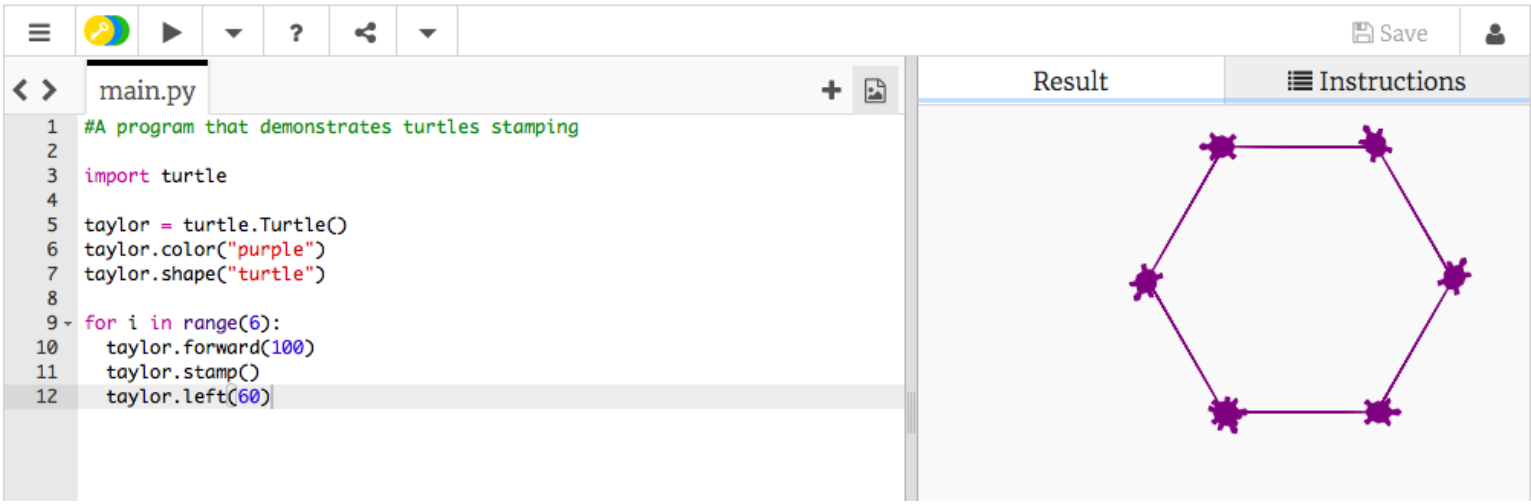
   three times.

Decagon Program



- Start with the hexagon program.

Decagon Program



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- Has 10 sides (instead of 6), so change the `range(6)` to `range(10)`.

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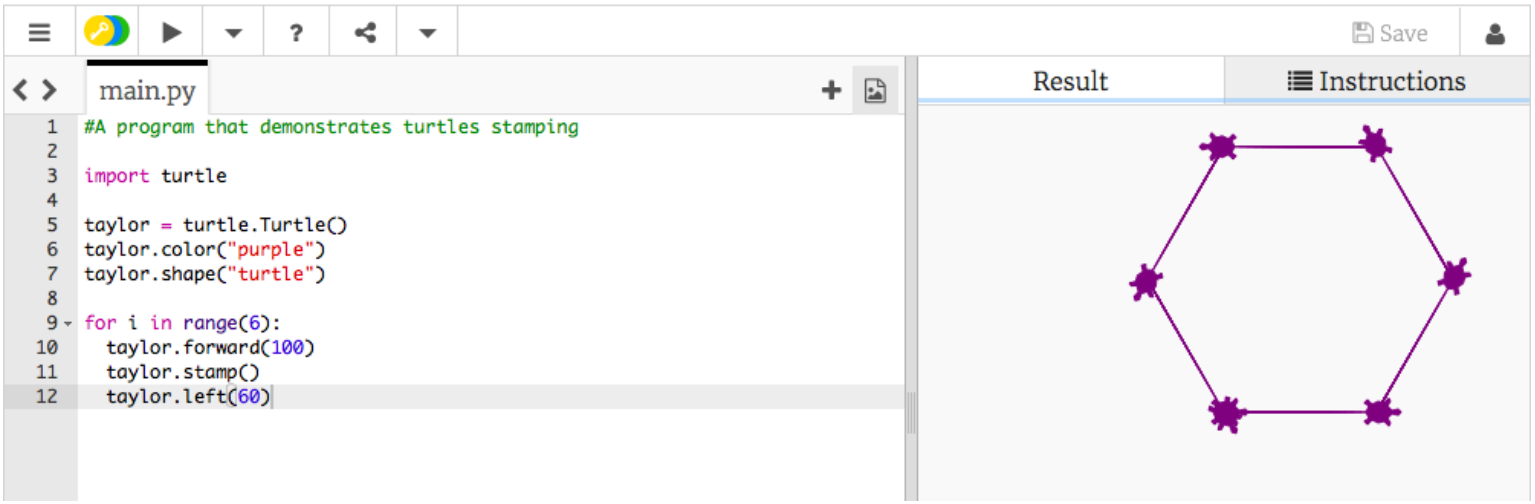

- Start with the hexagon program.
- Has 10 sides (instead of 6), so change the `range(6)` to `range(10)`.
- Makes 10 turns (instead of 6),
  so change the `taylor.left(60)` to `taylor.left(360/10)`.

Work Program

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   I'm lookin' for a mind at work!
   ```

   three times.

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- Instead of turtle commands, repeating a print statement.
- Completed program:

  ```
  # Your name here!
  for i in range(3):
      print("I'm lookin' for a mind at work!")
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From our textbook:

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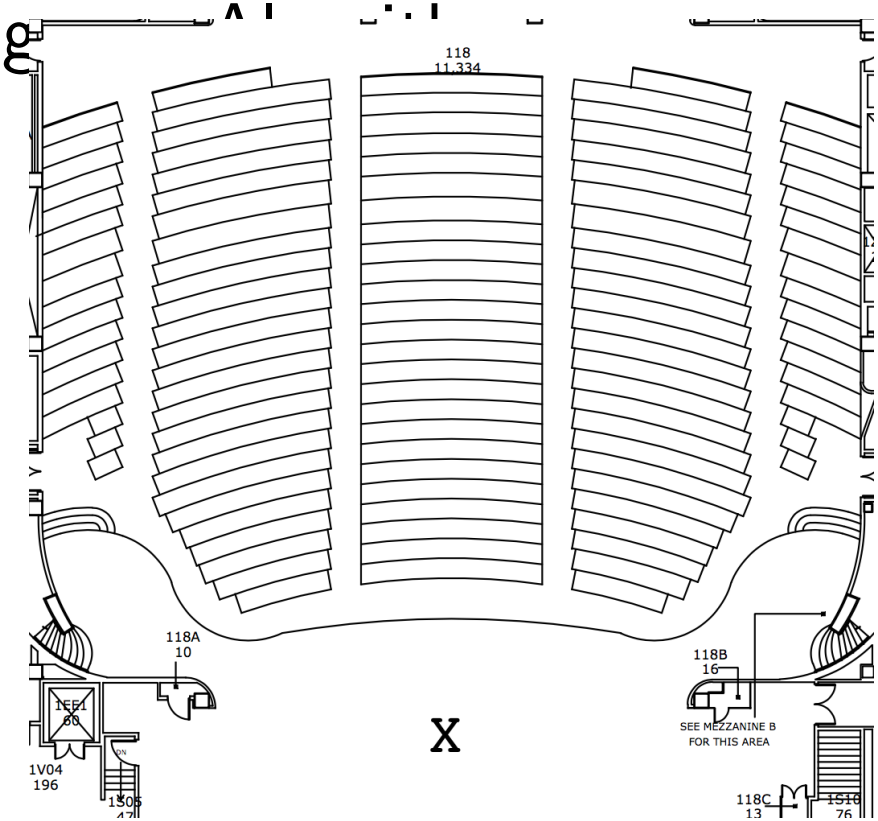
- Programming is a skill that allows a computer scientist to take an algorithm and represent it in a notation (a program) that can be followed by a computer.

Challenge: Desig



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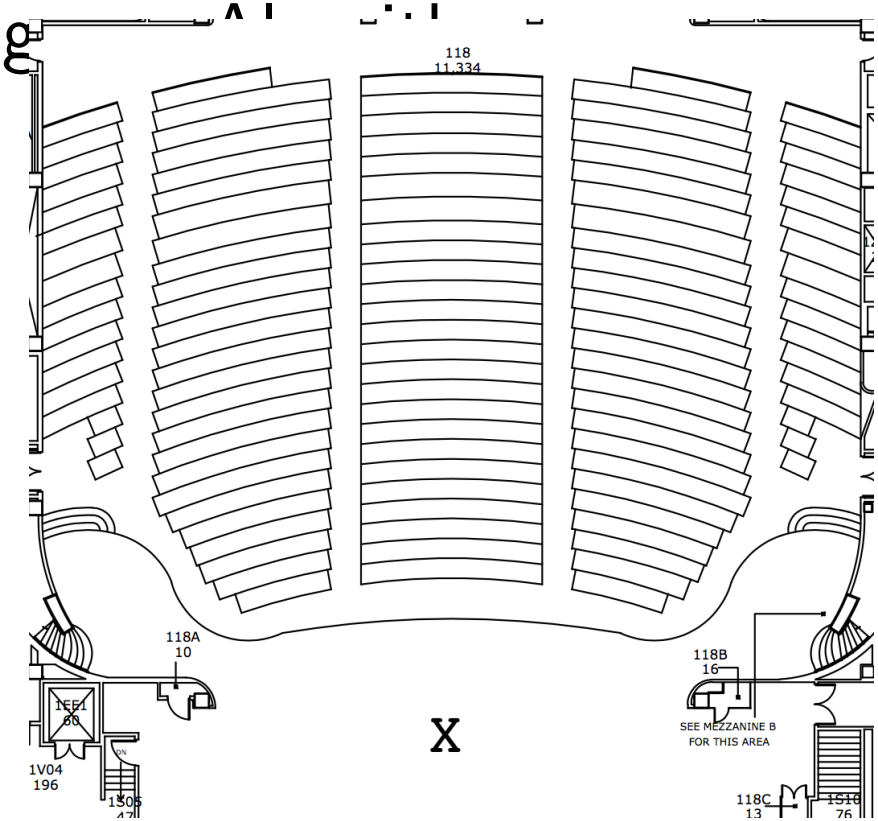

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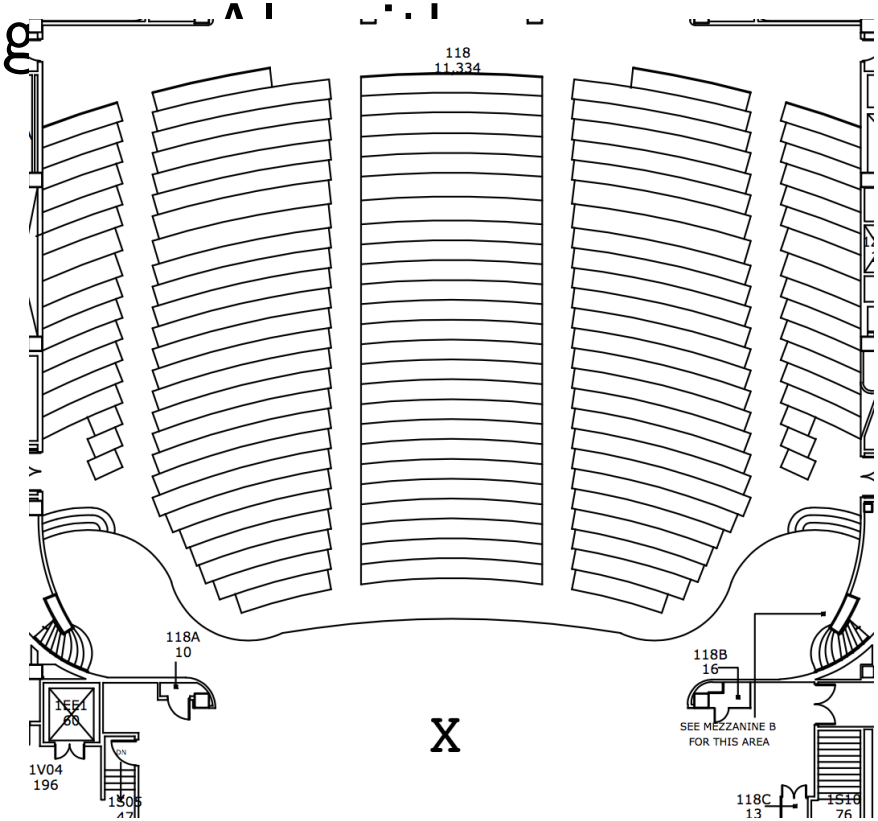

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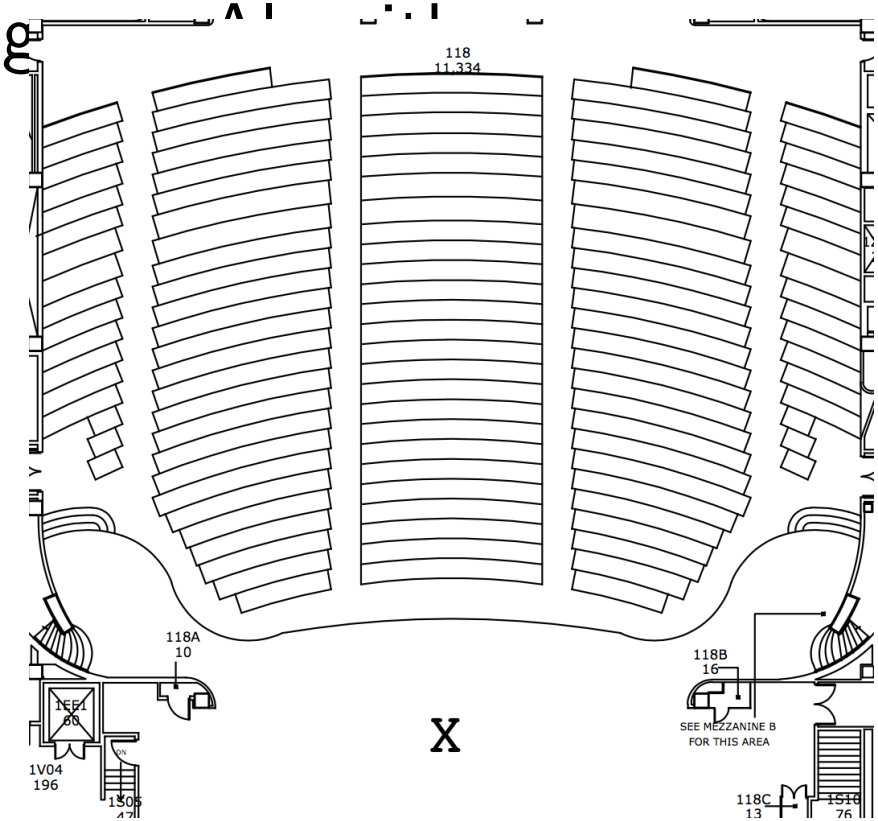

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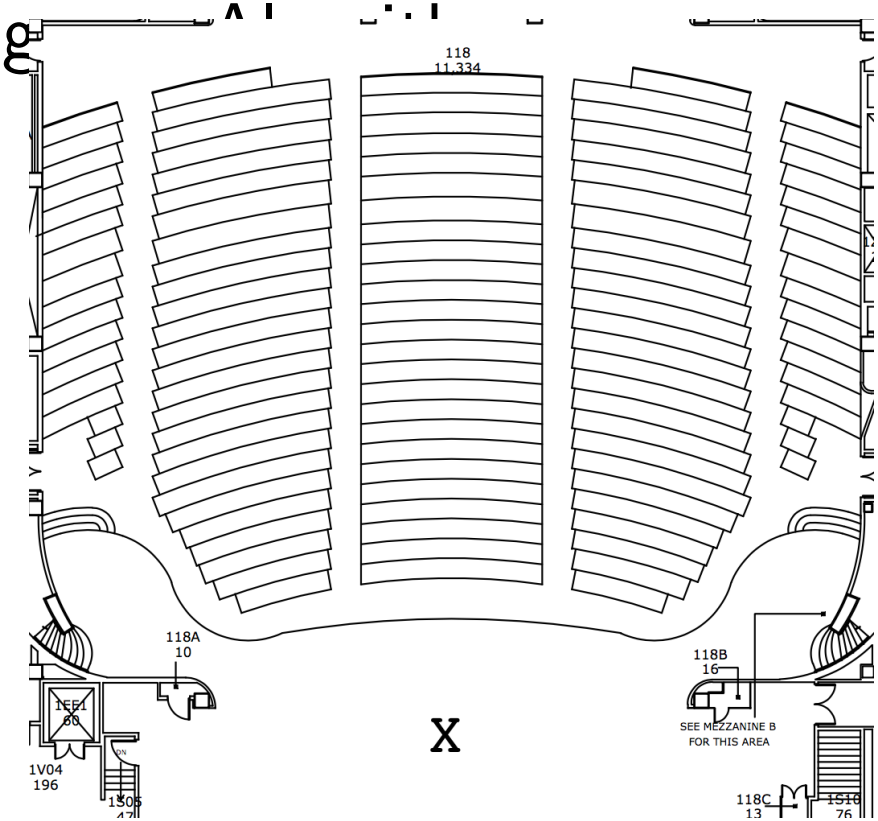

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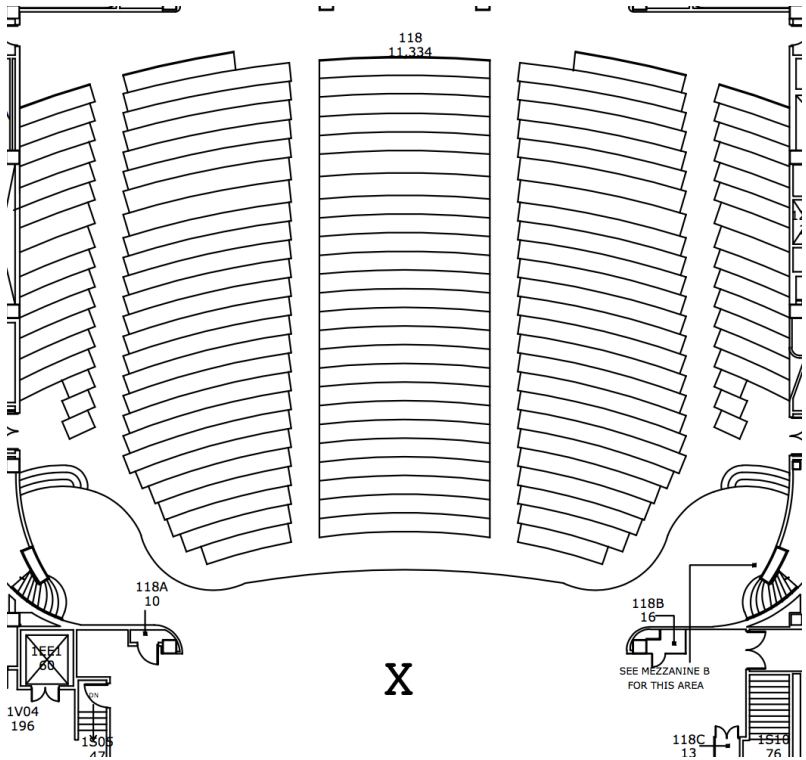
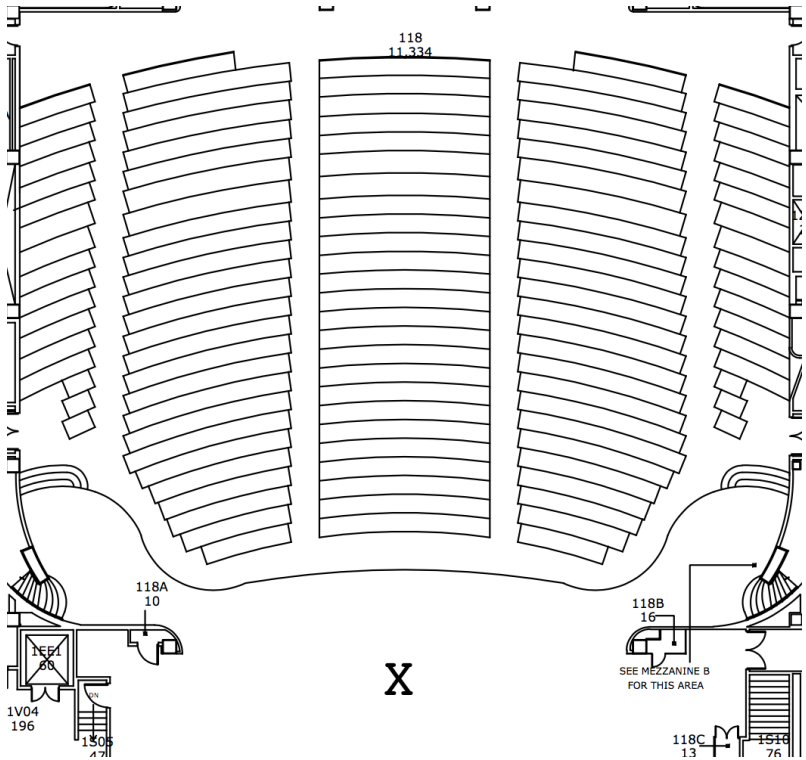


- Imagine someone needs to follow your directions exactly.

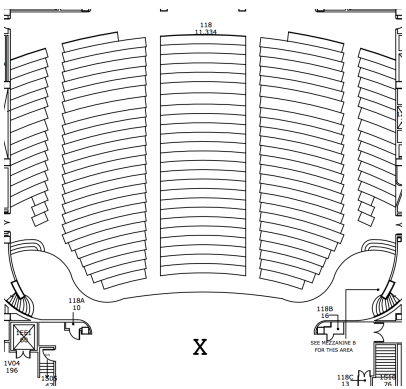
Challenge



- Imagine someone needs to follow your directions exactly.
- Are there any changes needed to the directions (i.e. debug your work).

Recap

- Writing precise algorithms is difficult.



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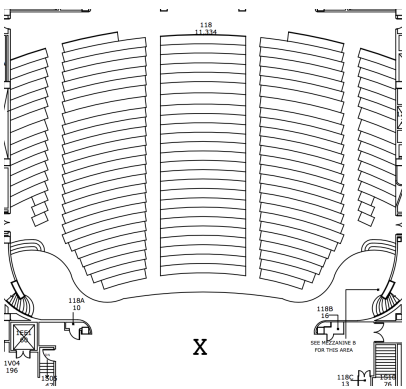

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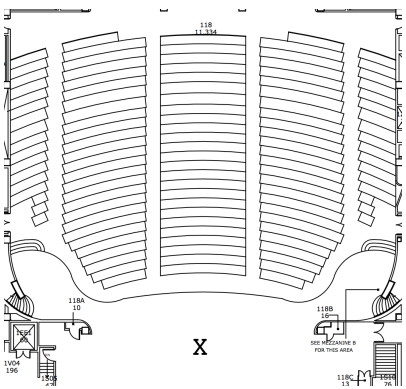

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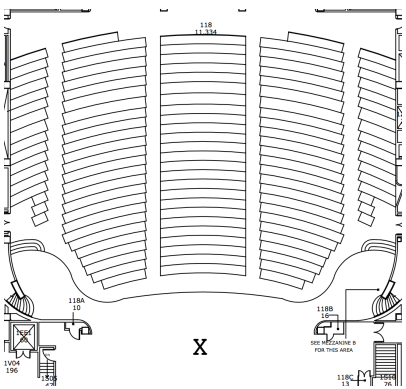

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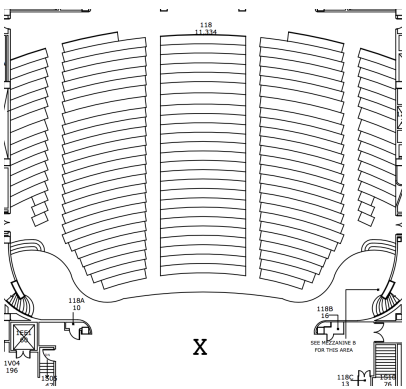

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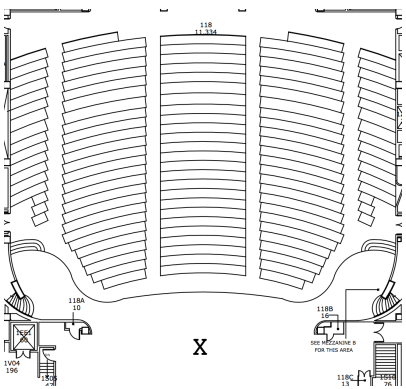

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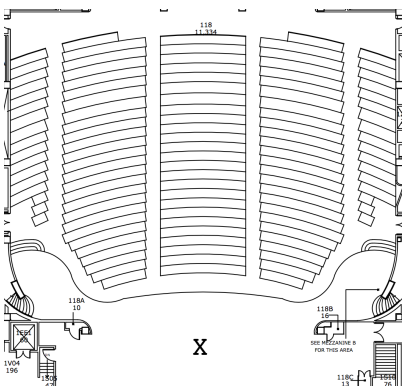

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- Log in to Gradescope to complete Quiz 1.