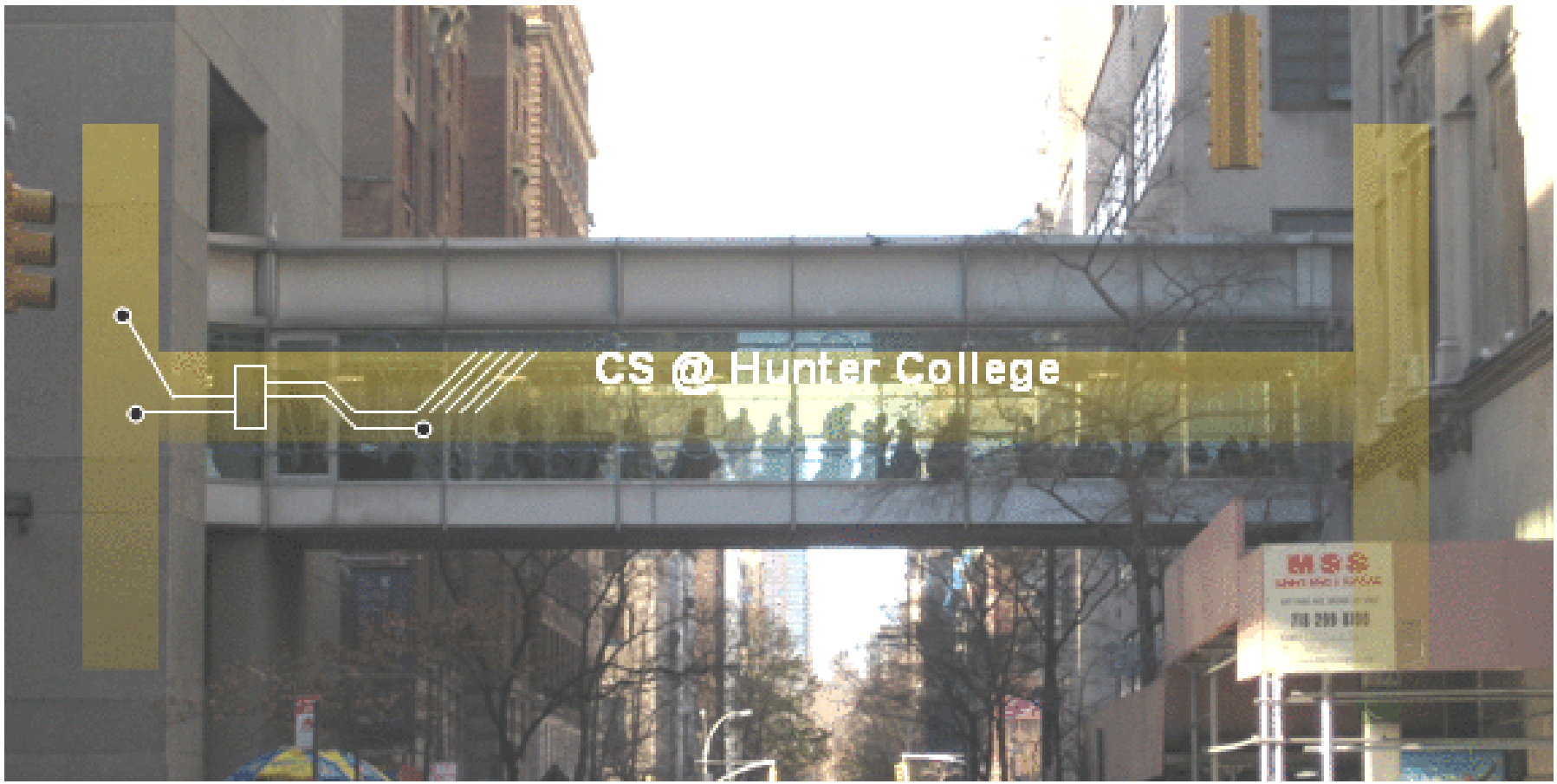
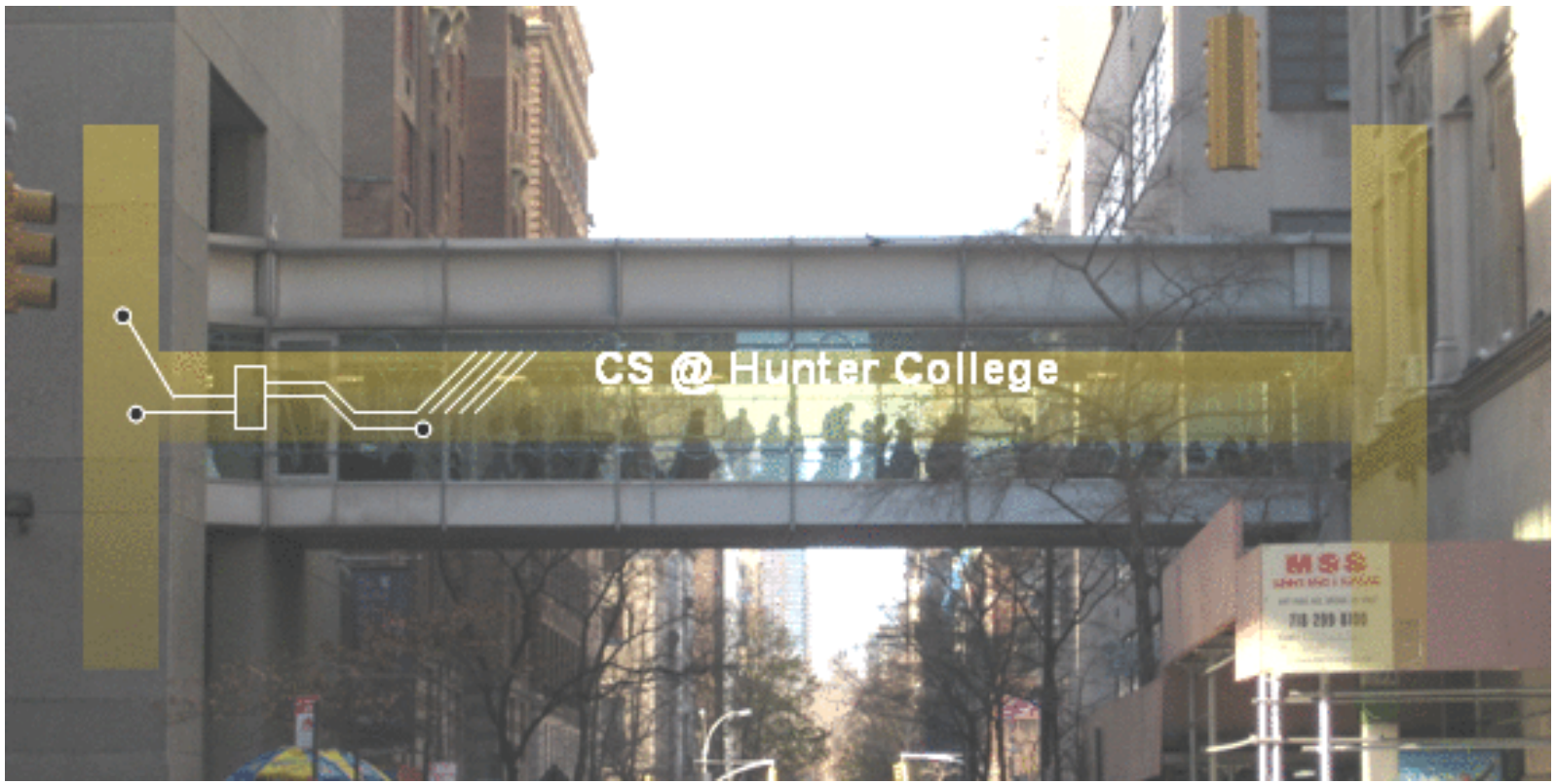
CSci 127: Introduction to Computer Science



hunter.cuny.edu/csci

Welcome



Acknowledgments

Thank you to the amazing support of:

President Raab

Dean Polsky
Arts & Science

Judy Spitz
WiTNY

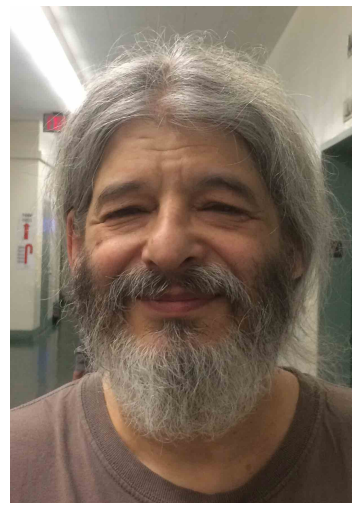
Introductions: Course Designers

Dr. Katherine St. John

Professor,
Course Coordinator

Dr. William Sakas

Associate Professor,
Chair



Prof. Eric Schweitzer

Undergraduate Program
Coordinator

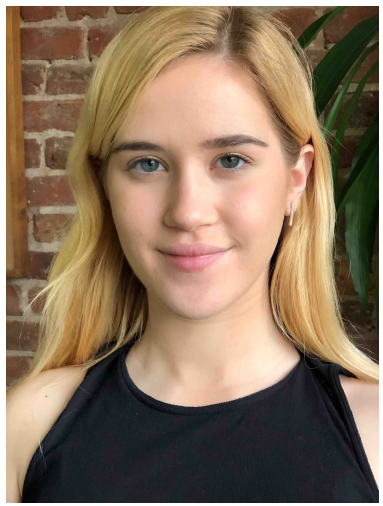
Introductions: Recitation Instructors


Alex Washburn


Alvin Lam


Jaime Canizales


Katherine Howitt

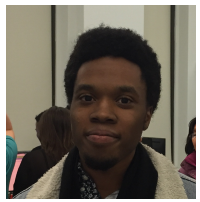

Melissa Lynch

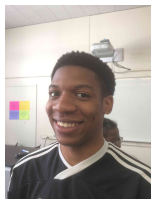

Tiziana Ligorio

Introductions: Undergraduate Teaching Assistants


Anna Lis


Antonio Bountouvas


Brian Campbell


Bryan Belmont


Camryn Buonamassa


David Yuen


Erin Williams

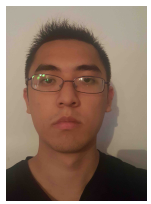

Ferdi Lesporis


Harry Wu


Mandy Yu


Michael Nurilov


Nick Szewczak


Nicky Cen


Owen Kunhardt

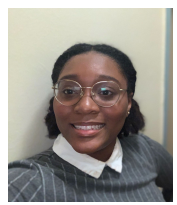

Parakram Basnet


Ralph Venté


Rhia Singh

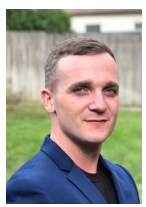

Savannah Nester


Shaina Lowenthal

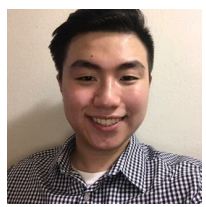

Shantel Dixon


Stephanie Yung


Stephen Milani


Thomas Joy


Tommi Ann Tsuruga


Vincent Zheng

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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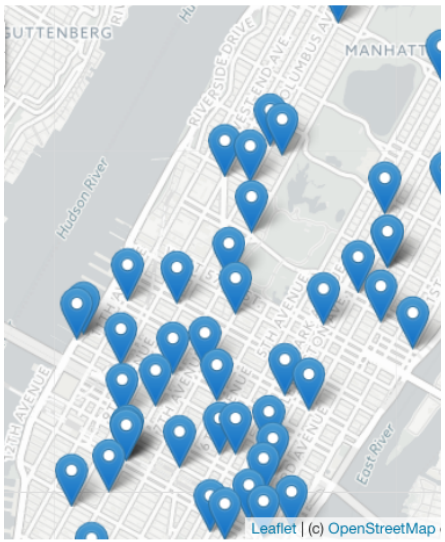
(Show syllabus webpage)

Syllabus: Topics



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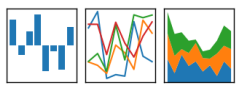

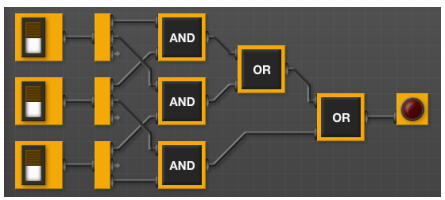

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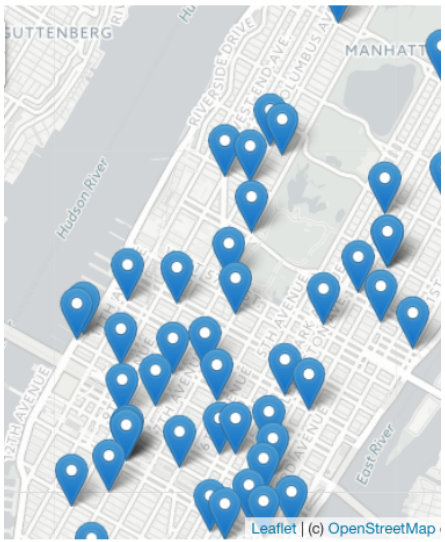

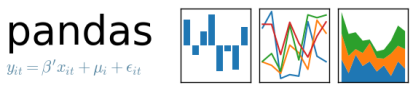

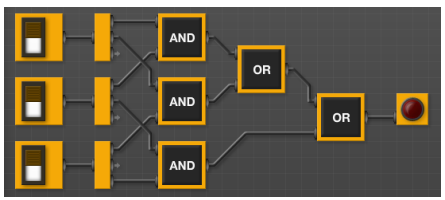

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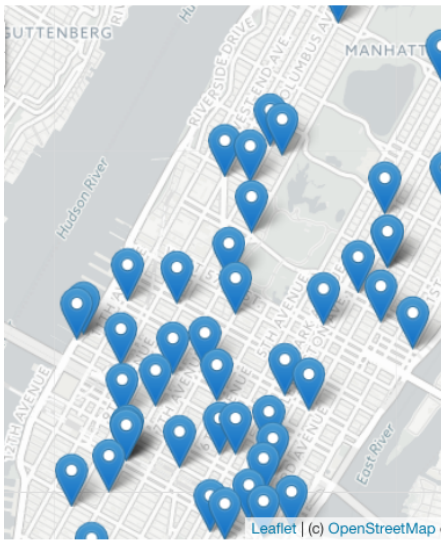

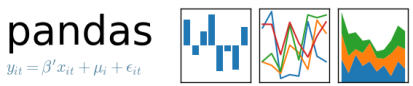

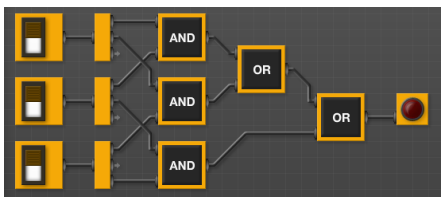

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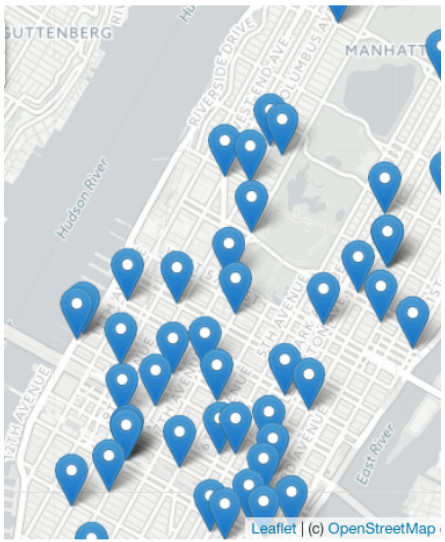

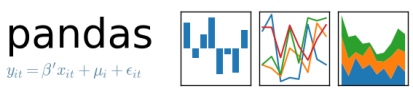

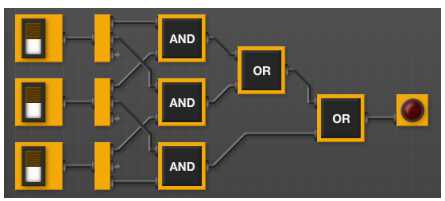

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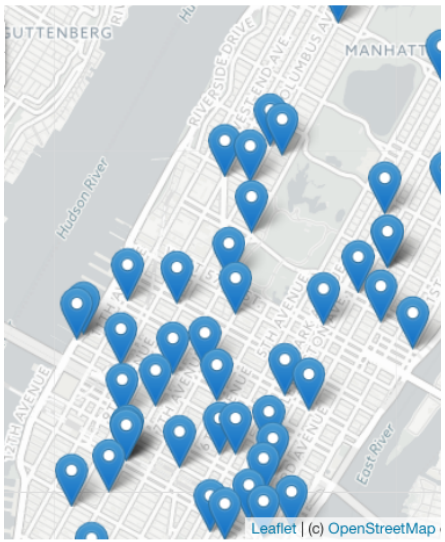

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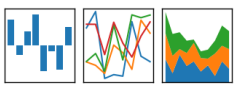

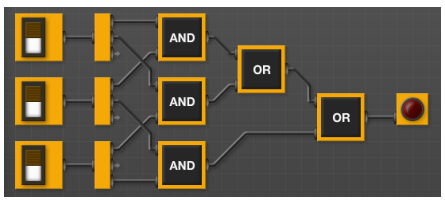

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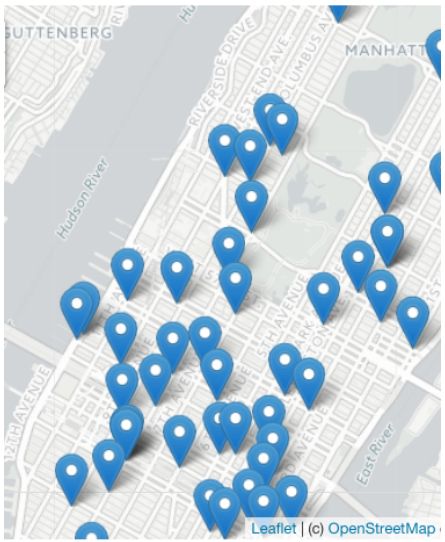

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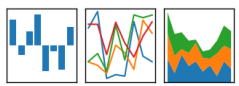

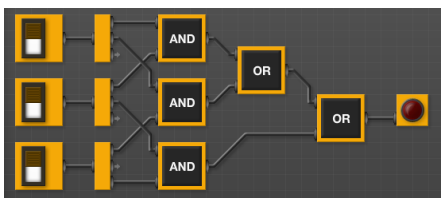

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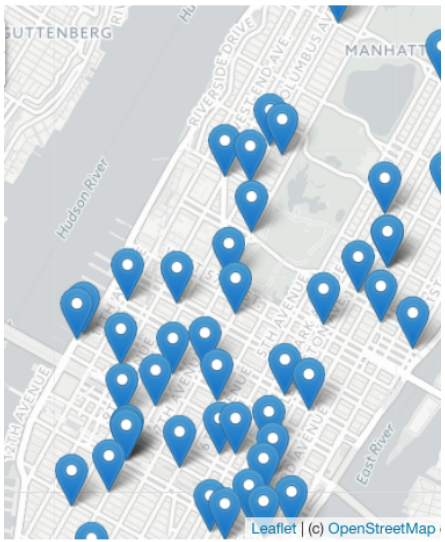

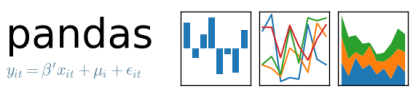

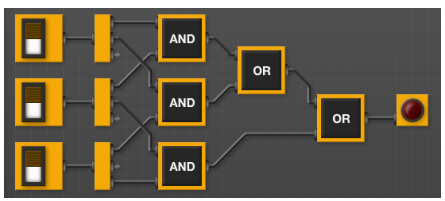

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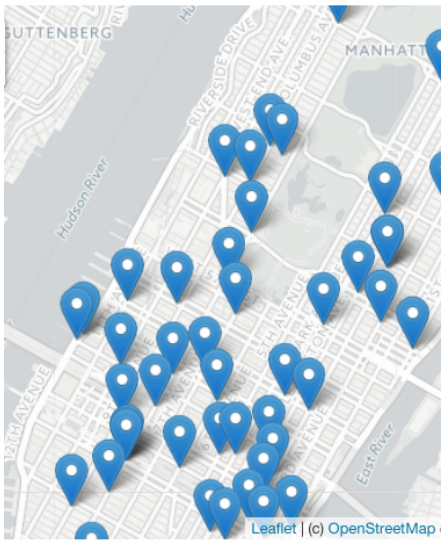

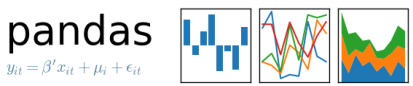

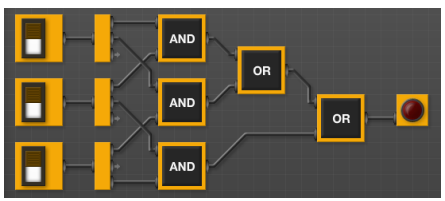

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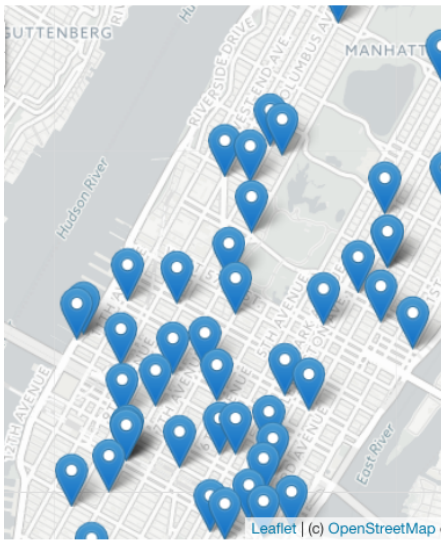

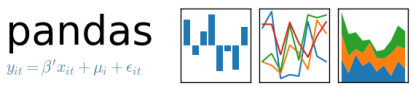

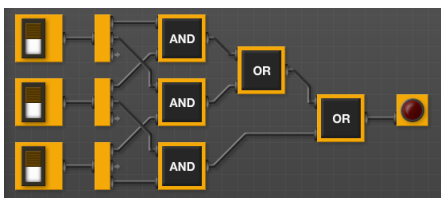

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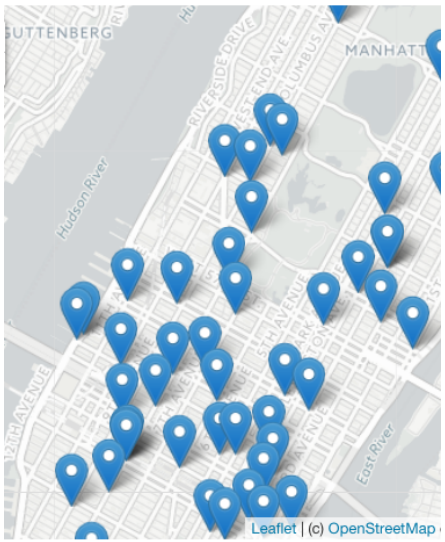

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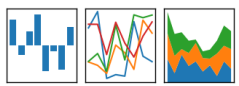

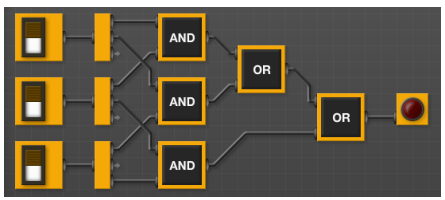

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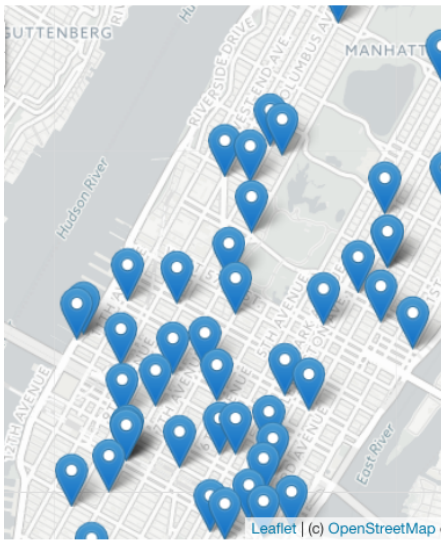
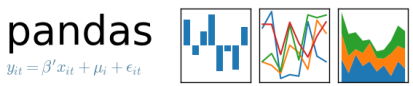
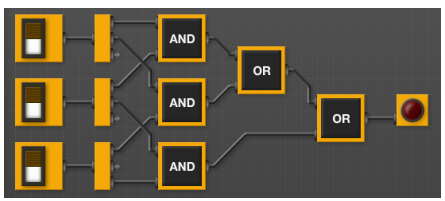
Syllabus: Topics







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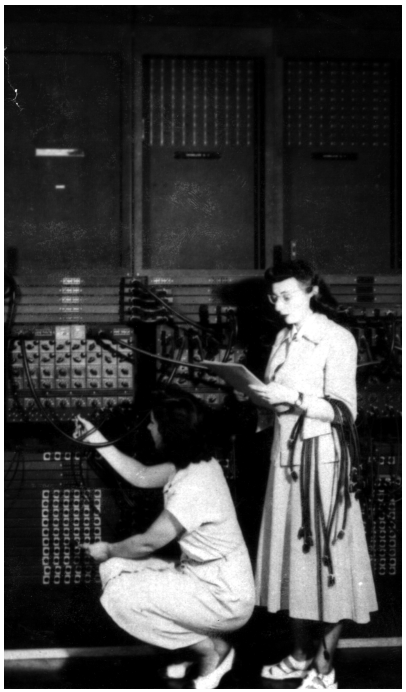
Class Structure

Lecture:

- Tuesdays, 11:10am-12:25pm, 118 North.



First "computers"

ENIAC, 1945.

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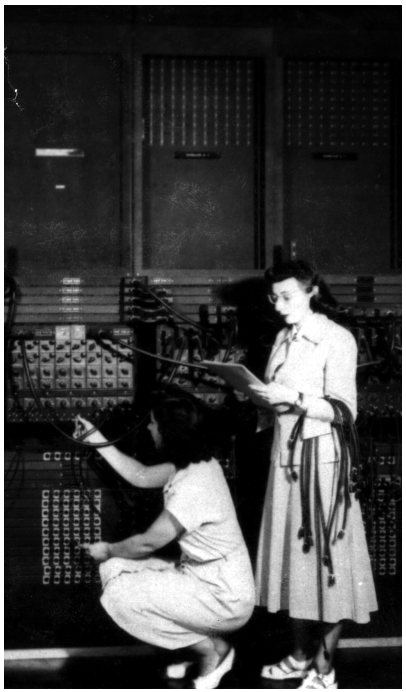

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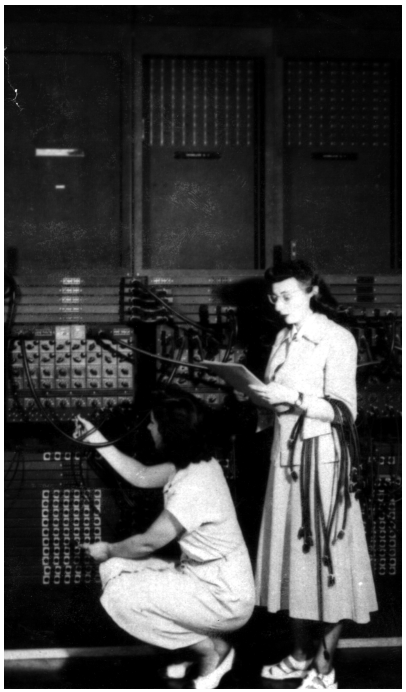

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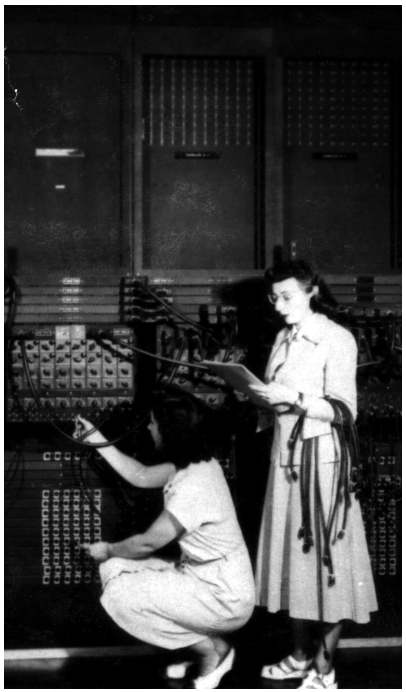

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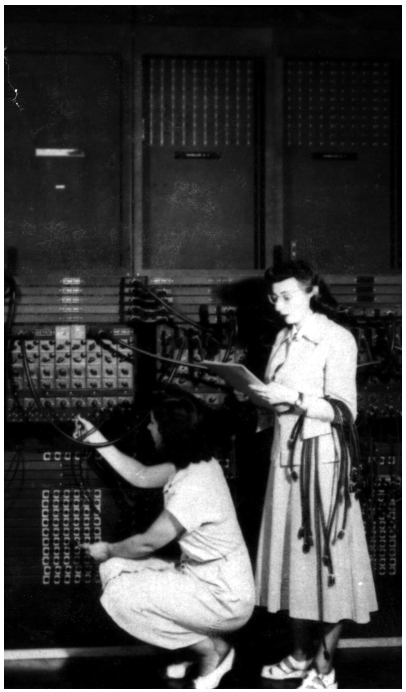

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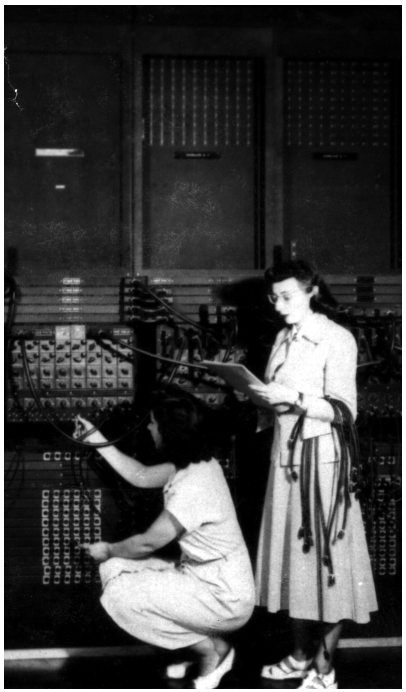

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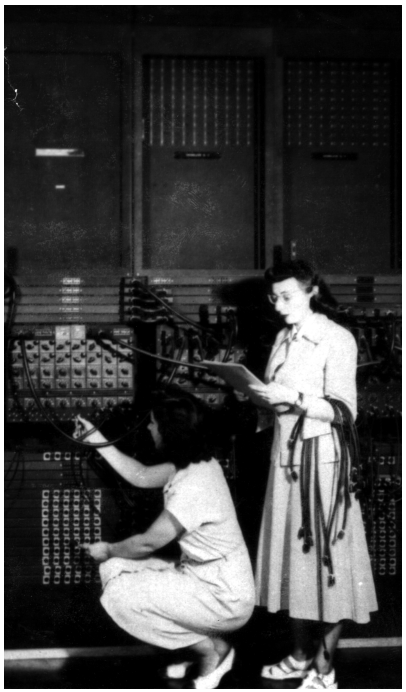

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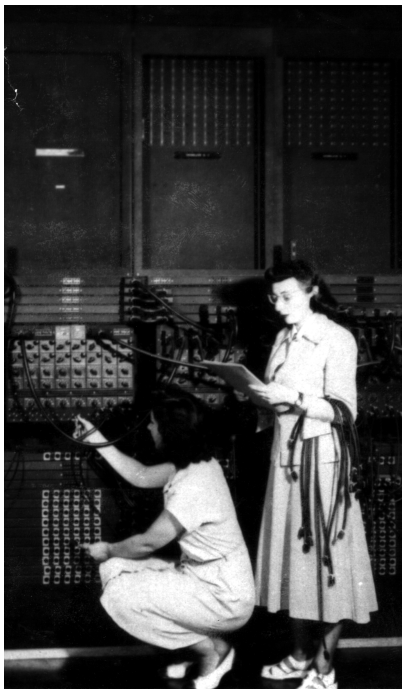

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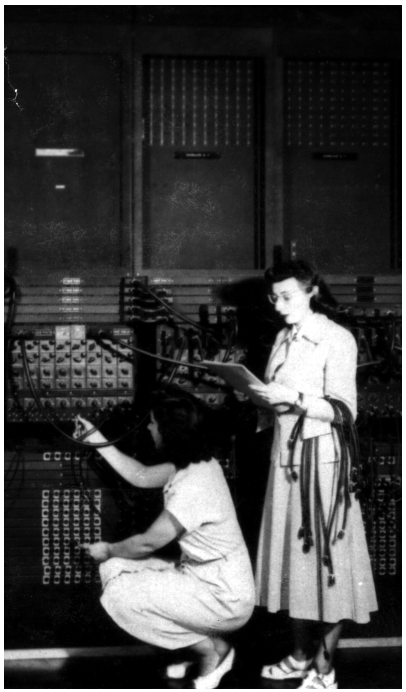

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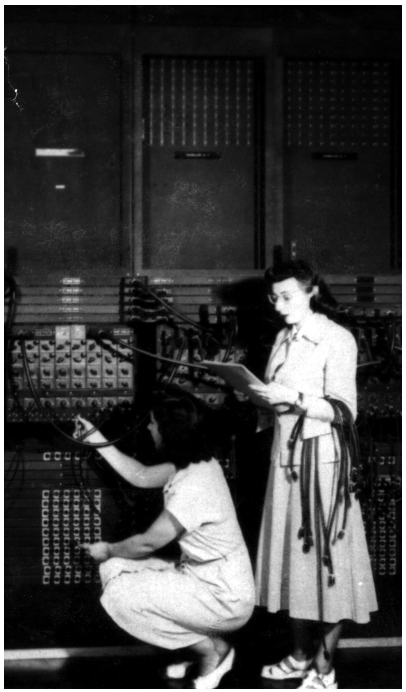

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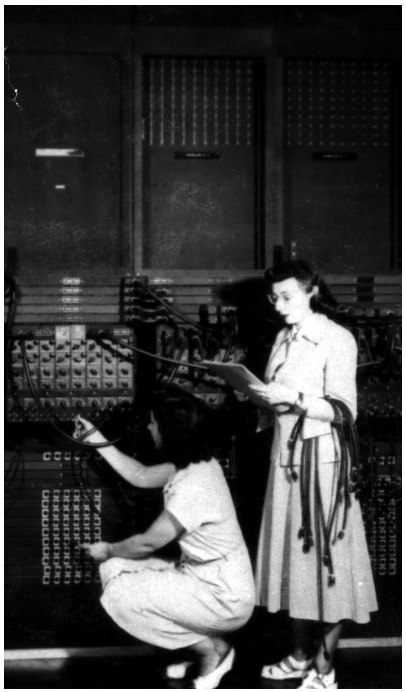

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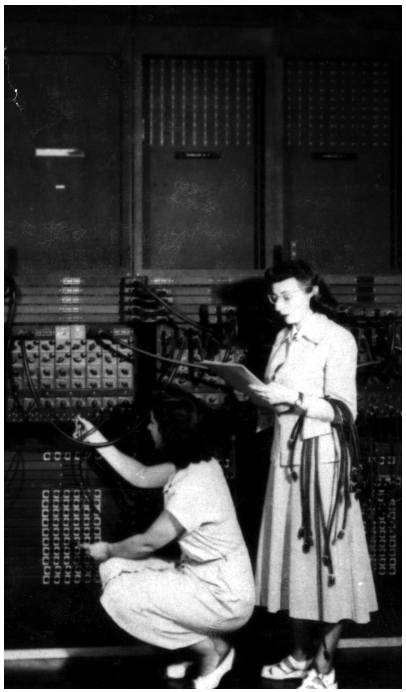

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- Gradescope: email invite sent Wednesday.

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Grading:

- Do you curve grades?

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  We replace missing or low grades on lecture slips or quizzes with your final exam grade.
  Lecture slips and quizzes only help your grade.

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  Also, provides excellent practice explaining technical ideas (i.e. tech interviews).

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Amanda Bell
Pre-majors & Early Majors

Justin Tojeira
Internships & Upper Division

Introductions: Your Turn

- Introduce yourself to two classmates (that you have not met before).
- Write down names & interesting fact on lecture slip.

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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#Name:  Thomas Hunter
#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.

Variations on Hello, World!

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#This program prints intro lyrics

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

Turtles Introduction

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- (Fancier turtle demo)

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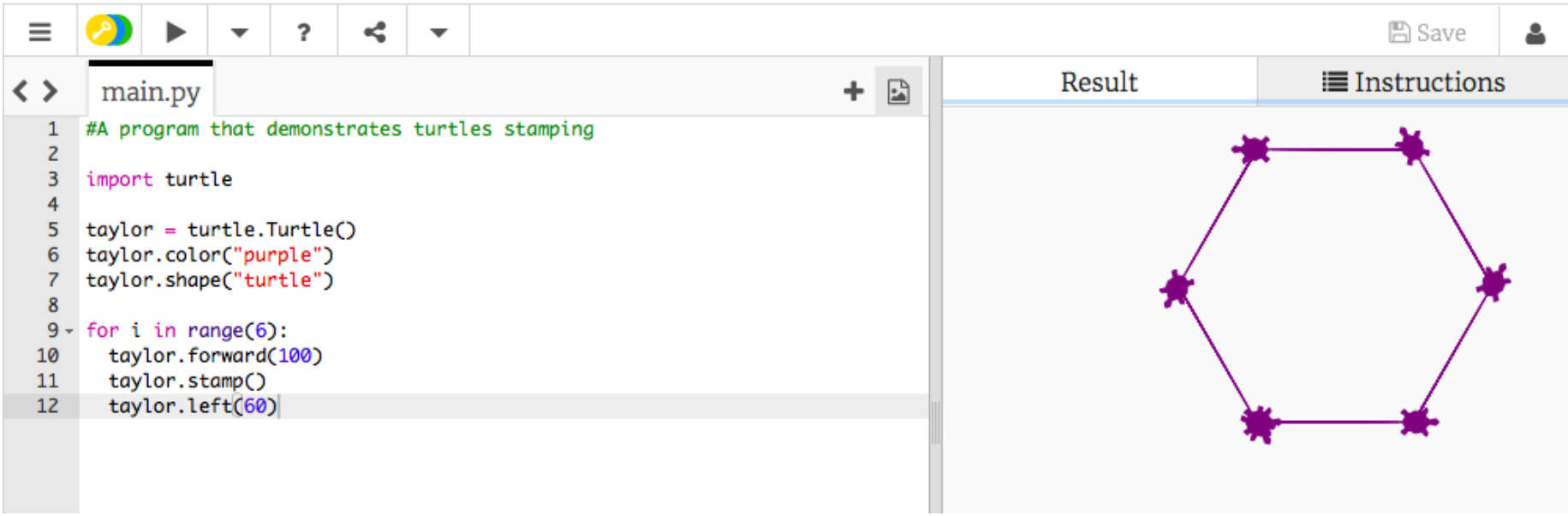

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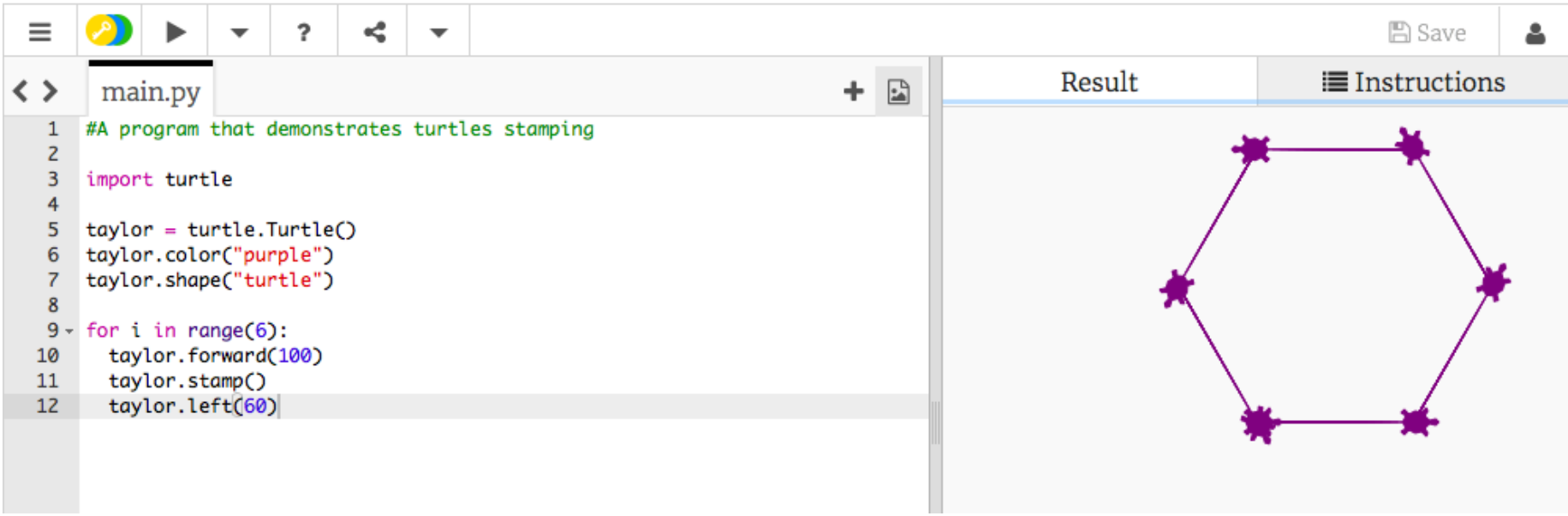

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- Changes the color (to purple) and shape (to turtle-shaped)

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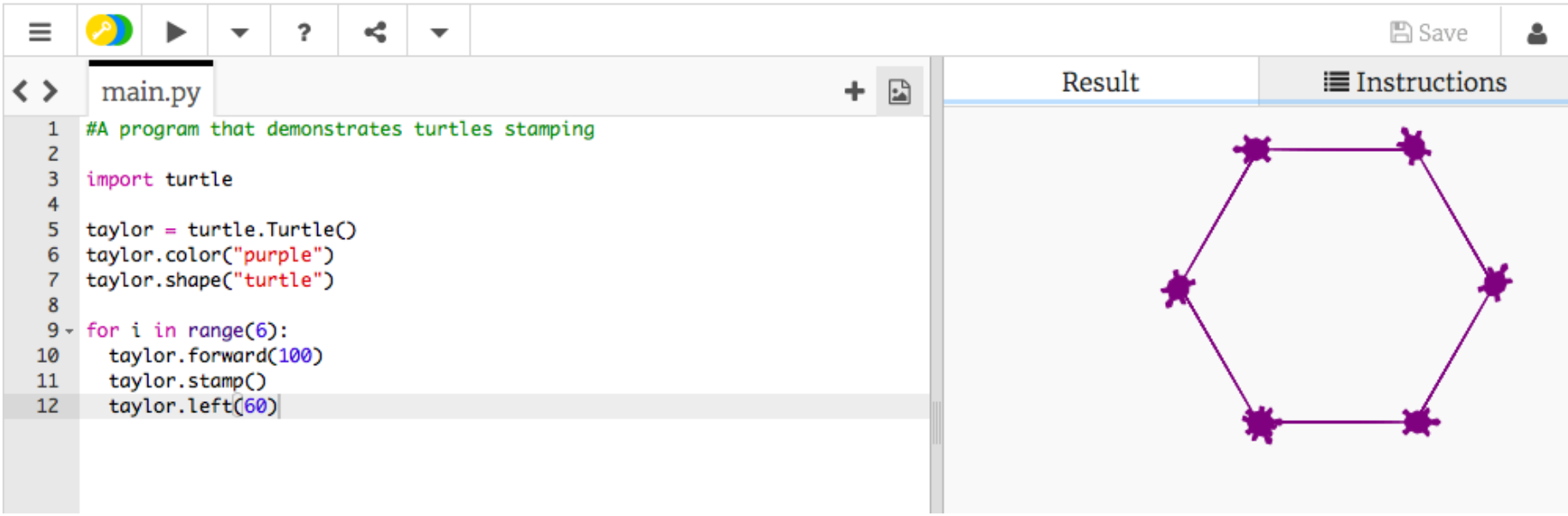

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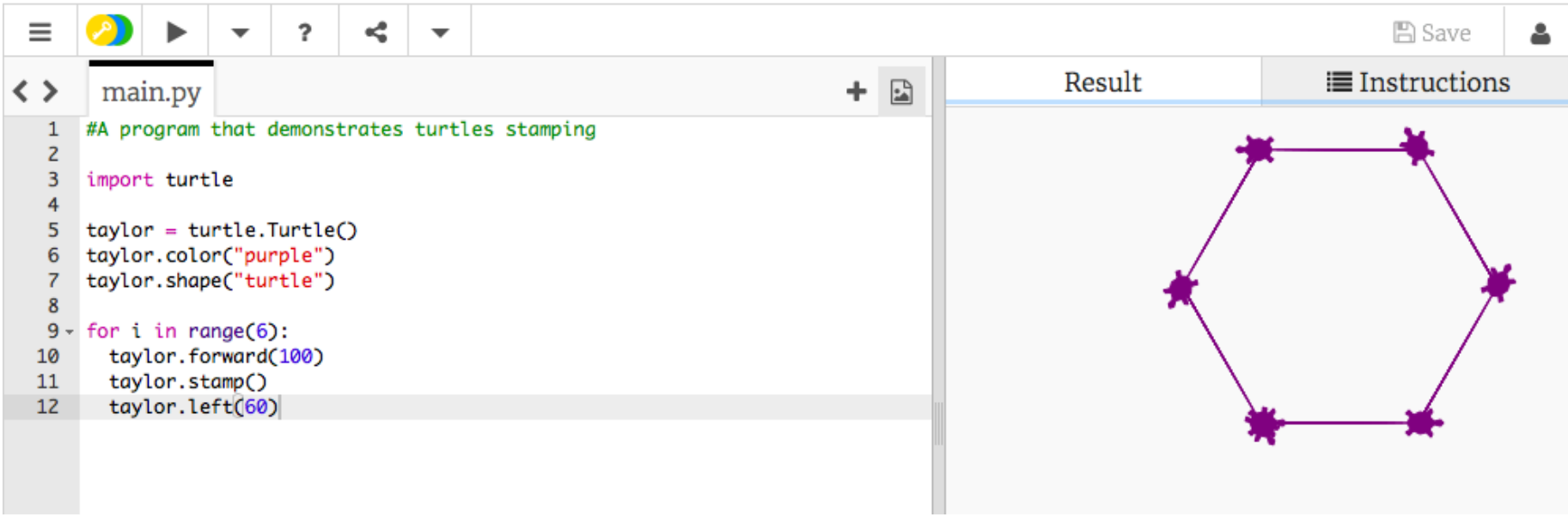


- Creates a turtle, called `taylor`
- Changes the color (to purple) and shape (to turtle-shaped)
- Repeats 6 times:
  - Move forward; stamp; and turn left 60 degrees

Group Work

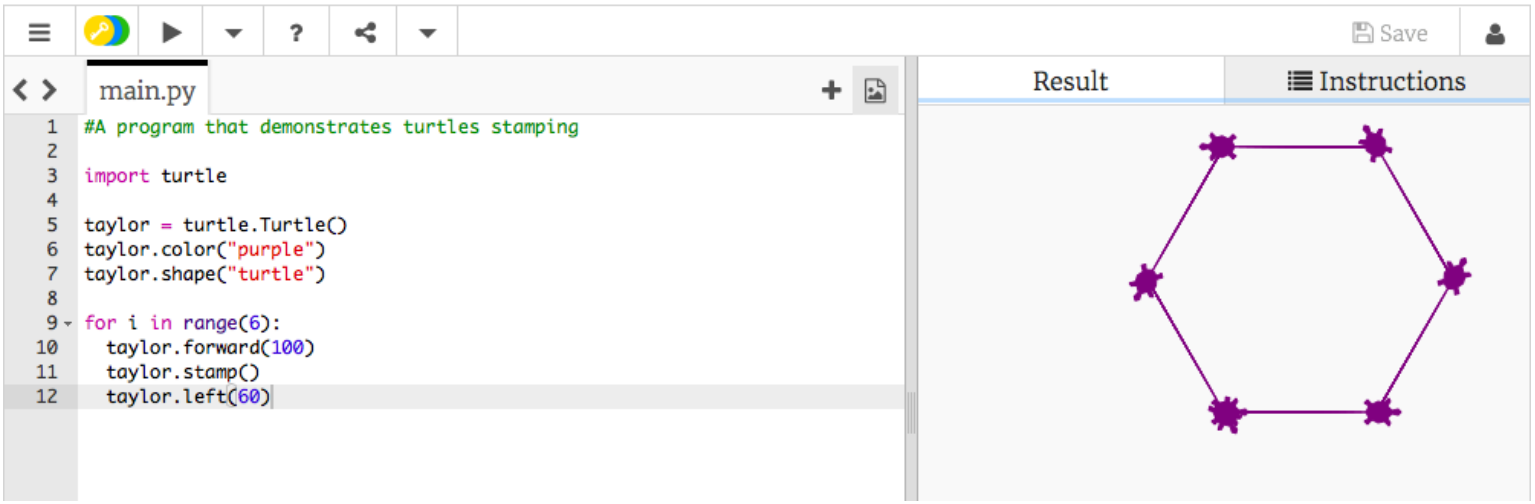
Working in pairs or triples:

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!
   ```

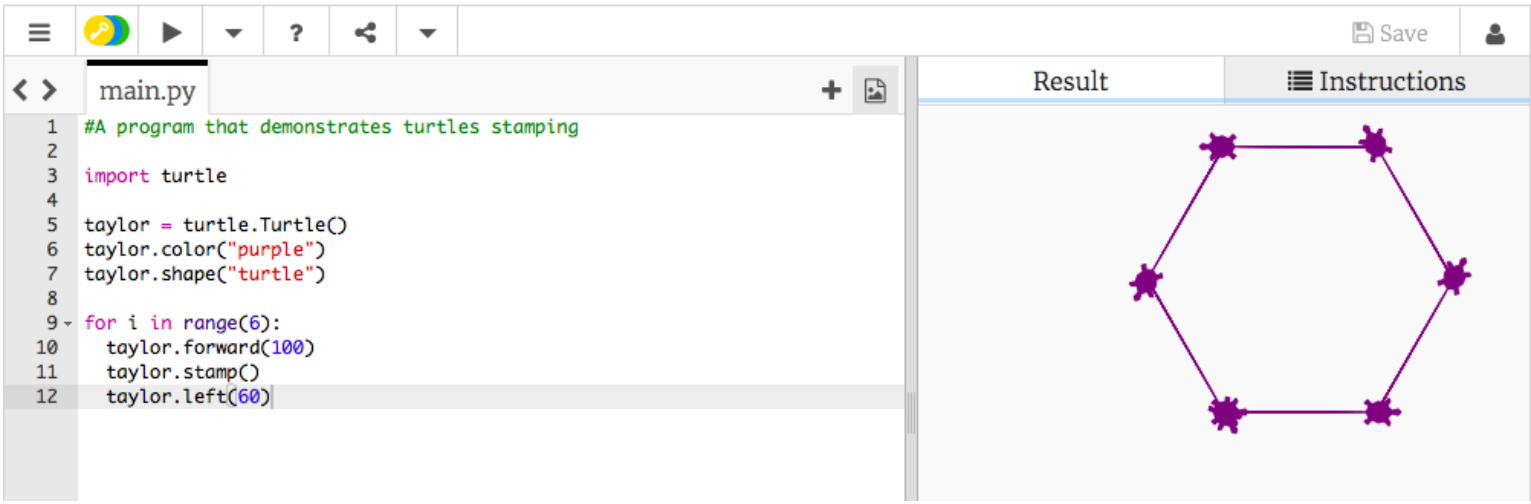
   three times.

Decagon Program



- Start with the hexagon program.

Decagon Program



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

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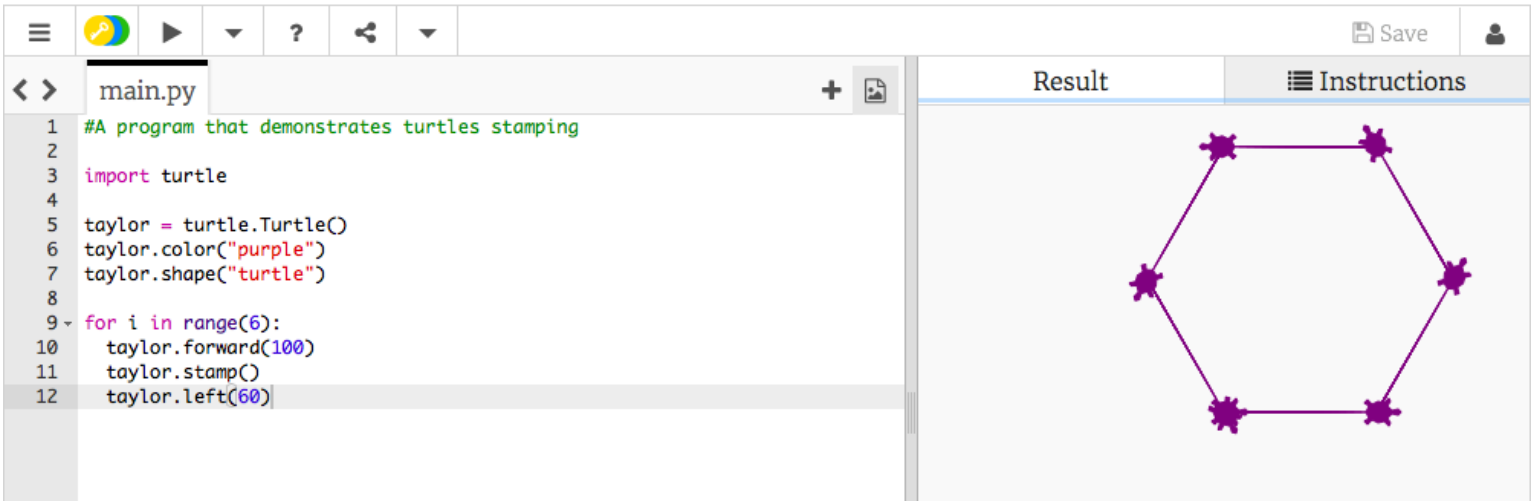

- Start with the hexagon program.
- Has 10 sides (instead of 6), so change the `range(6)` to `range(10)`.
- Makes 10 turns (instead of 6),
  so change the `taylor.left(60)` to `taylor.left(360/10)`.

Work Program

2. Write a program that will repeat the line:

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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!")
  ```

What is an Algorithm?

From our textbook:

- An algorithm is a process or set of rules to be followed to solve a problem.

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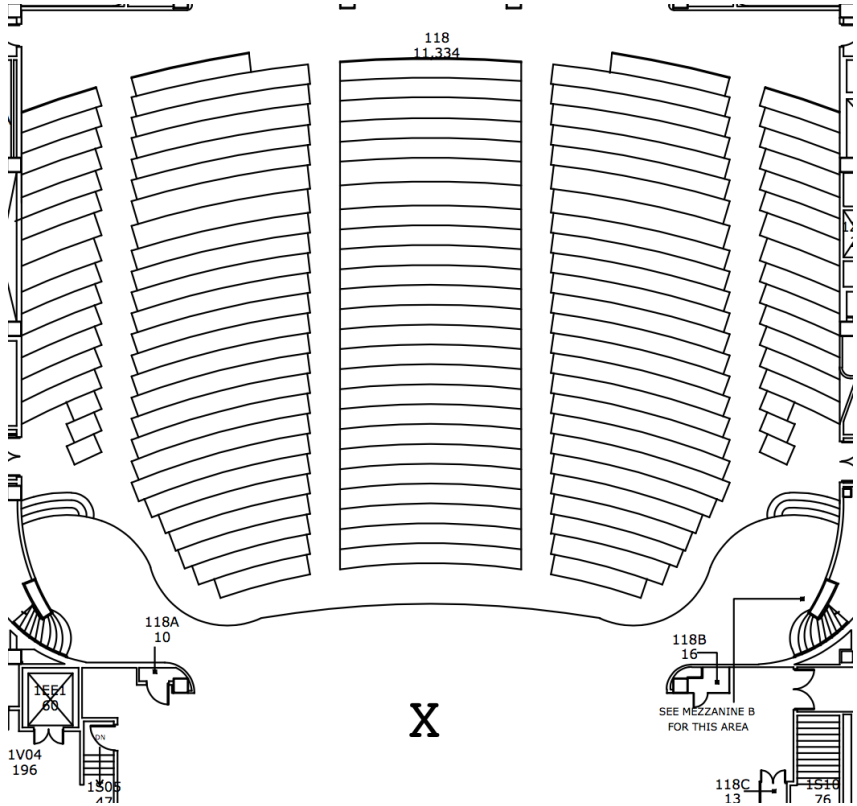
From our textbook:

- An algorithm is a process or set of rules to be followed to solve a problem.
- 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.

Group Work



Working in pairs or triples:

1. On the floorplan, mark your current location.
2. Write an algorithm (step-by-step directions) to get to `X`.

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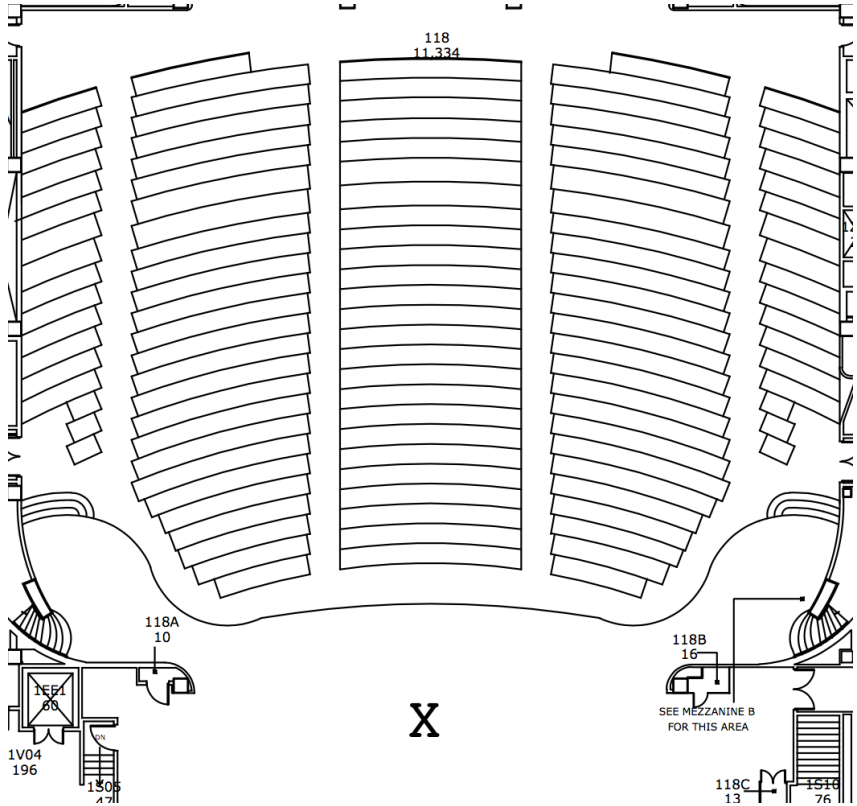

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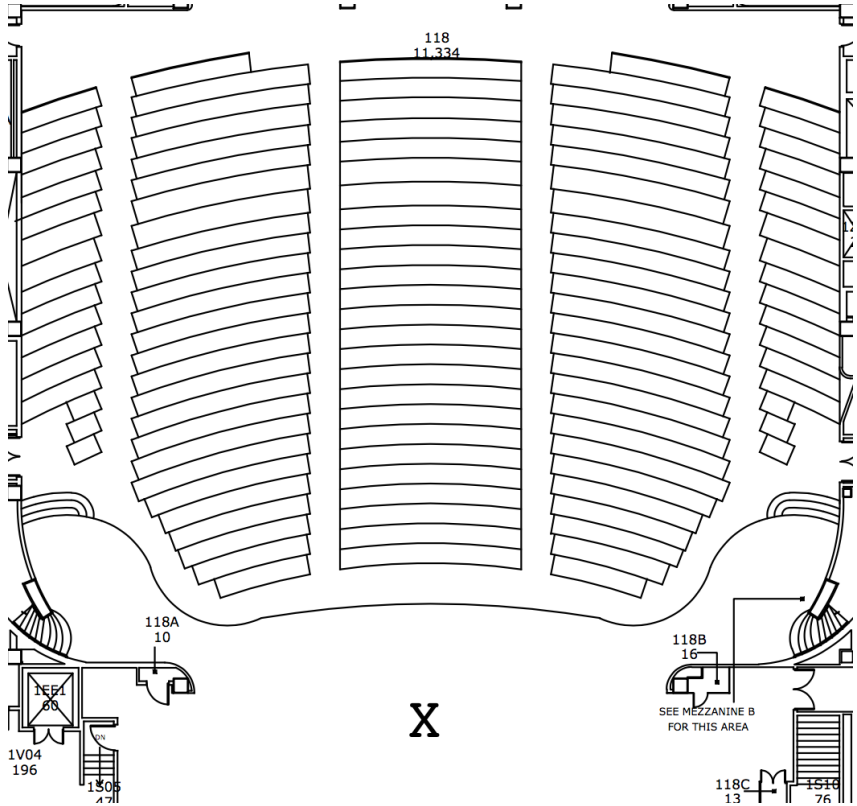

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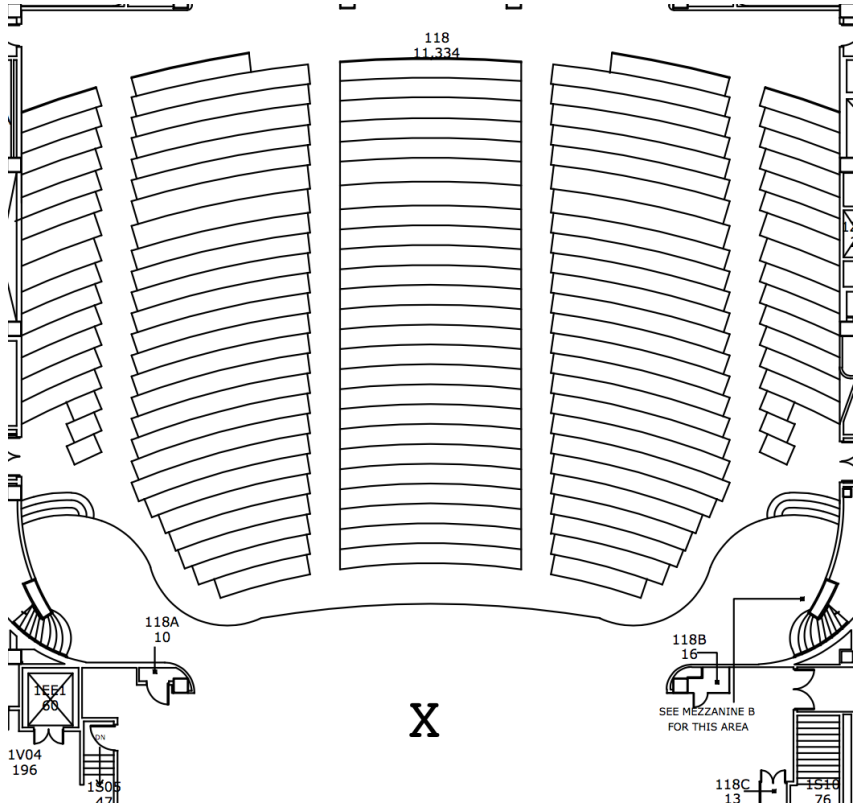

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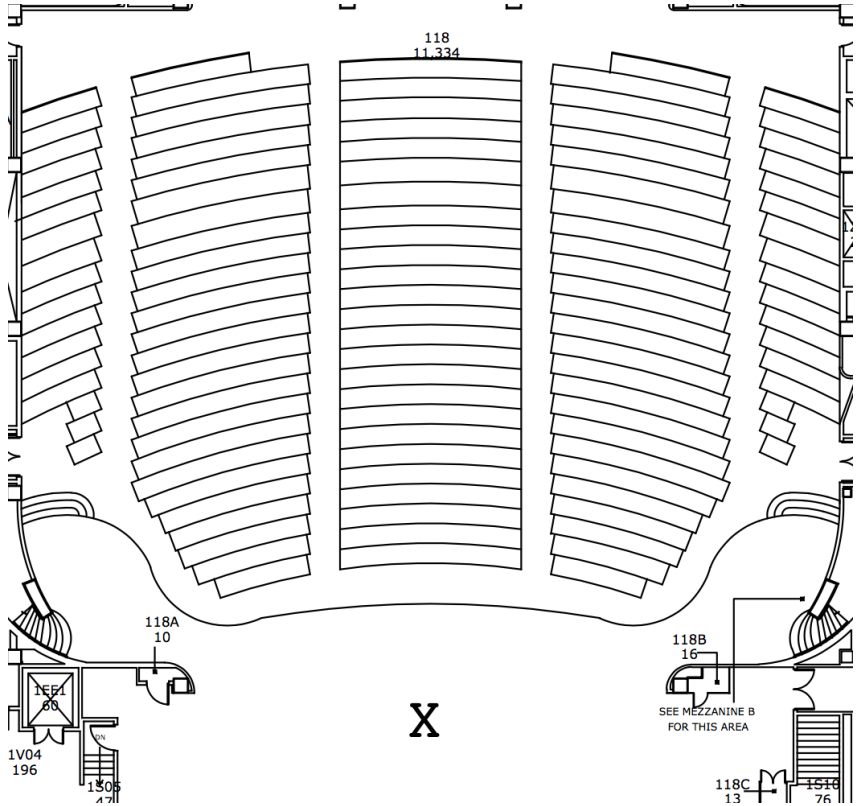

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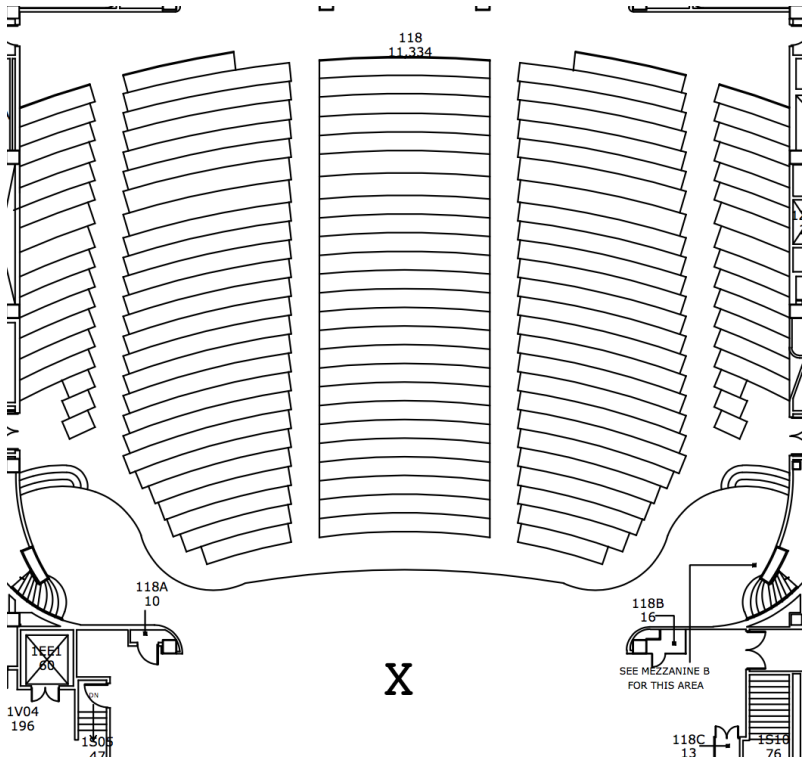

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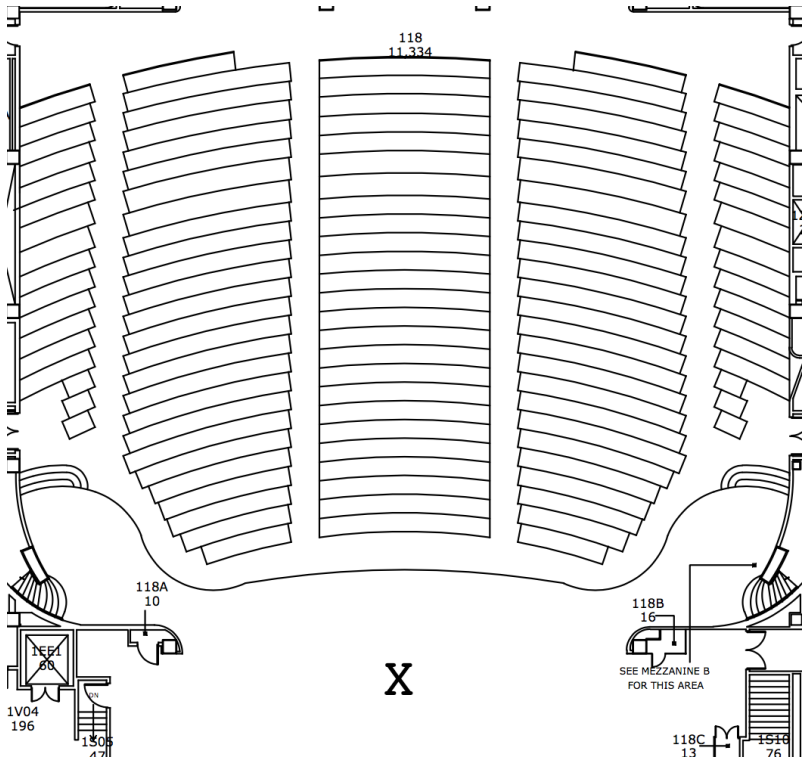

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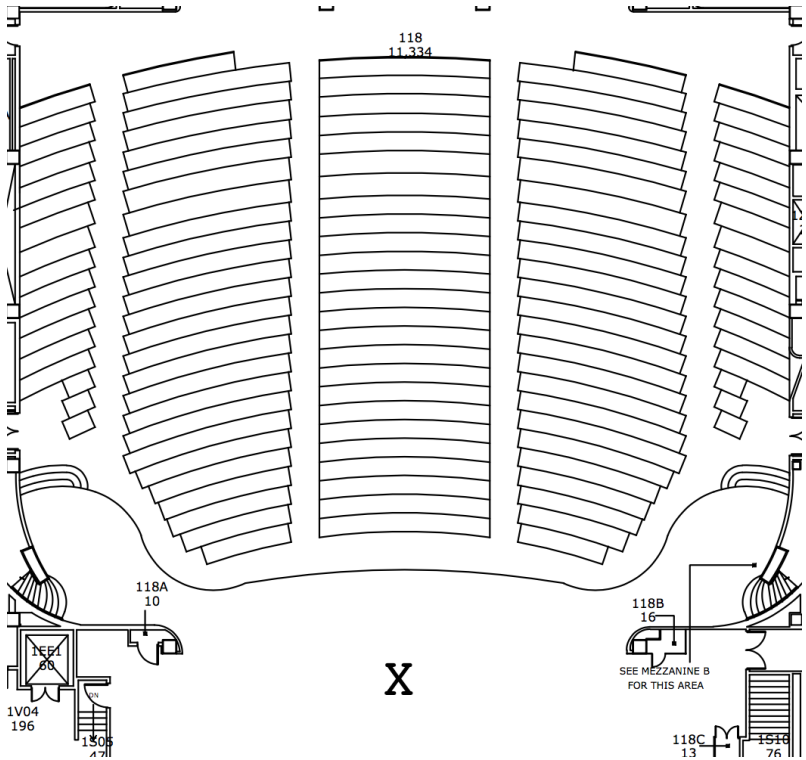

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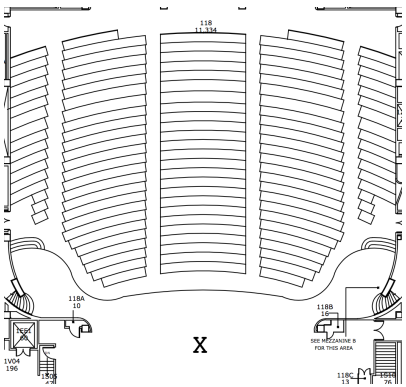
- Annotate any changes needed to the directions (i.e. debug your work).

Recap

- On lecture slip, write down a topic you wish we had spent more time (and why).



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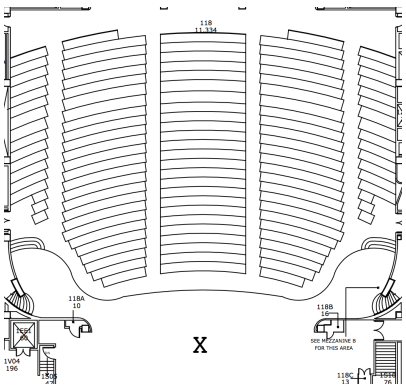

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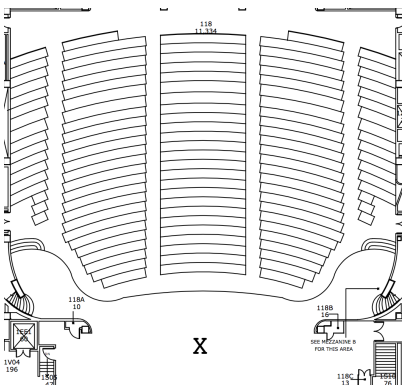

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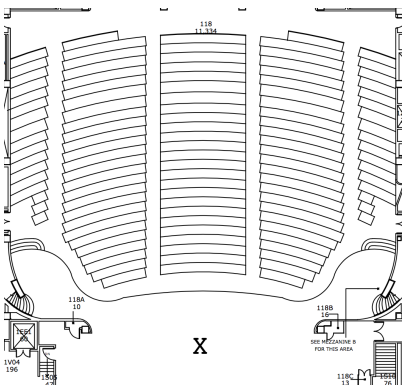

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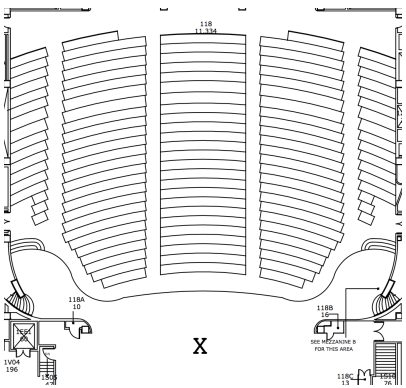

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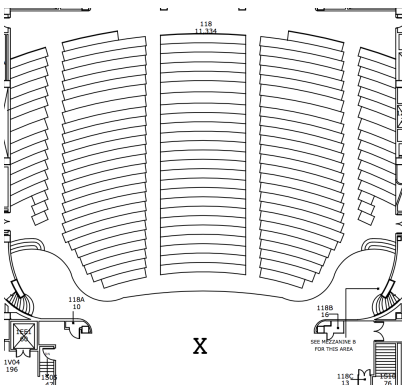

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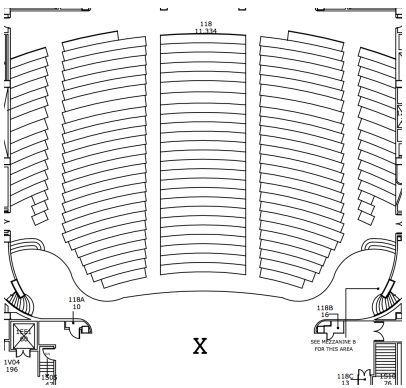

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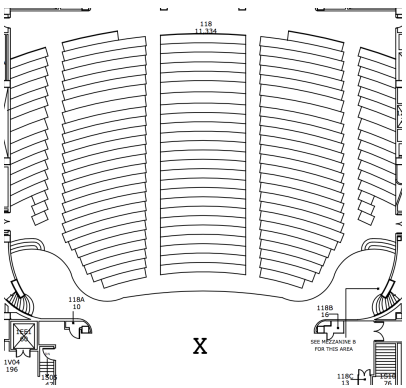

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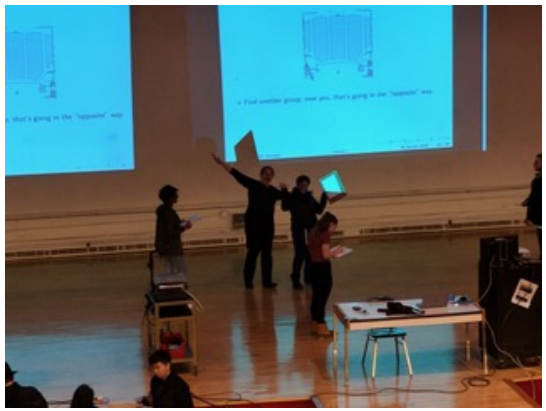
- Pass your lecture slips to the aisle for the UTA's to collect.

Practice Quiz & Final Questions



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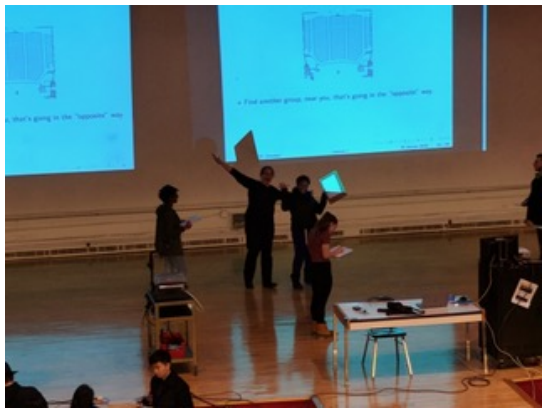

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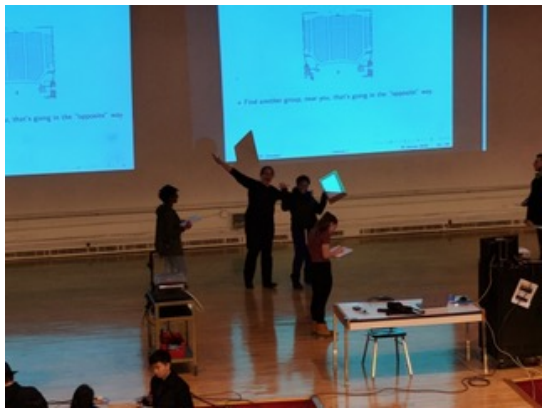

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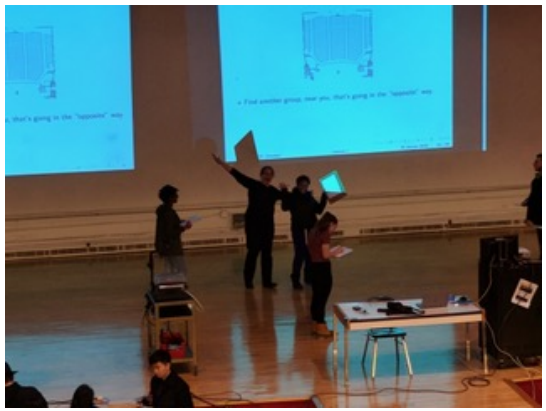

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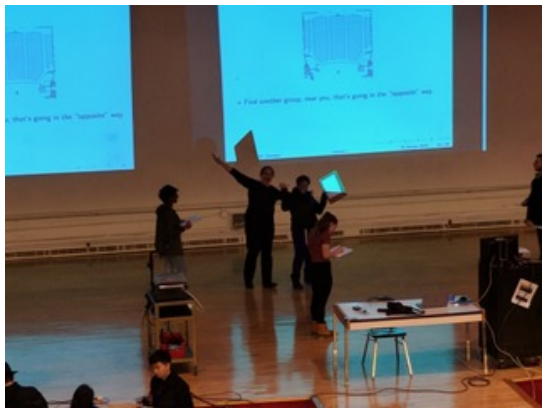

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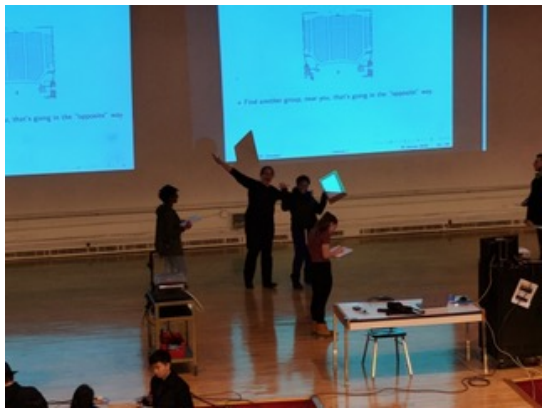

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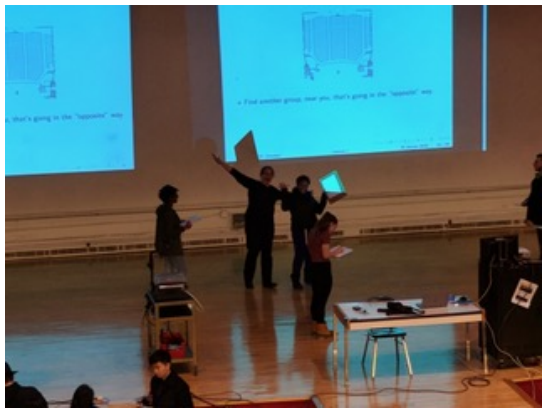

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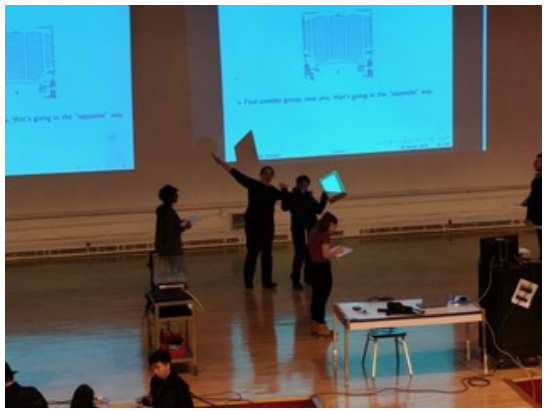

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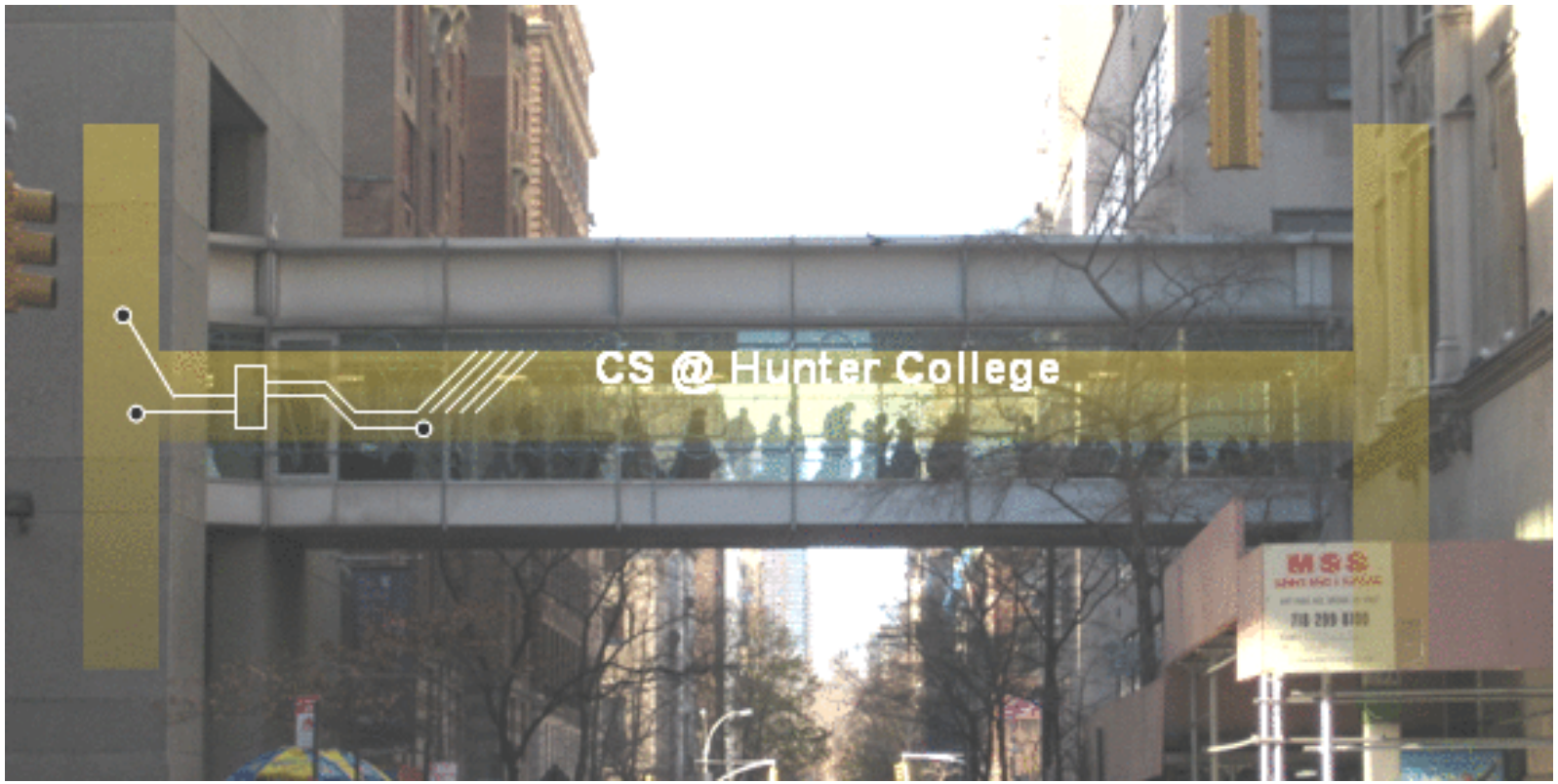
Writing Boards



- Return writing boards as you leave...