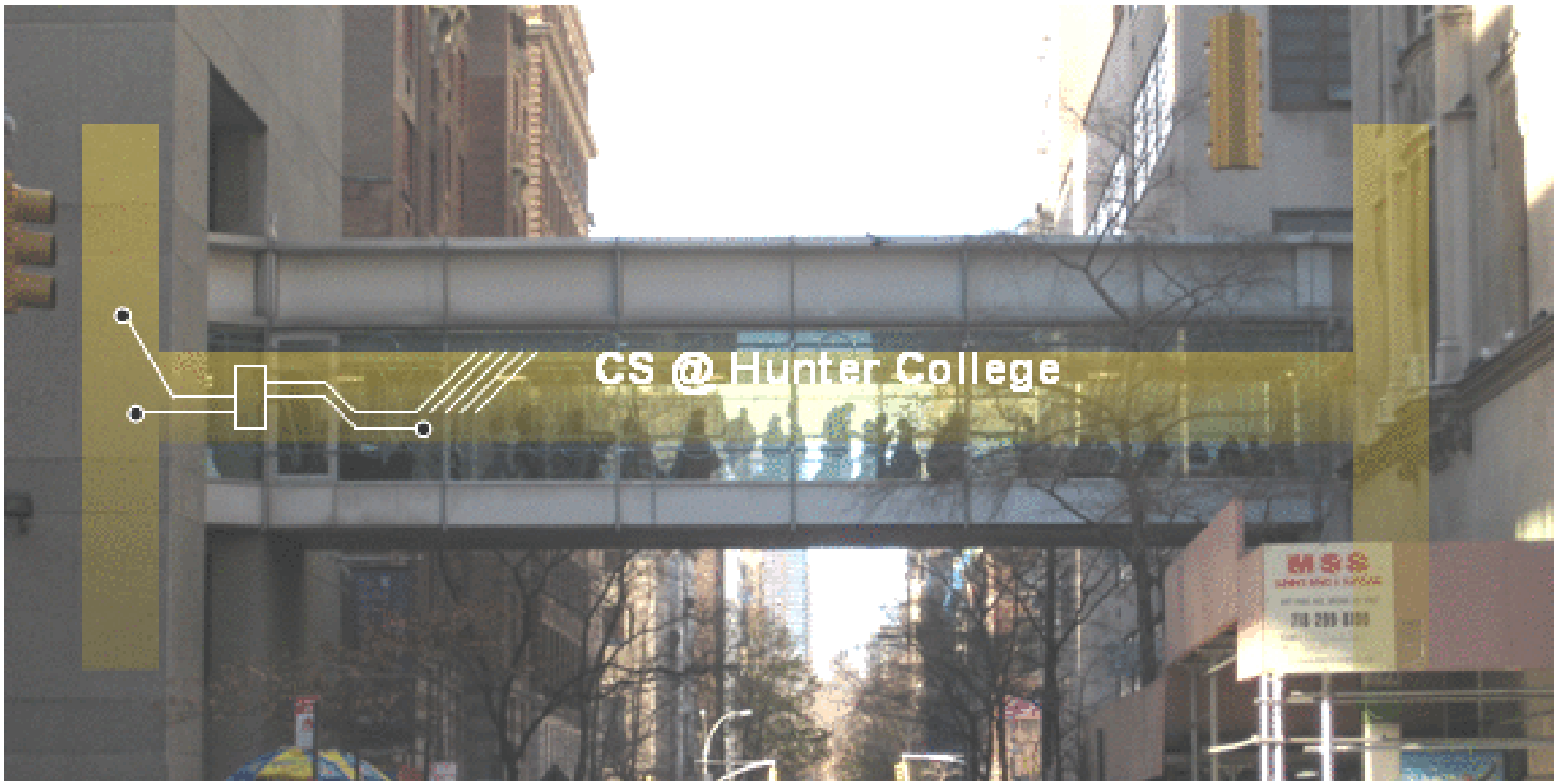
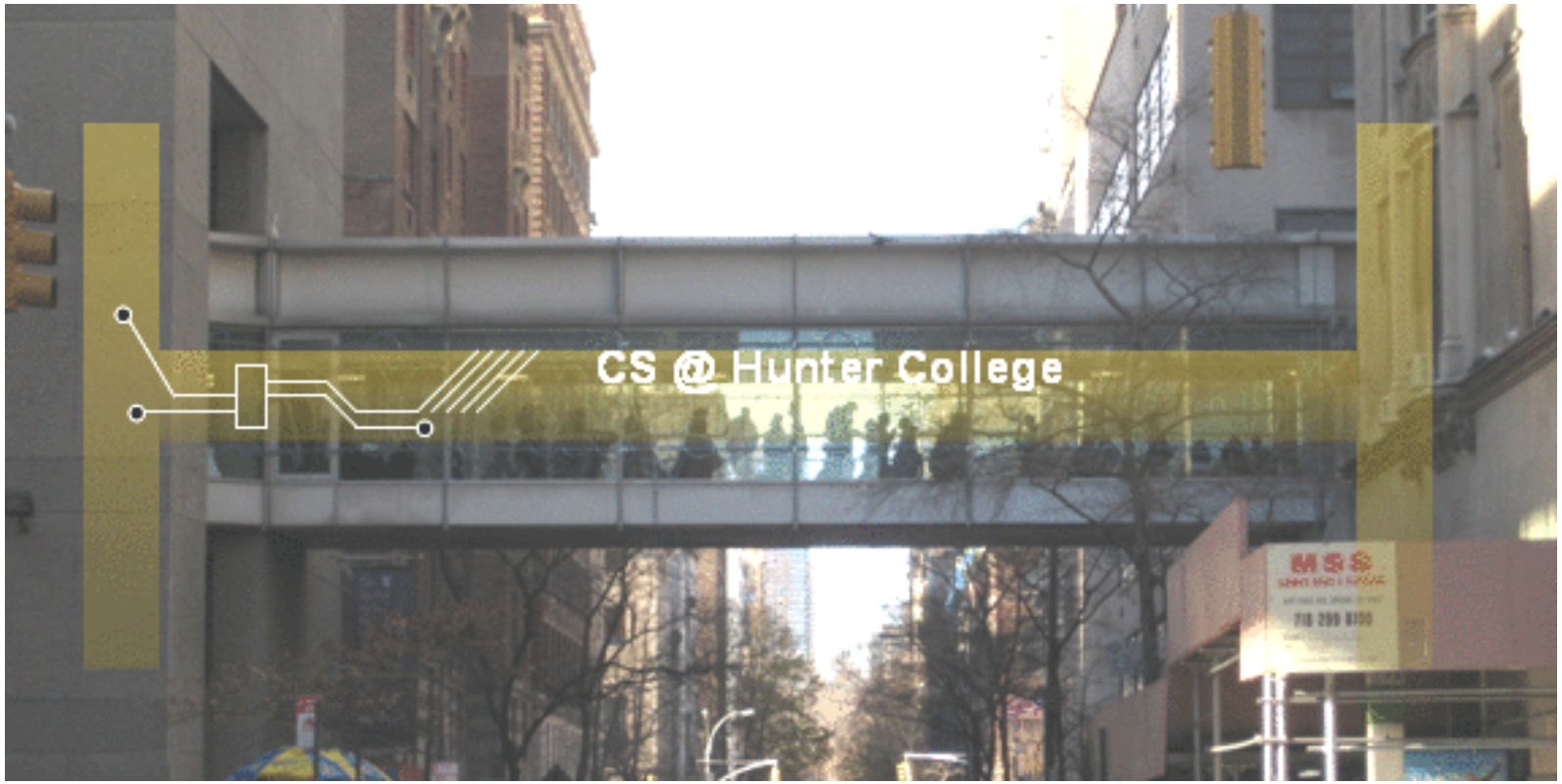
CSci 127: Introduction to Computer Science



hunter.cuny.edu/csci

Welcome



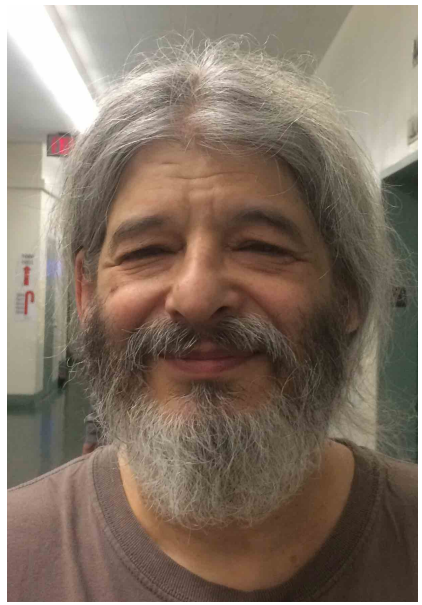
Introductions: Course Designers

Dr. Katherine St. John

Professor,
Interim Chair

Dr. William Sakas

Associate Professor,
Chair



Prof. Eric Schweitzer

Undergraduate Program
Coordinator

Introductions: Instructors

Dr. Tiziana Ligorio

Large Lecture
Course Coordinator

Lola Samigjonova

Early College
Initiative

Dr. Tong Yi

Lab
Coordinator

Introductions: Undergraduate Teaching Assistants


Aida Jevric


Alvin Wu


Andrew Robinson

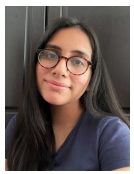

Arsen Tumanian


Arterio Rodrigues

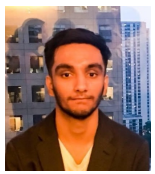

Bahtija Durakovic

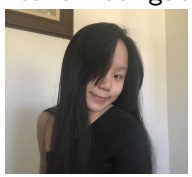

Christopher Asma


David Lin


Diana Luna


Georgina Woo


Ghazanfar Shahbaz


Jessie Lin


Kazi Mansha


Lauren Avilla


Leonardo Matone


Mandy Yu


Nancy Ng

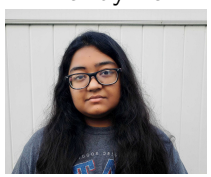

Omer Skaljic

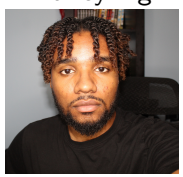

RyanVaz


Sadab Hafiz


Sheikh Fuad


Stephanie Yung


Syeda Nahar


Tyler Robinson


Umar Faruque

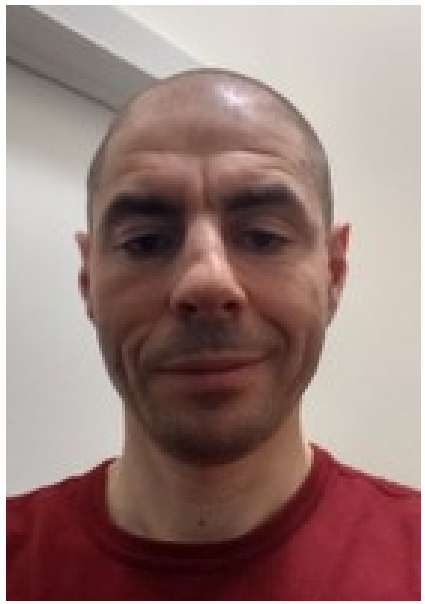

Yoomin Song


Zongming Ke

Introductions: Advisors

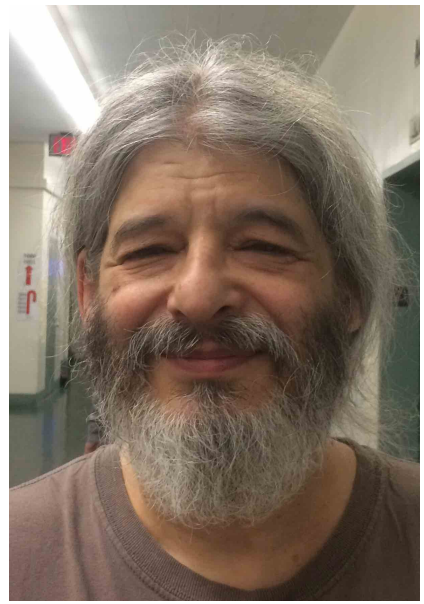
Justing Tojeira
CS Advisor

jtojeira@hunter.cuny.edu



Pavel Shostak
CS Advisor

ps57@hunter.cuny.edu



Eric Schweitzer
Undergraduate
Program Coordinator
eschweit@hunter.cuny.edu

Where to find Course Content

- Course Website: https://huntercsci127.github.io/s22.html

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- Blackboard

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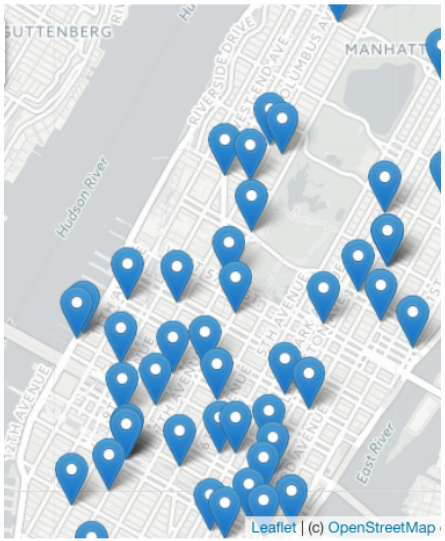
- Gradescope (program submission)

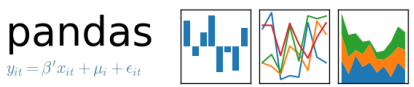
Syllabus

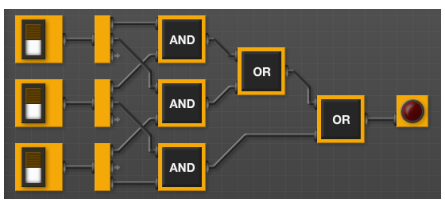
CSci 127: Introduction to Computer Science
Catalog Description: 3 hours, 3 credits: This course presents an overview of computer science (CS) with an emphasis on **problem-solving and computational thinking through 'coding'***: computer programming for beginners...*

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.

Syllabus: Topics







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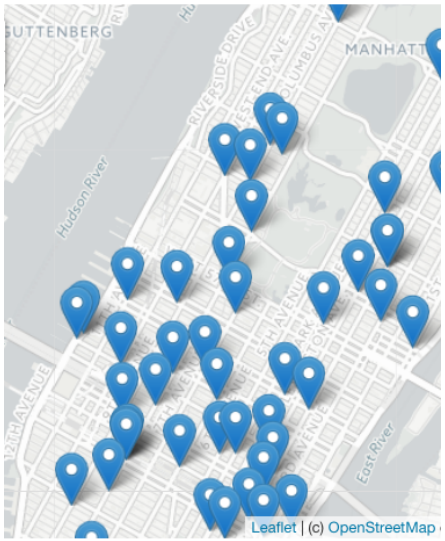
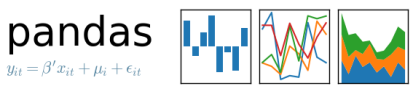
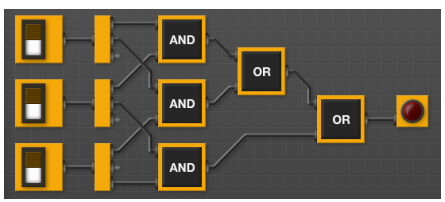
Syllabus: Topics







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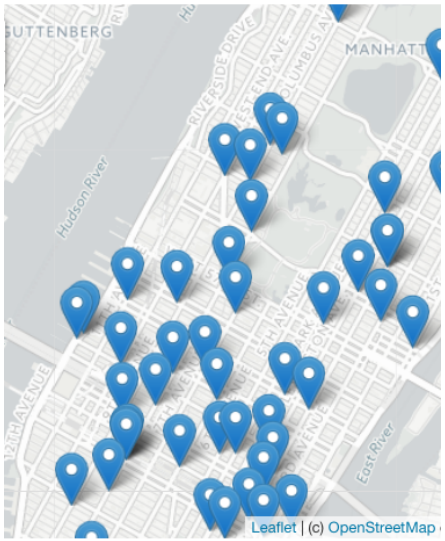

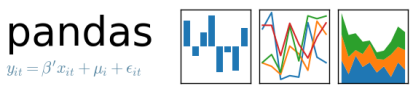

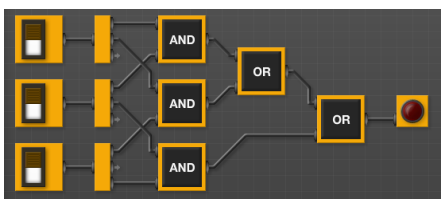

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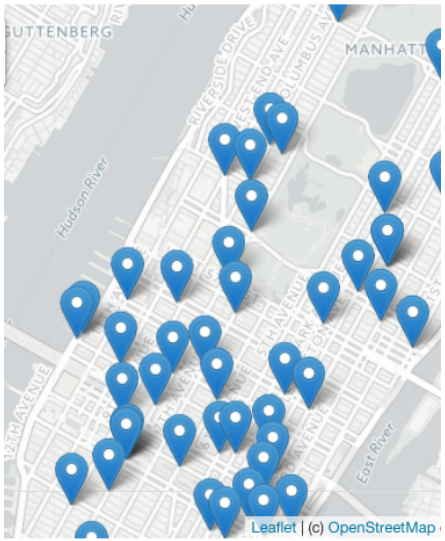

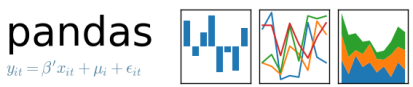

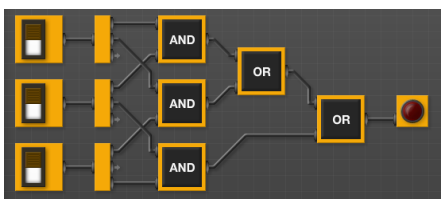

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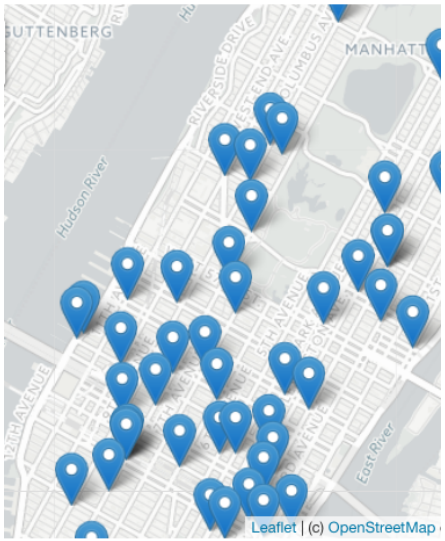

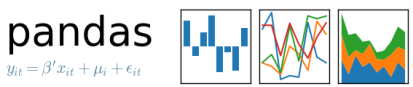

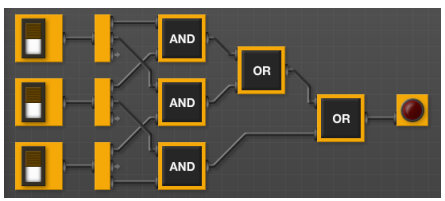

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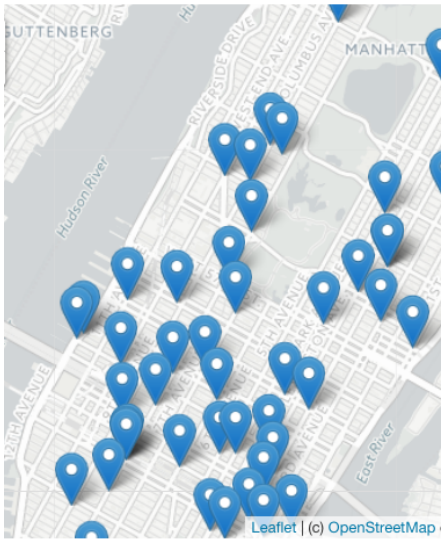

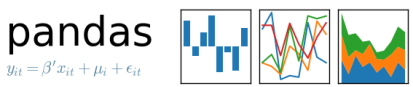

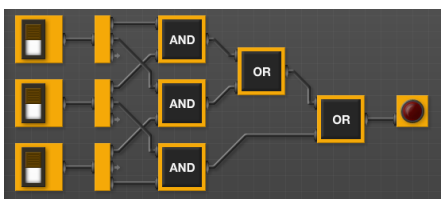

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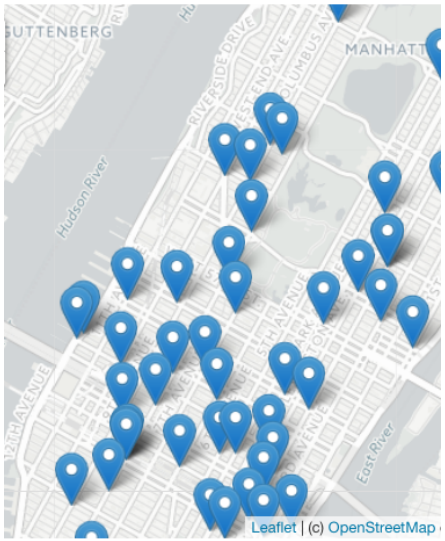
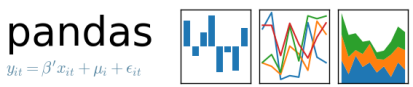
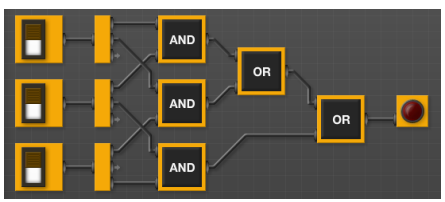
Syllabus: Topics







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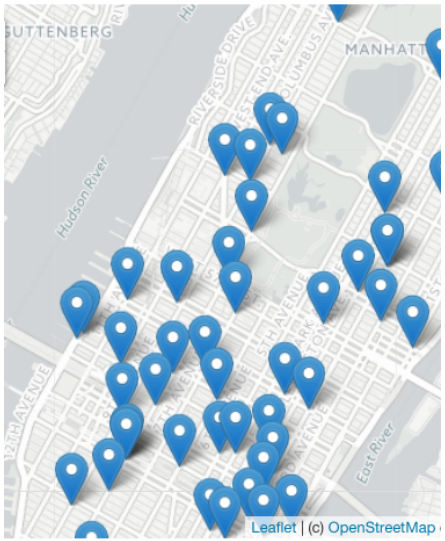
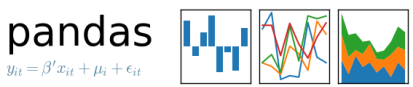
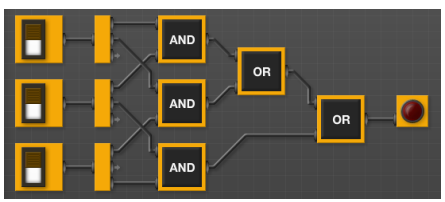
Syllabus: Topics







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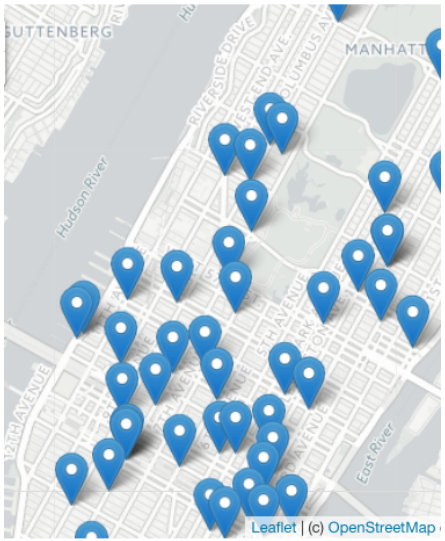
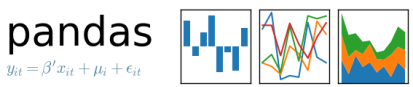
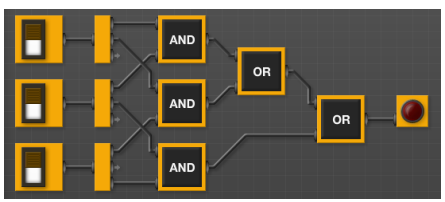
Syllabus: Topics







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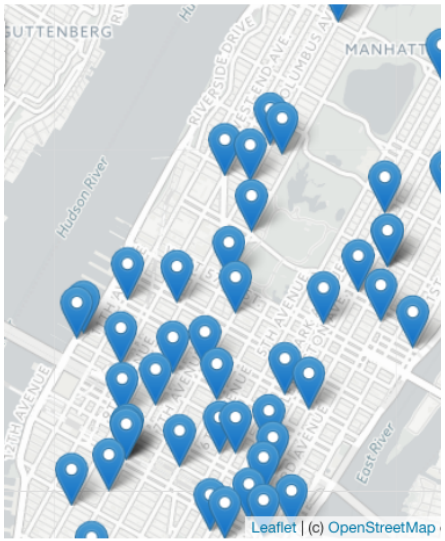
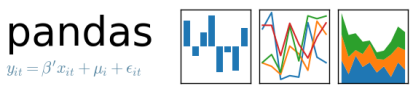
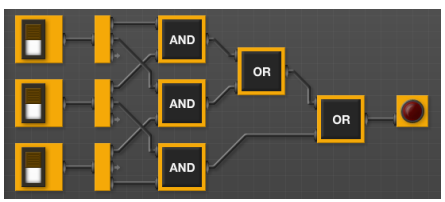
Syllabus: Topics







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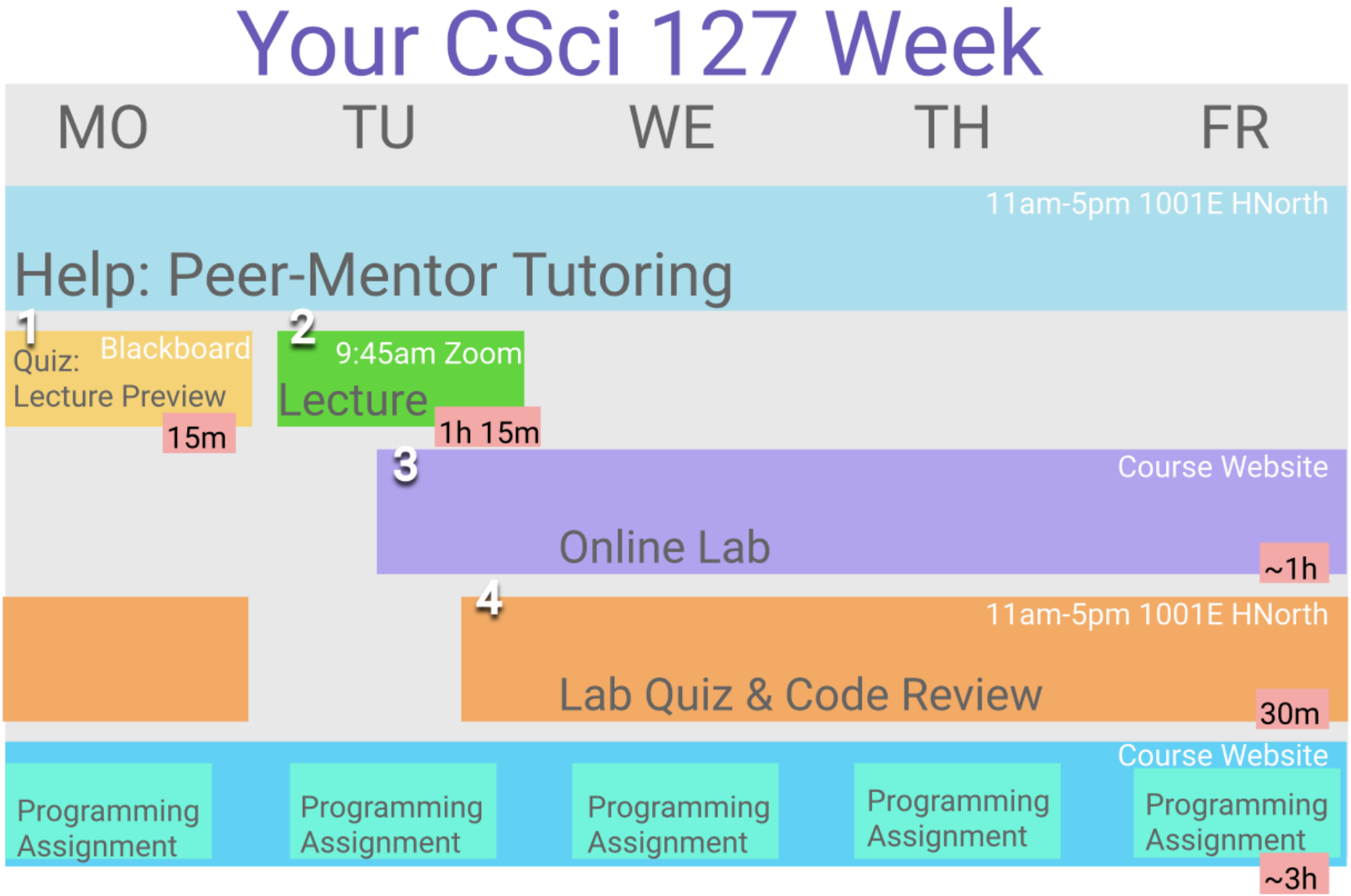
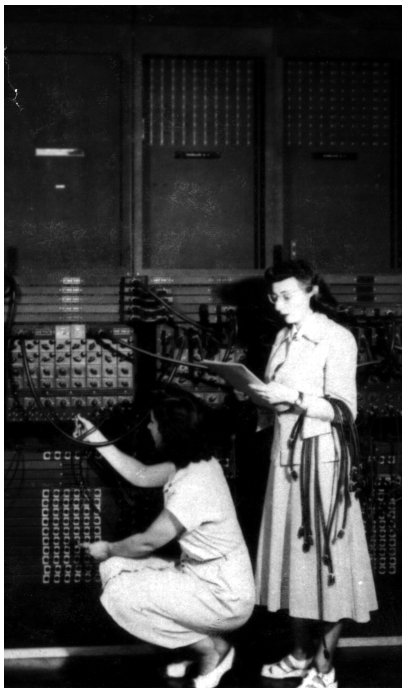
    - ★ for C++.

Course Structure



You should work on Programming Assignments ahead of the due dates. Working on assignments the day they are due will increase the chance you will miss the deadline.

1&2 - Lecture

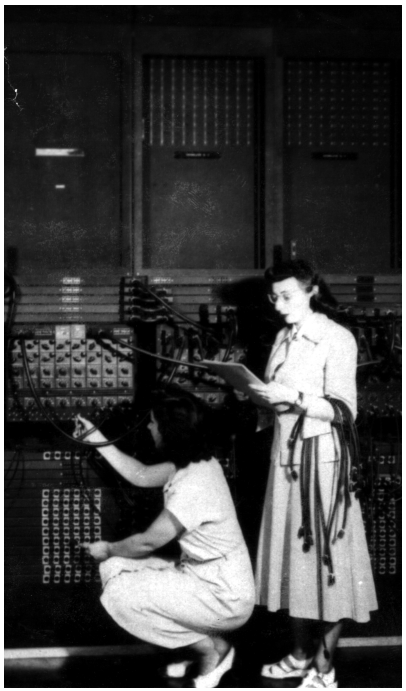


First "computers"

ENIAC, 1945.

- Tuesdays, 9:45-11:00am, In person: 118 HN, Assembly Hall

1&2 - Lecture



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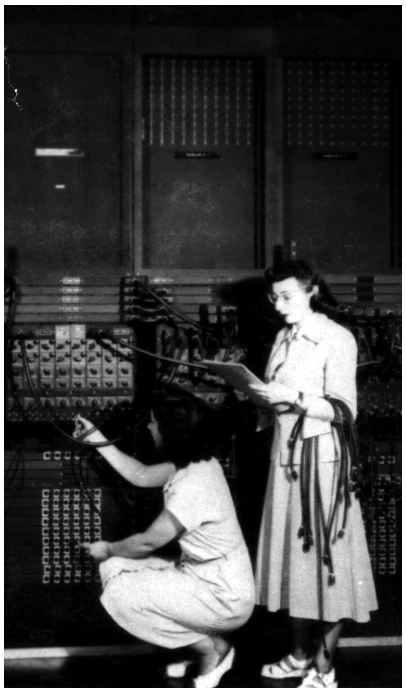

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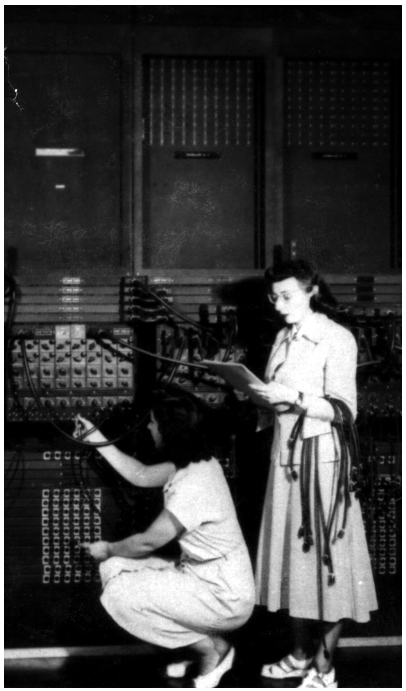

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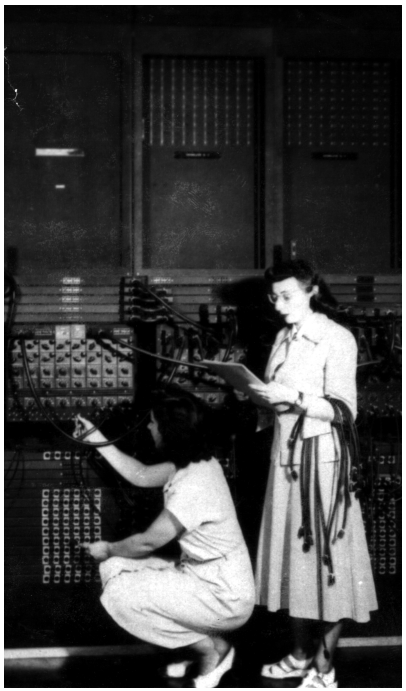

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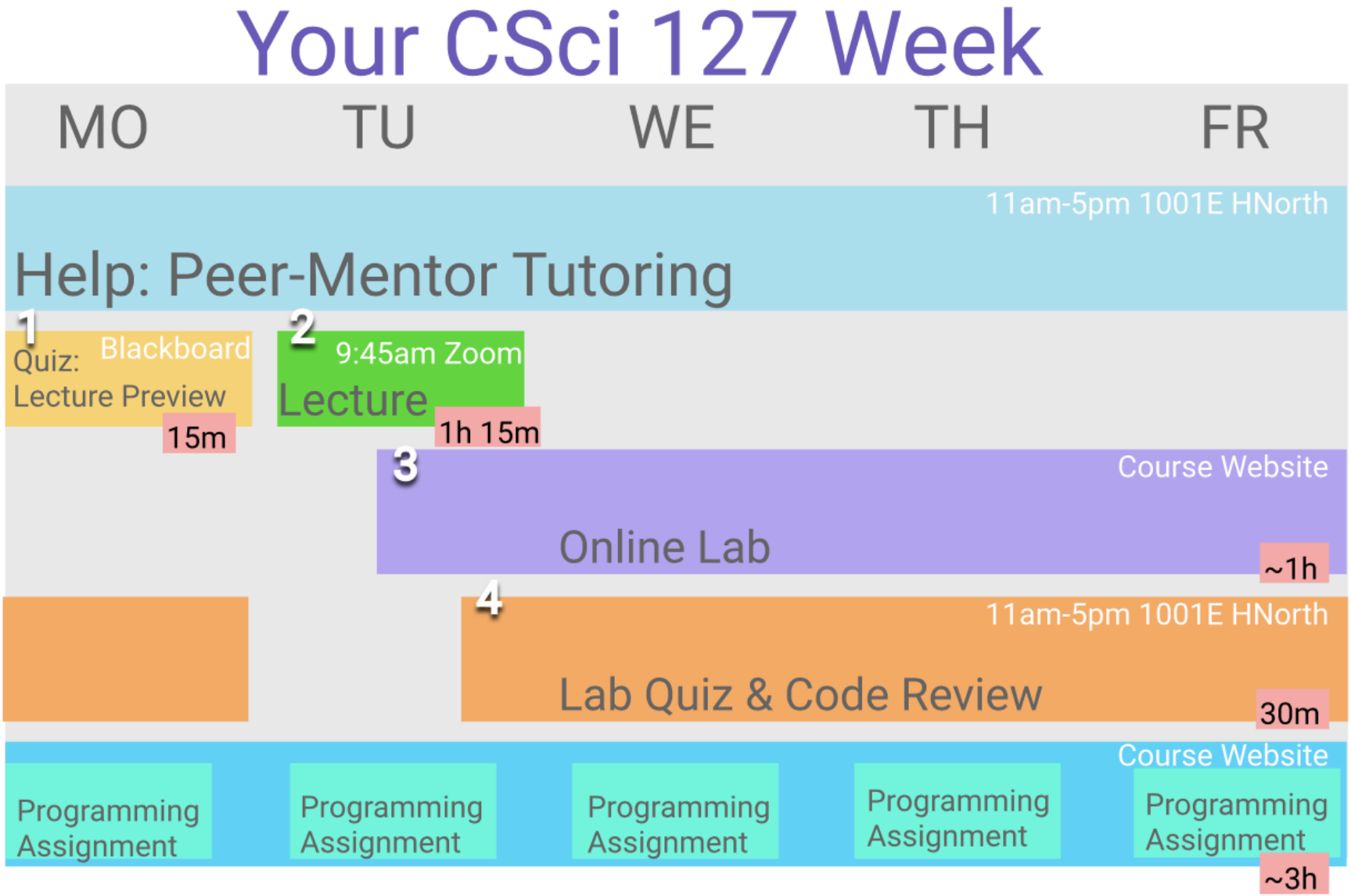

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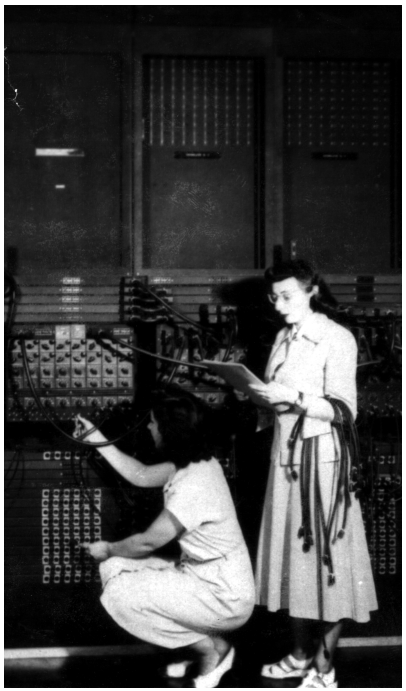

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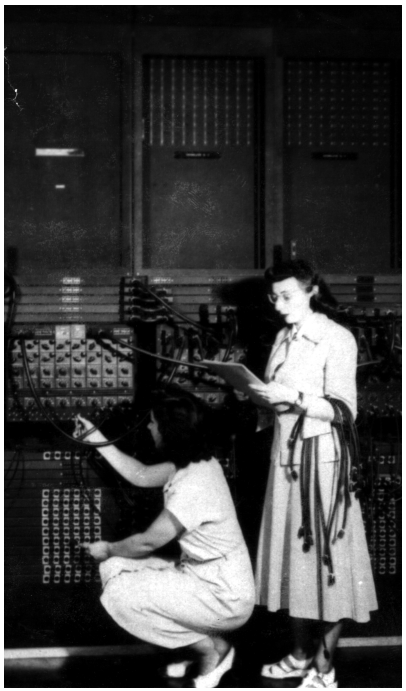

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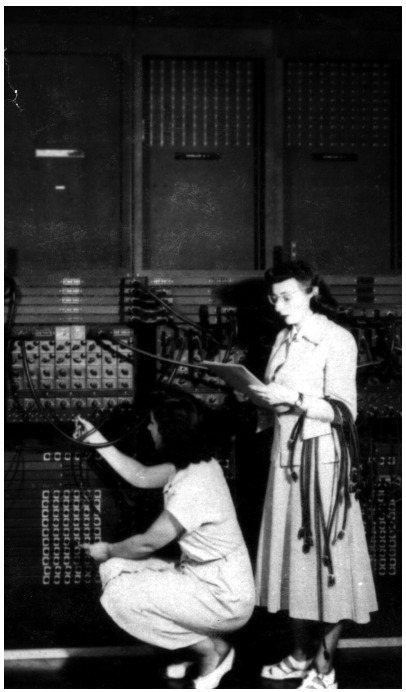

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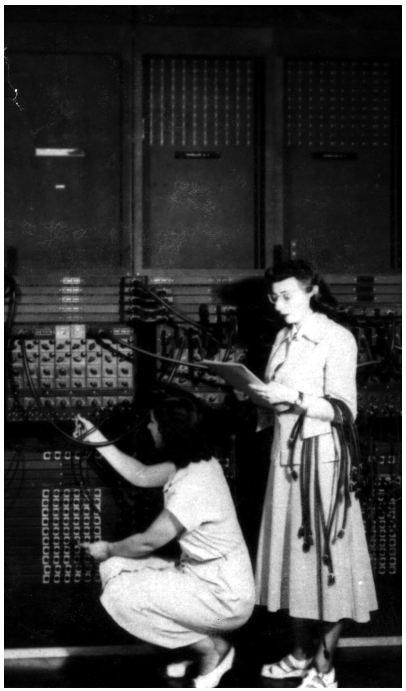

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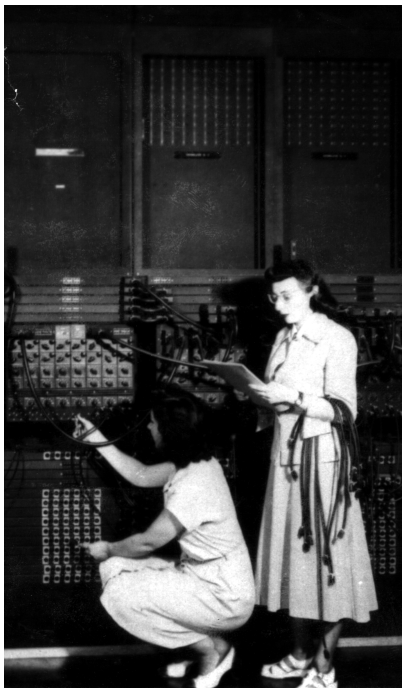

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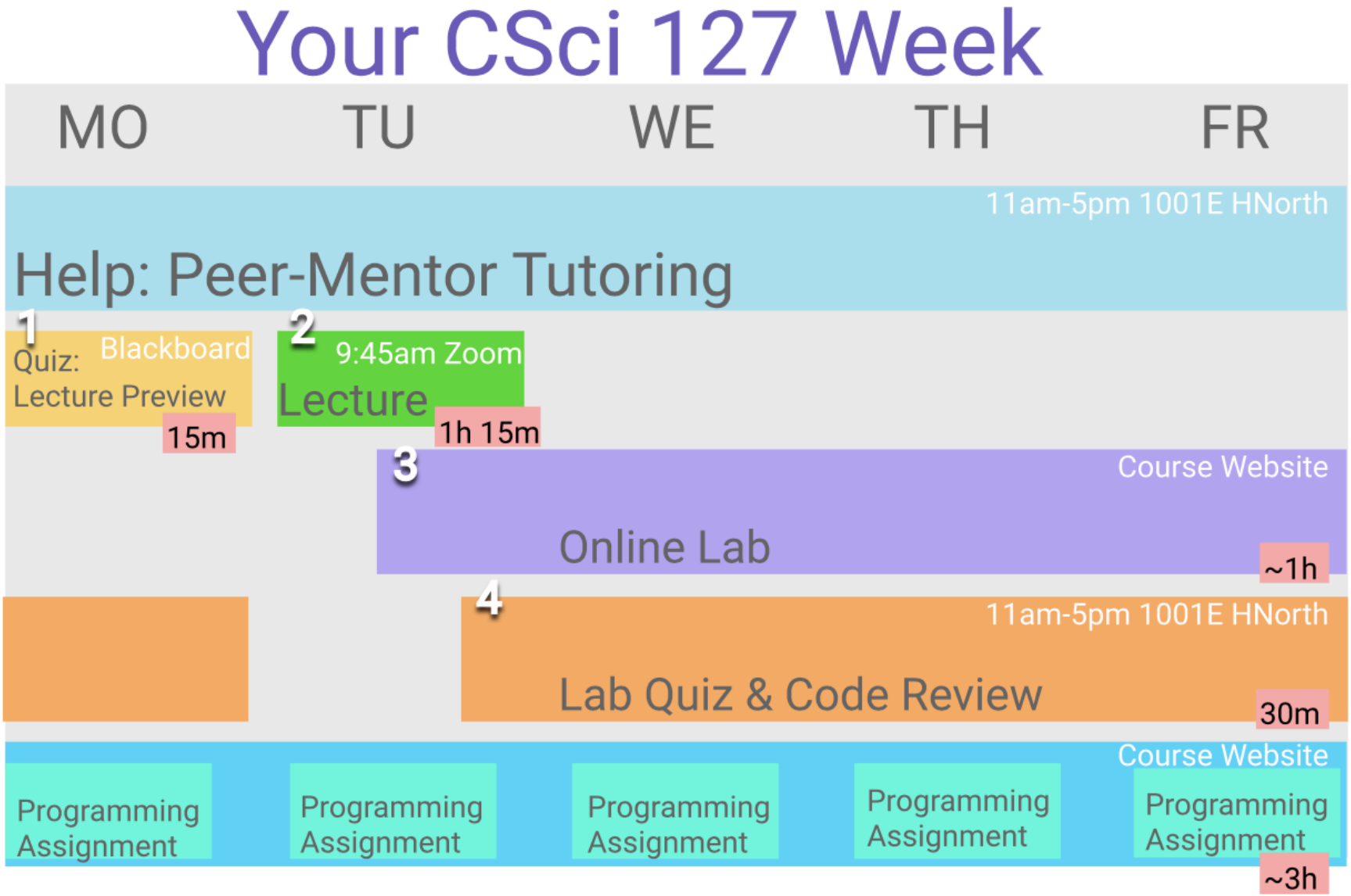

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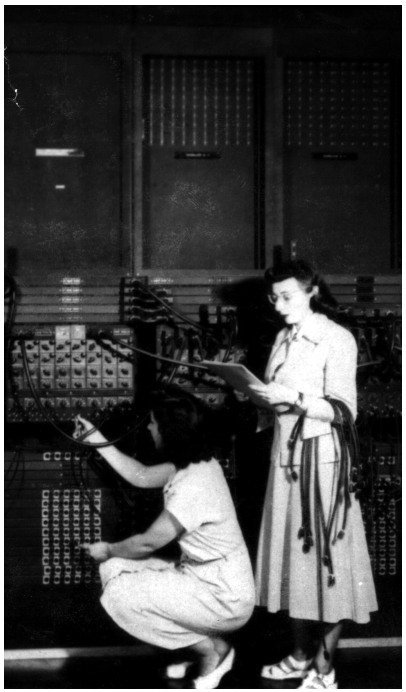

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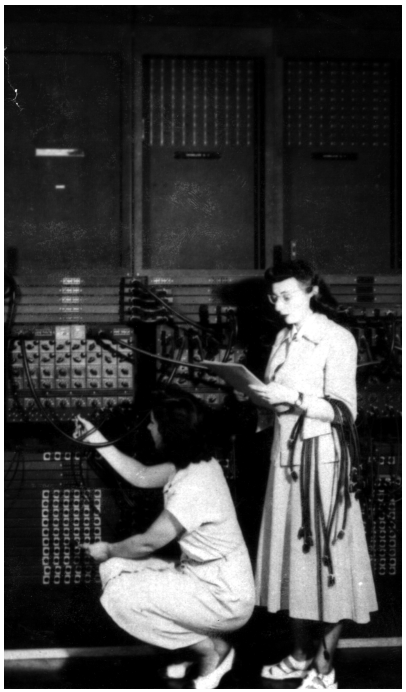

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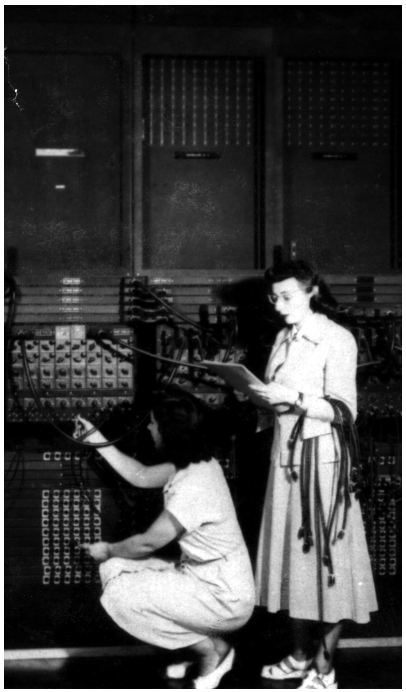

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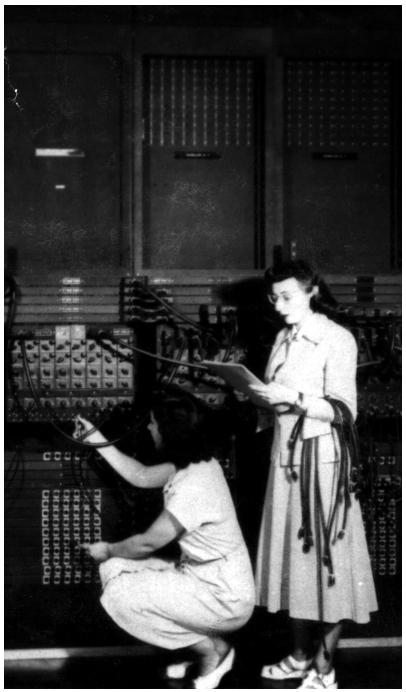

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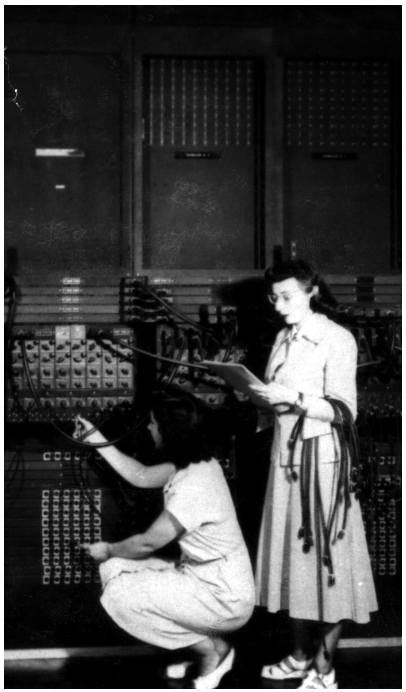

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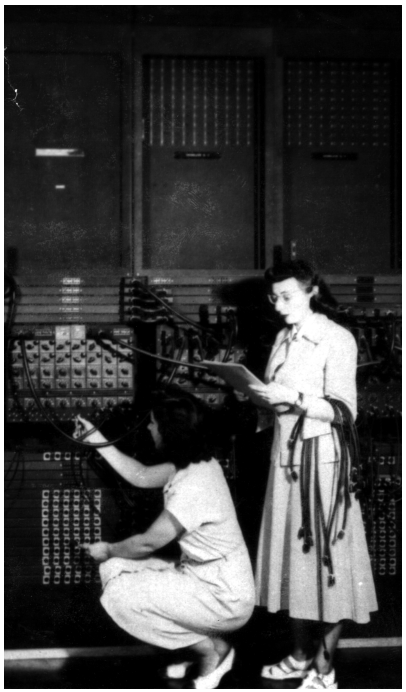

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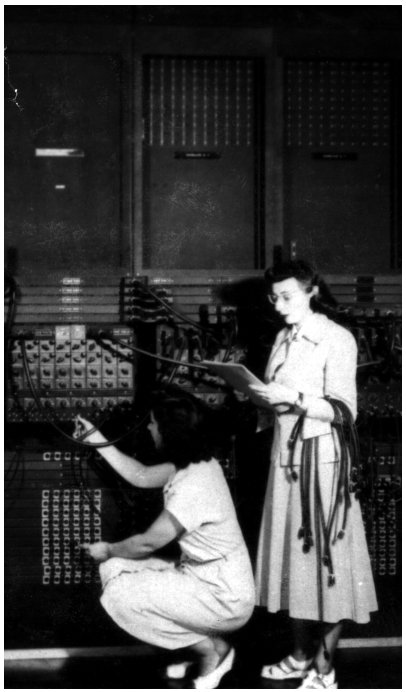

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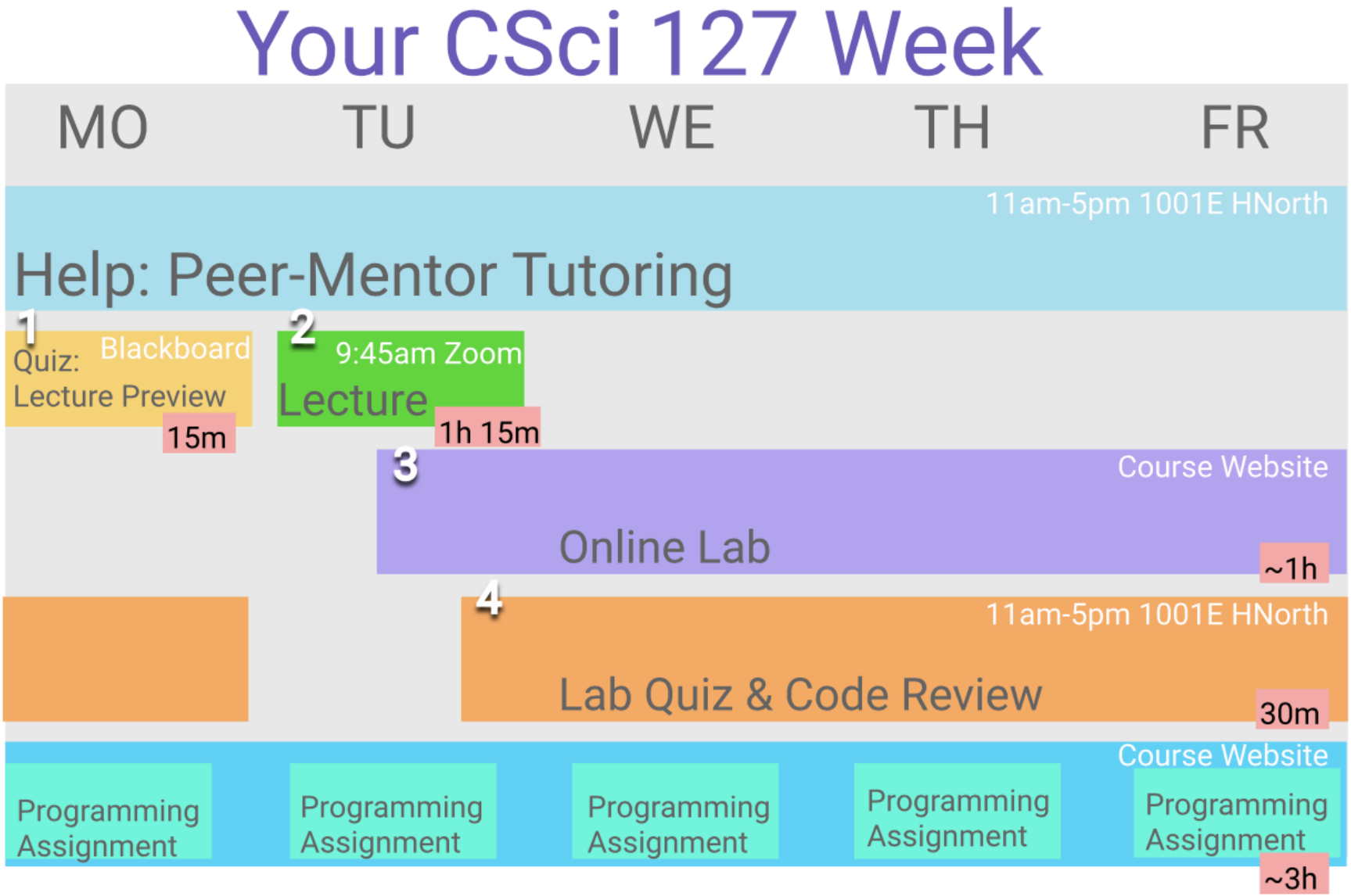

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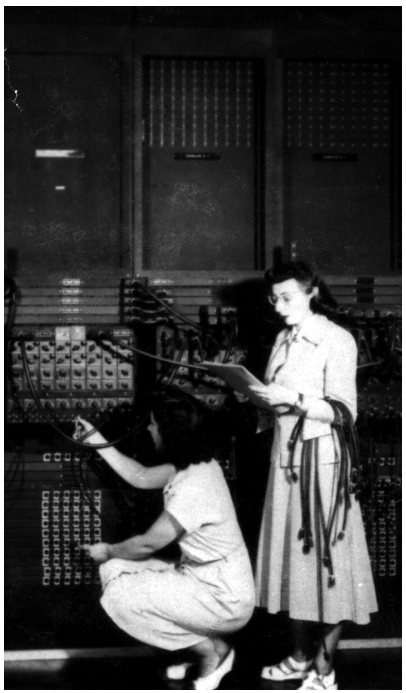

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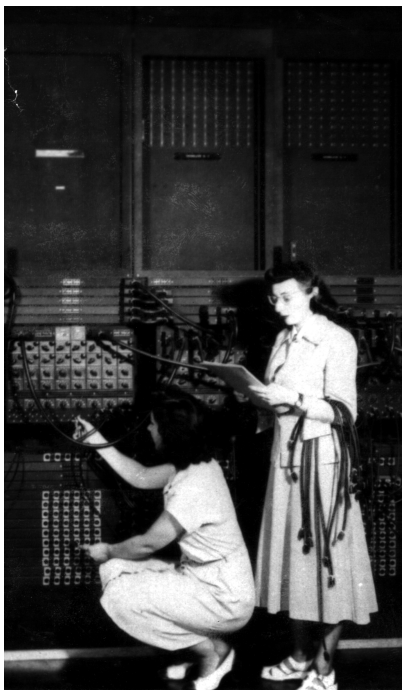

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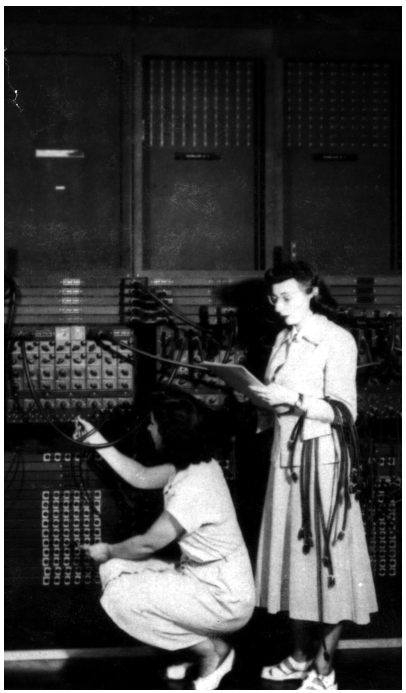

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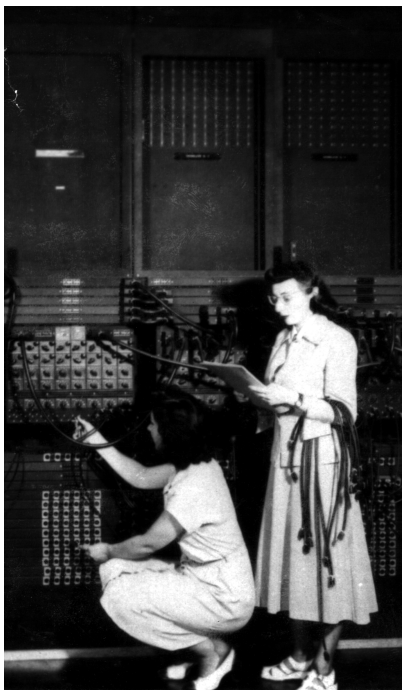

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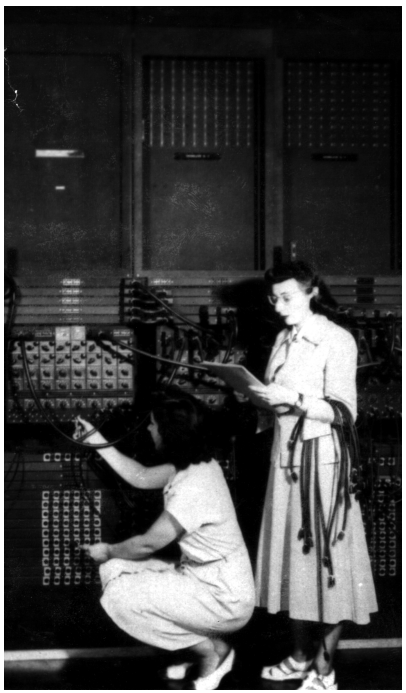

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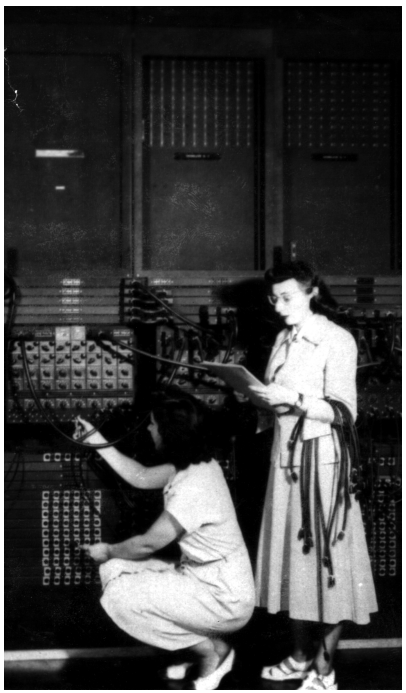

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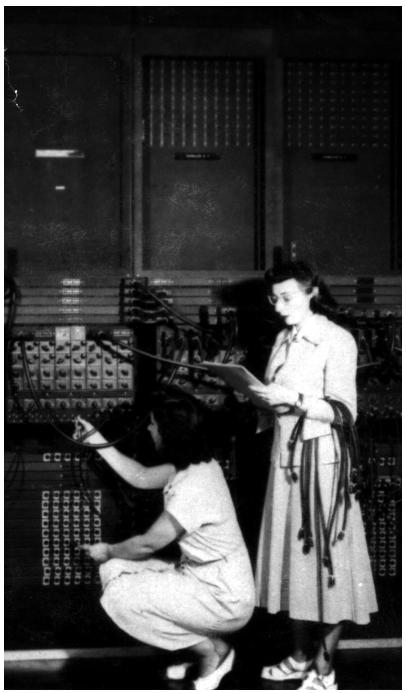

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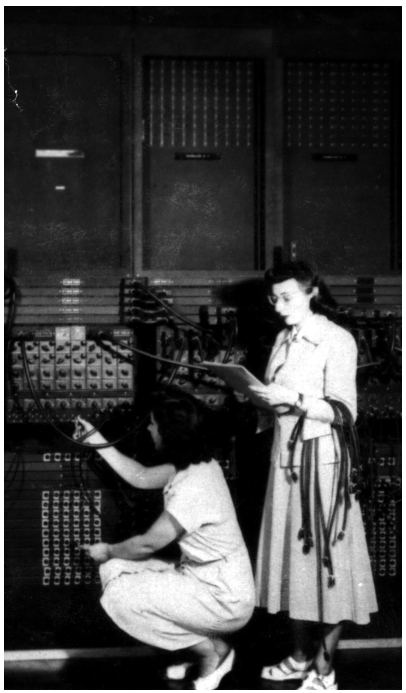

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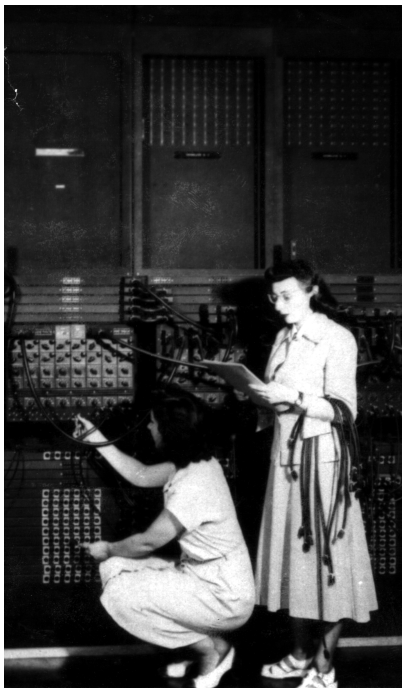

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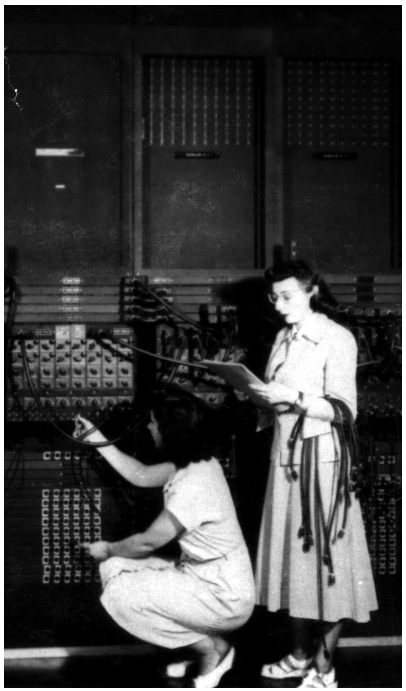

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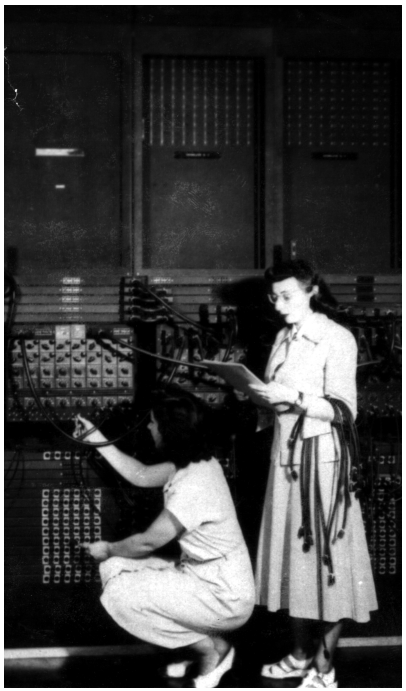

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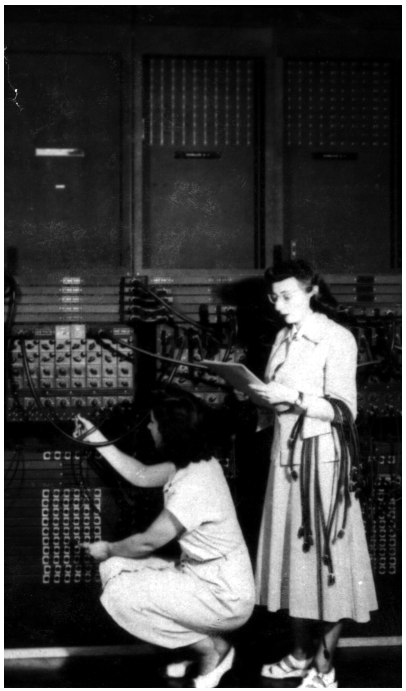

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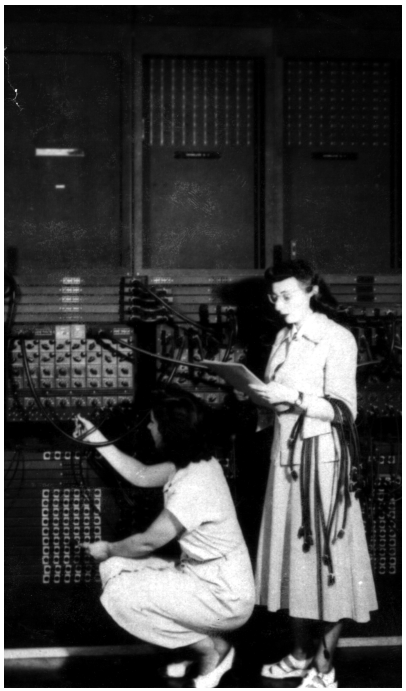

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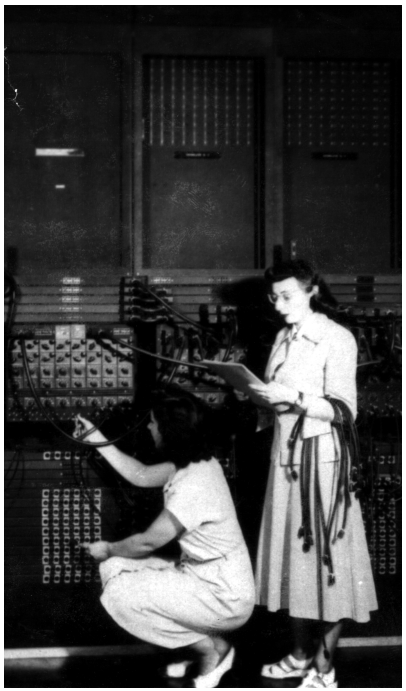

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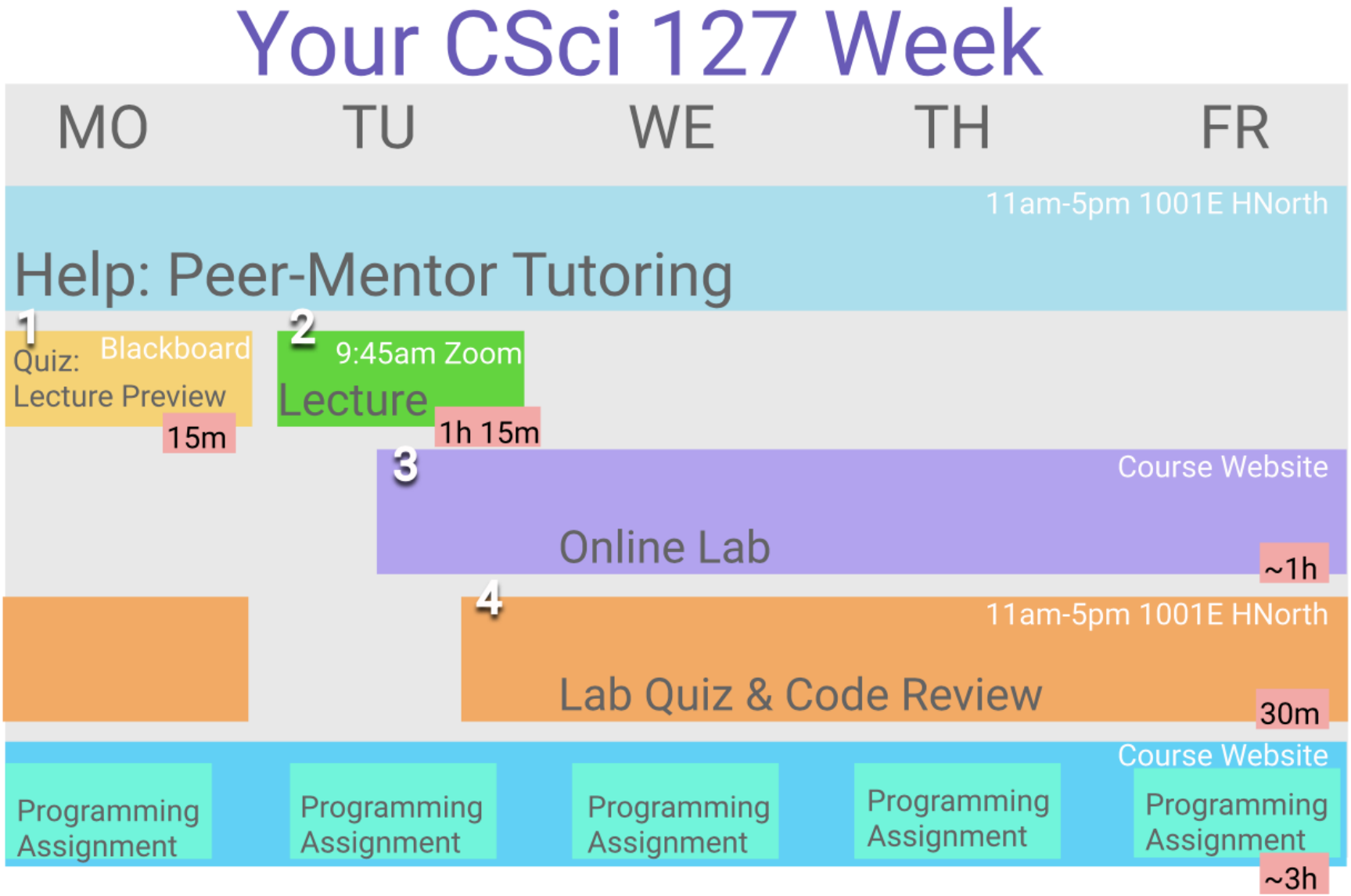

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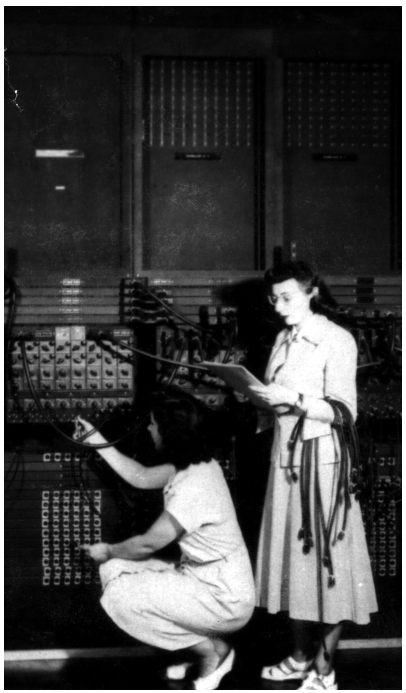

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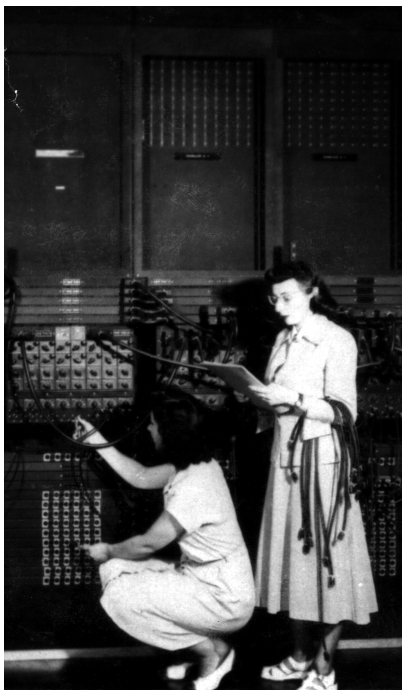

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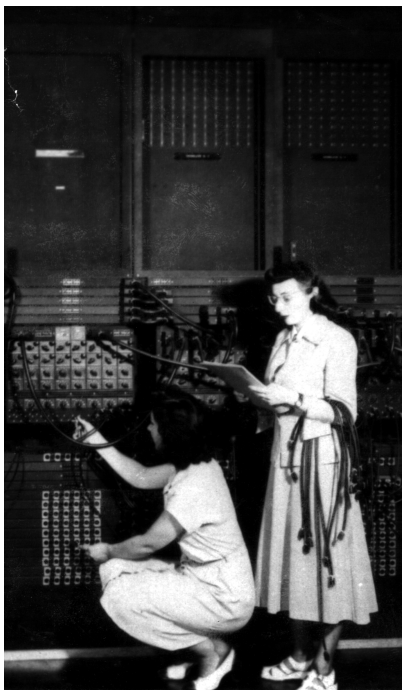

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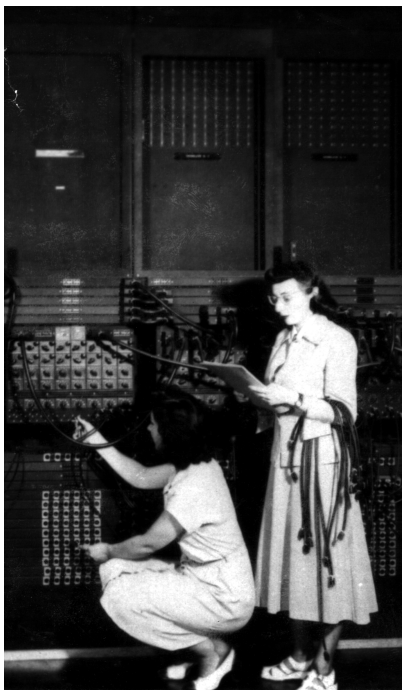

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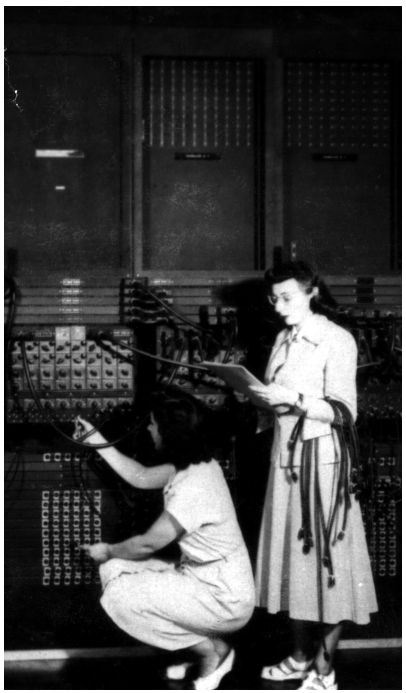

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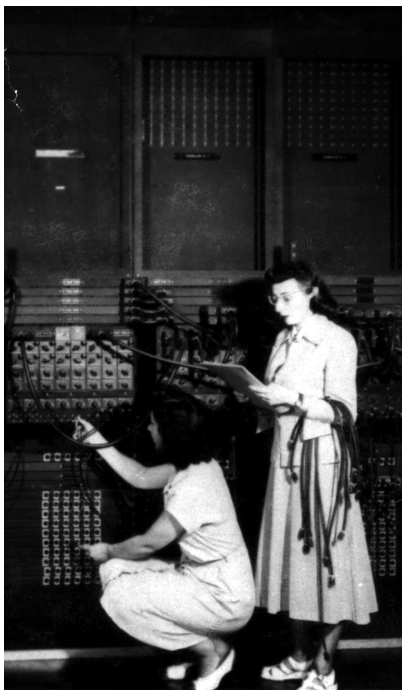

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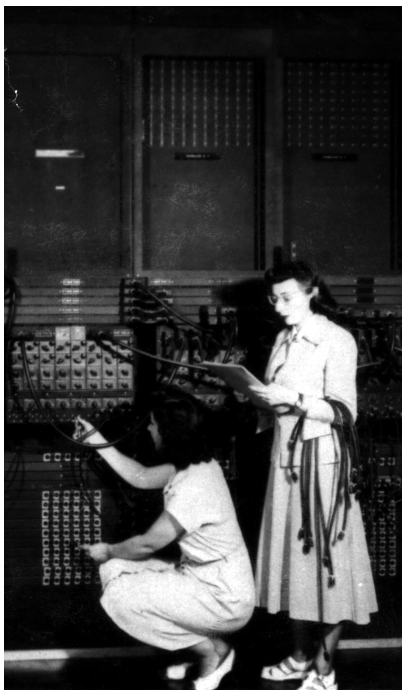
  - Drop-in Hours: **Tuesday 12-1pm, Thursday 3-4pm**
  - By appointment: email tligorio@hunter.cuny.edu

Benefits of Tutoring and Code Review

Academic Dishonesty



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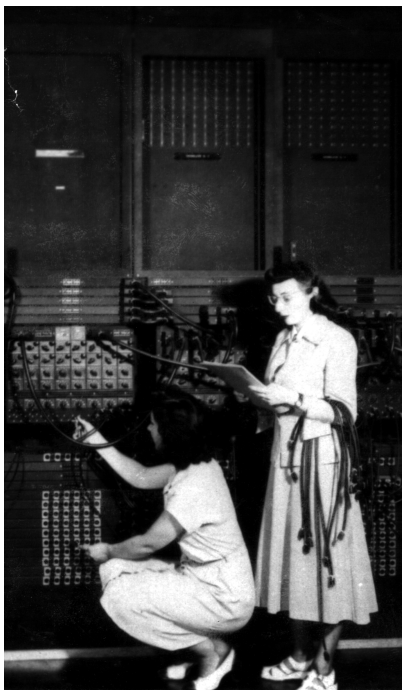

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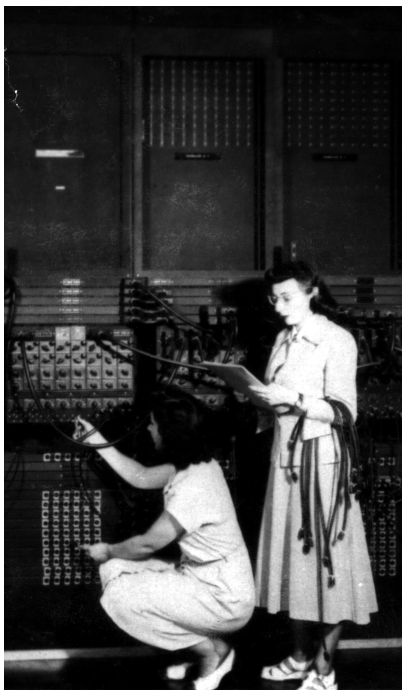

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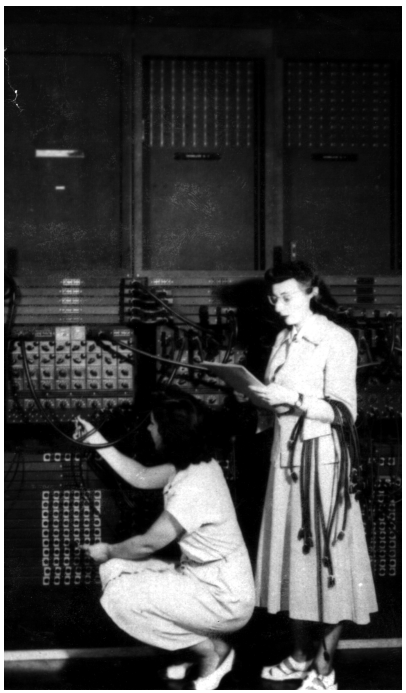

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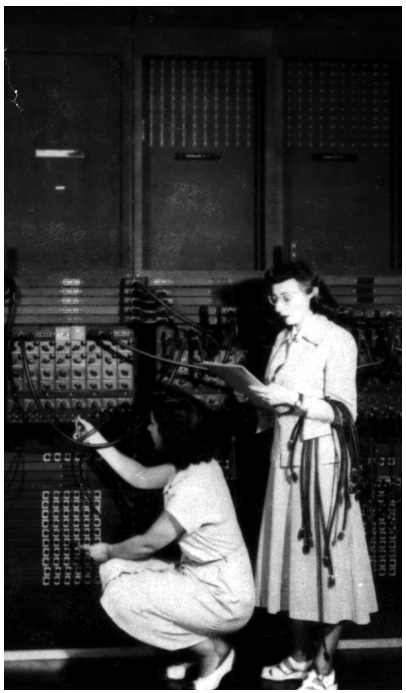

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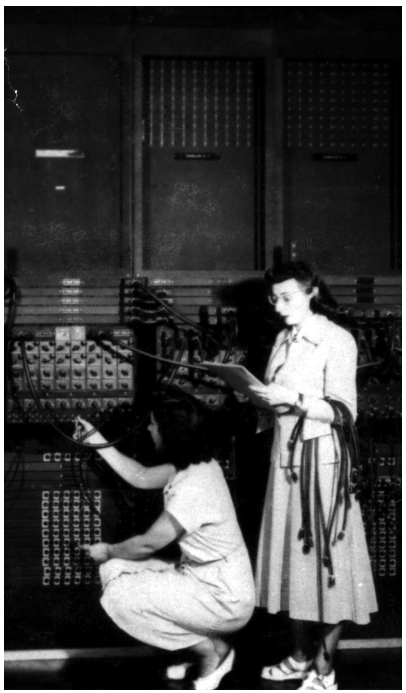

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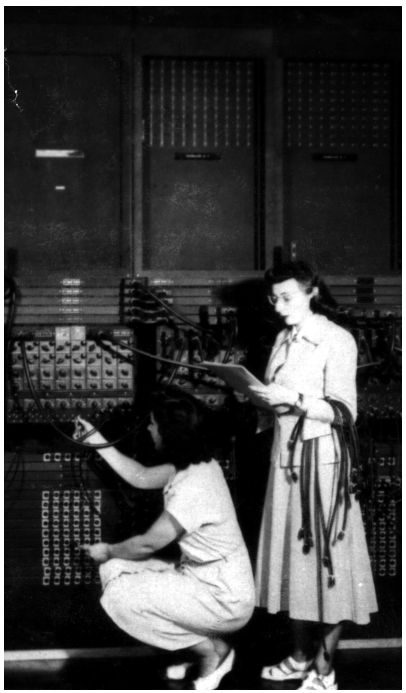

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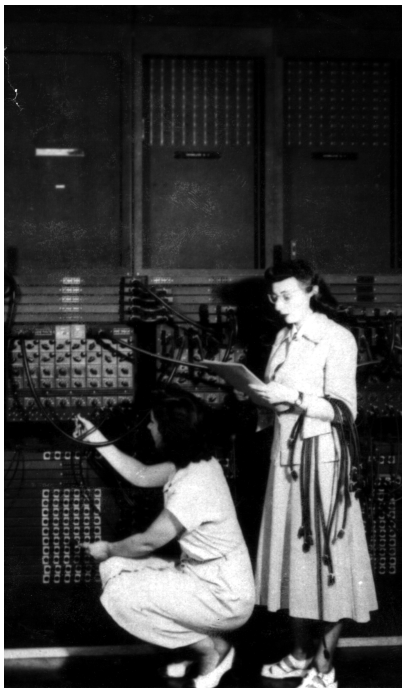
- **All instances of academic dishonesty will be reported to the office of Student Affairs**

Communication



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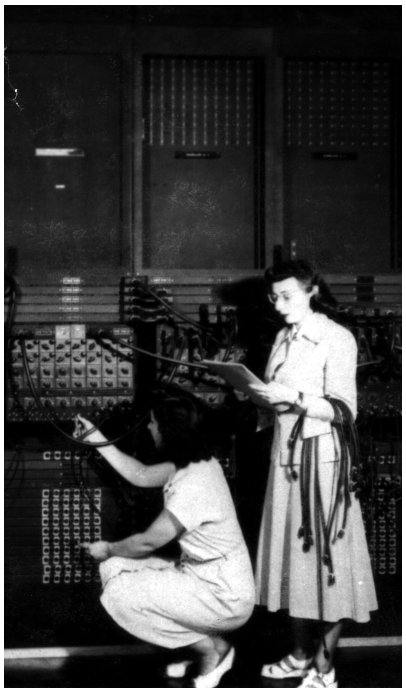

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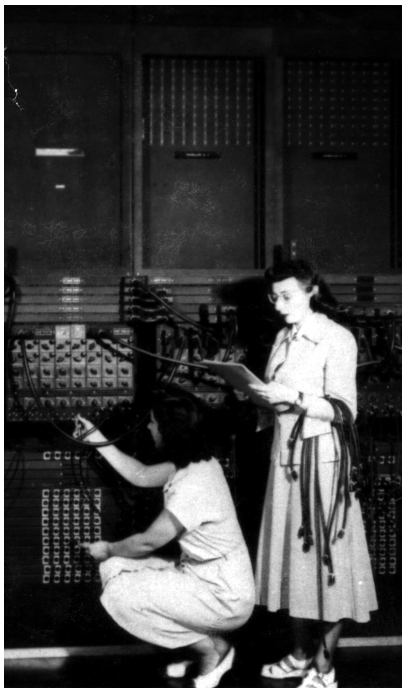

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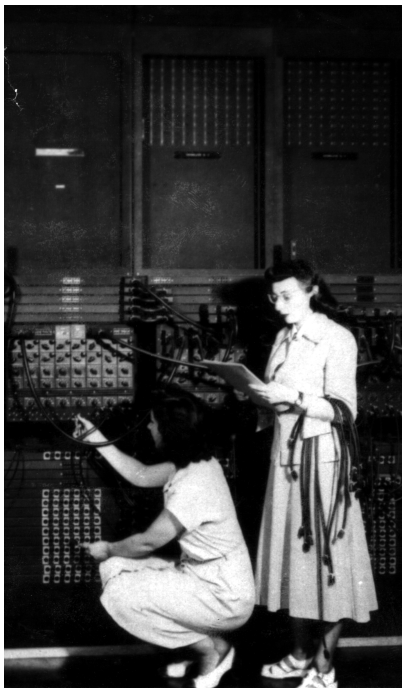

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Today's Topics

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

First Program: `Hello, World!`

Demo in `pythonTutor`

First Program: Hello, World!

```
#Name:  Thomas Hunter
#Date:  September 1, 2017
#This program prints:  Hello, World!

print("Hello, World!")
```

First Program: `Hello, World!`

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#Name:  Thomas Hunter                          ← These lines are comments
#Date:  September 1, 2017                      ← (for us, not computer to read)
#This program prints:  Hello, World!           ← (this one also)

print("Hello, World!")                         ← Prints the string "Hello, World!" to the screen
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- Output to the screen is: `Hello, World!`
- We know that `Hello, World!` is a **string** (a sequence of characters) because it is surrounded by quotes
- Can replace `Hello, World!` with another string to be printed.

Variations on Hello, World!

```
#Name:  L-M Miranda
#Date:  Hunter College HS '98
#This program prints intro lyrics

print('Get your education,')
```

Spring18 here in Assembly Hall

Variations on Hello, World!

```
#Name:  L-M Miranda
#Date:  Hunter College HS '98
#This program prints intro lyrics

print('Get your education,')
print("don't forget from whence you came, and")
print("The world's gonna know your name.")
```

- Each print statement writes its output on a new line.
- Results in three lines of output.
- Can use single or double quotes, just need to match.

Today's Topics

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

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- (Fancier turtle demo)

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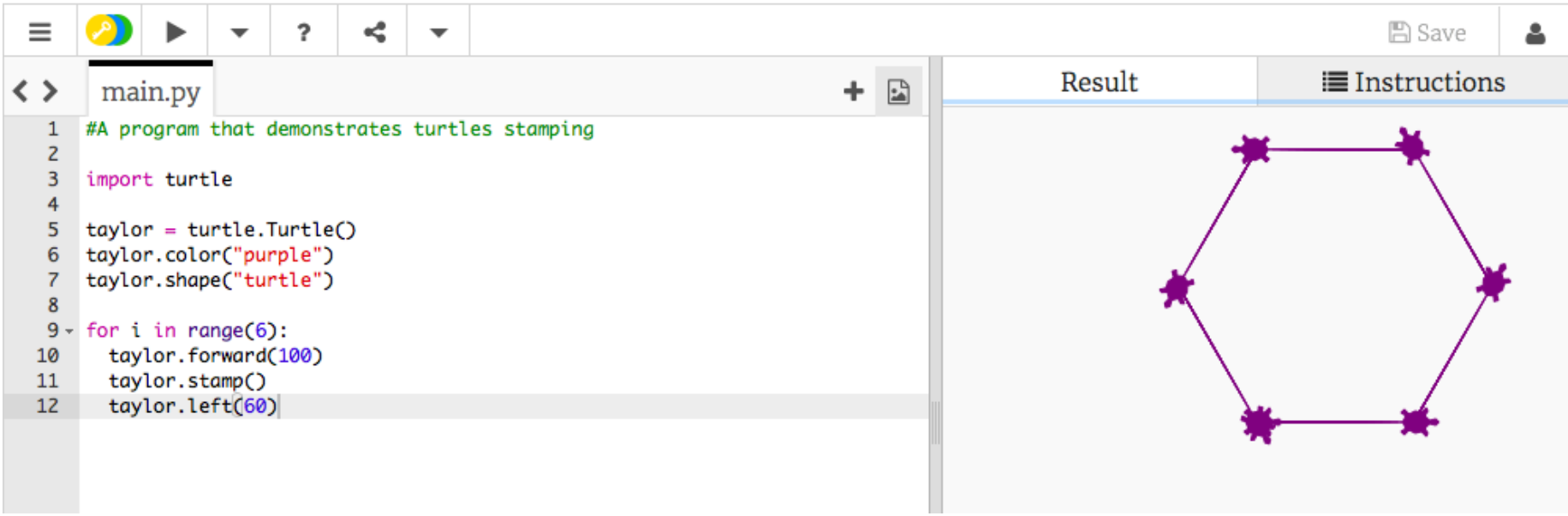

- Creates a turtle **variable**, called `taylor`.

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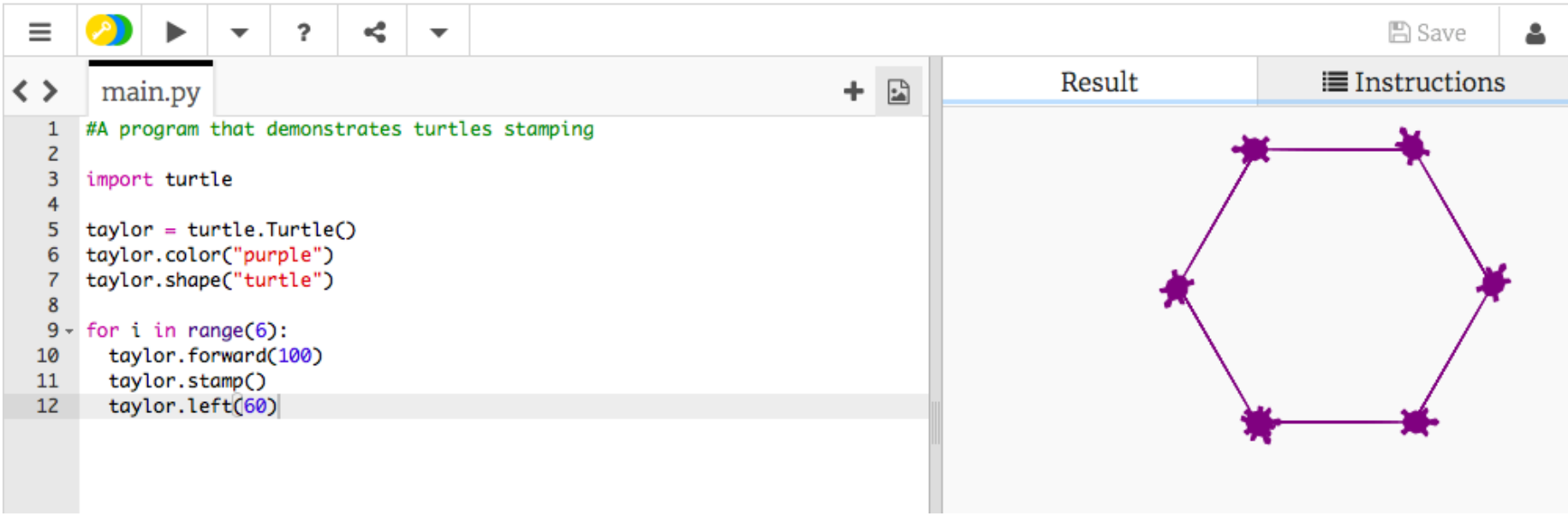

- Creates a turtle **variable**, called `taylor`.
- Changes the color (to purple) and shape (to turtle-shaped).

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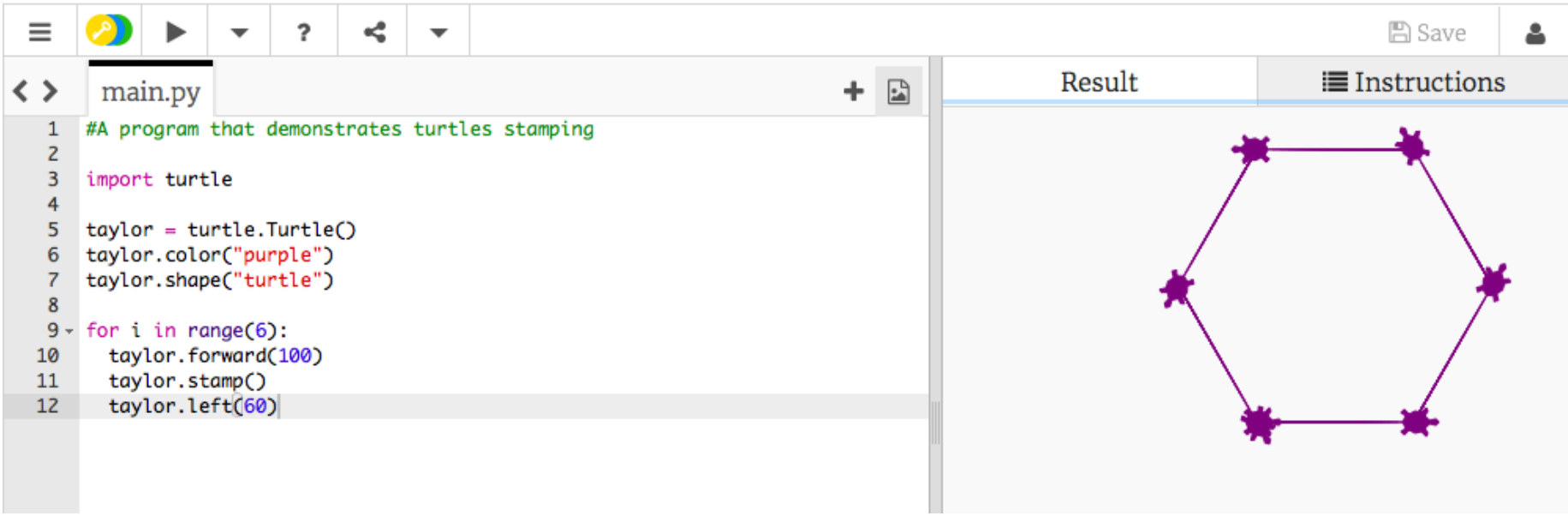

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- Changes the color (to purple) and shape (to turtle-shaped).
- Repeats 6 times:

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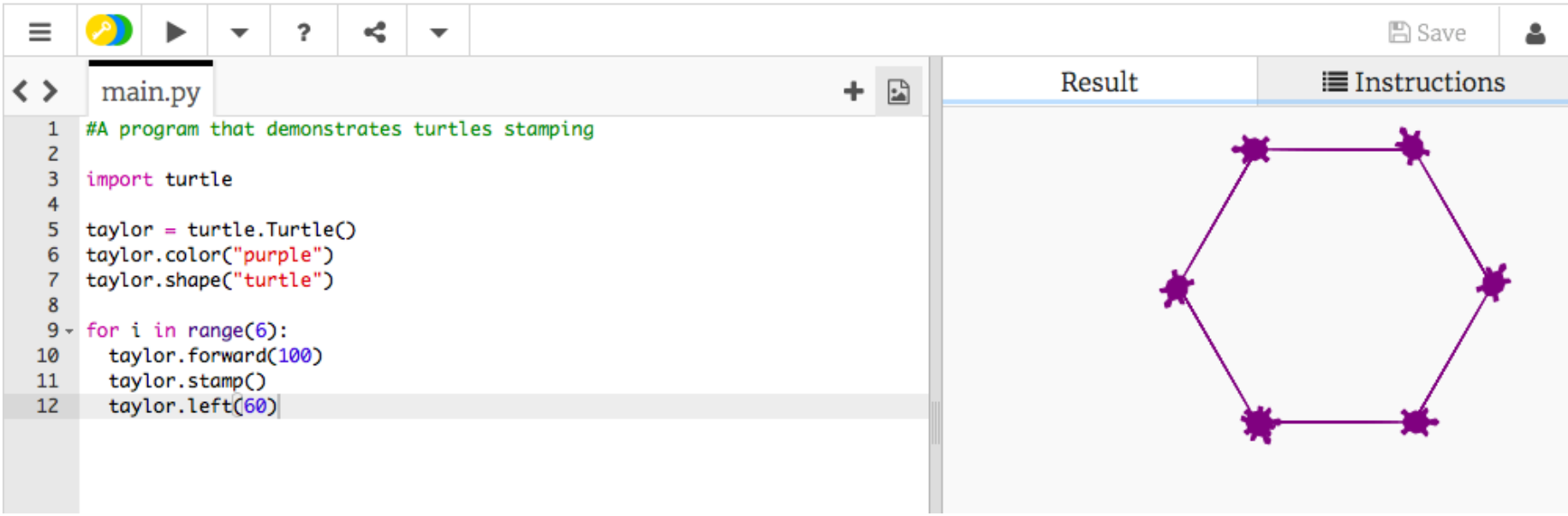

- Creates a turtle **variable**, called `taylor`.
- Changes the color (to purple) and shape (to turtle-shaped).
- Repeats 6 times:
  - Move forward; stamp; and turn left 60 degrees.

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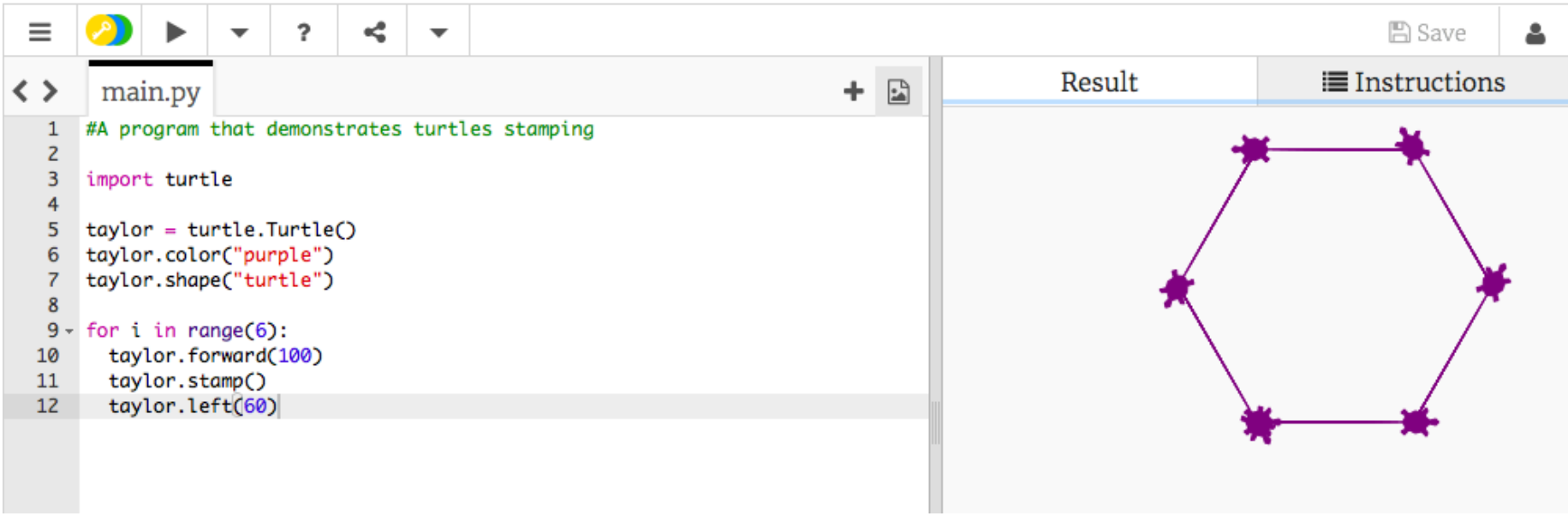

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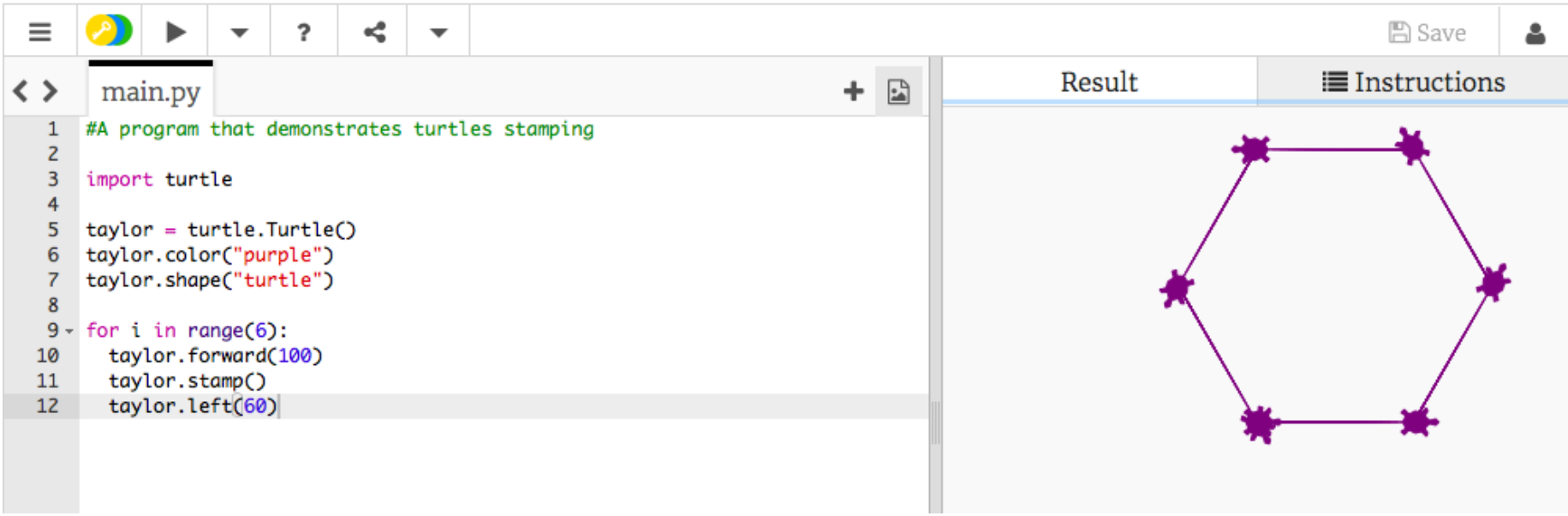

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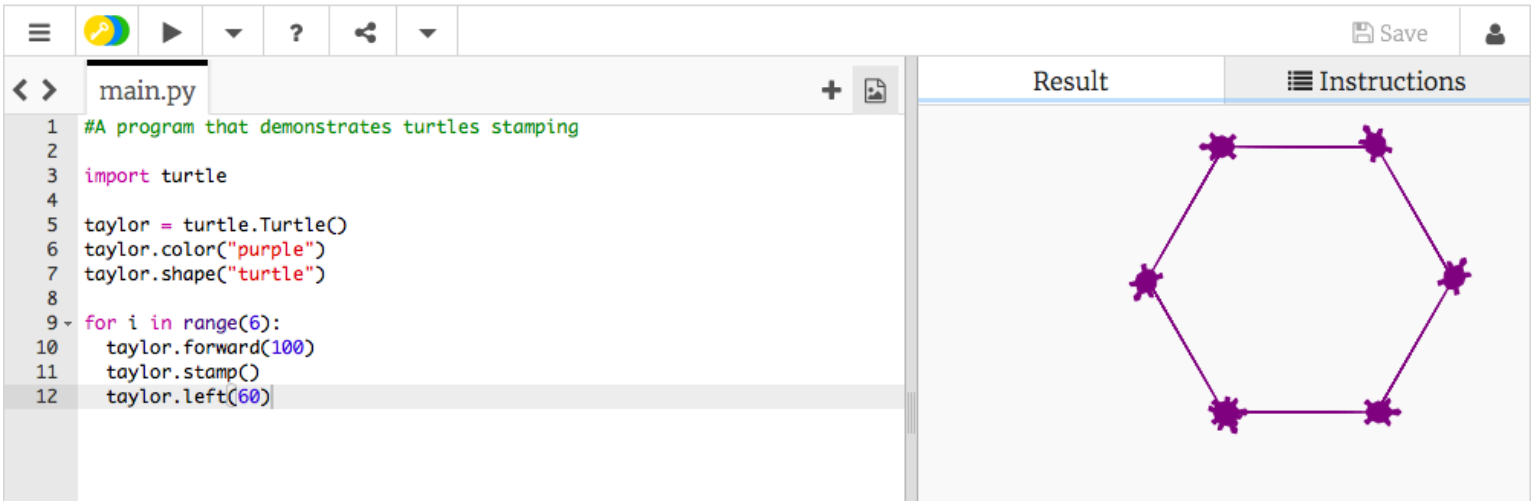
- Repeats any instructions **indented** in the "loop block"
- This is a **definite** loop because it repeats a fixed number of times

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.

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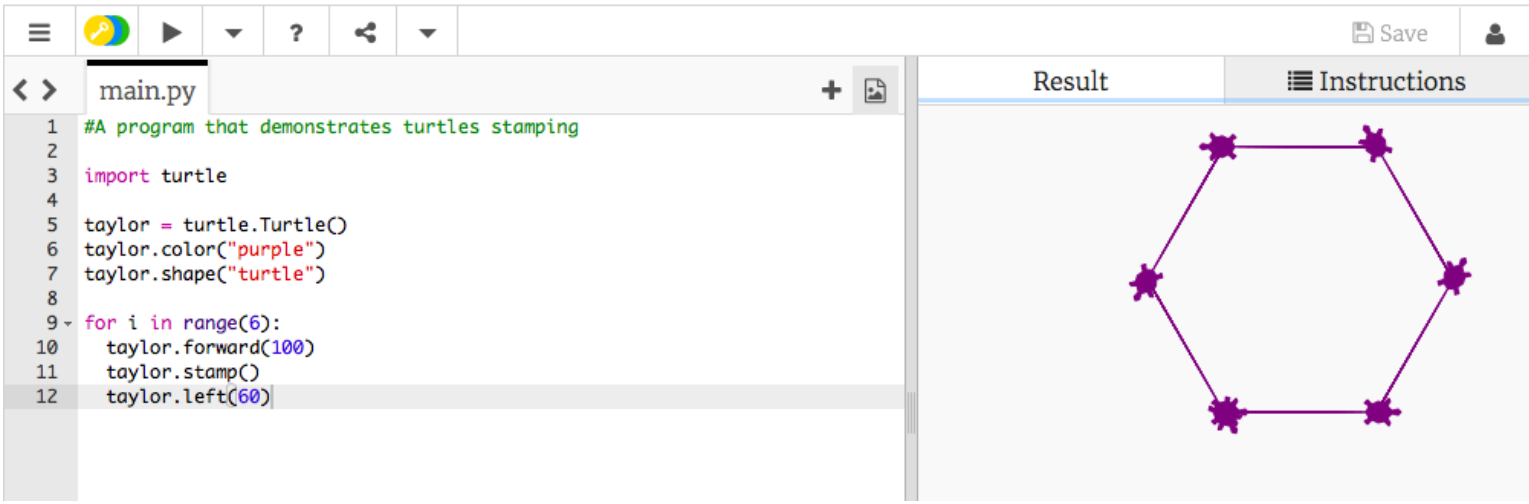

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- Has 10 sides (instead of 6), so change the `range(6)` to `range(10)`.

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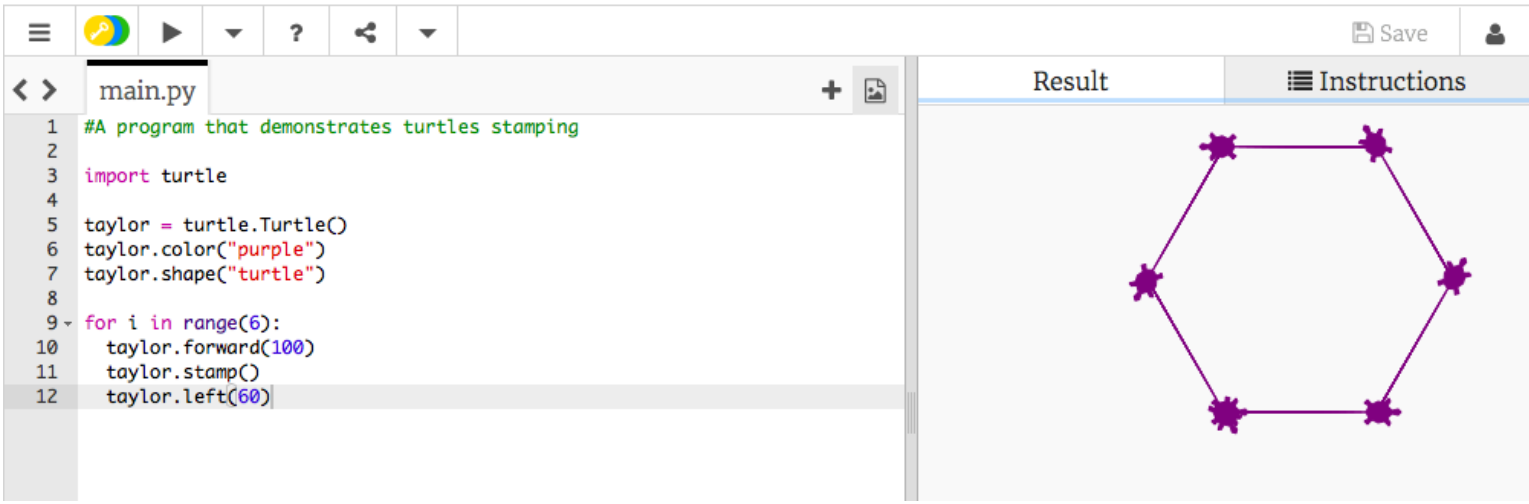

- Start with the hexagon program.
- Has 10 sides (instead of 6), so change the `range(6)` to `range(10)`.
- Makes 10 turns (instead of 6),
  so change the `taylor.left(60)` to `taylor.left(360/10)`.

Work Program

2. Write a program that will repeat the line:
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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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- Introduction to Python
- Turtle Graphics
- Definite Loops (`for`-loops)
- **Algorithms**

What is an Algorithm?

From our textbook:

- An algorithm is a process or sequence of steps to be followed to solve a problem.

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From our textbook:

- An algorithm is a process or sequence of steps 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 executed by a computer.

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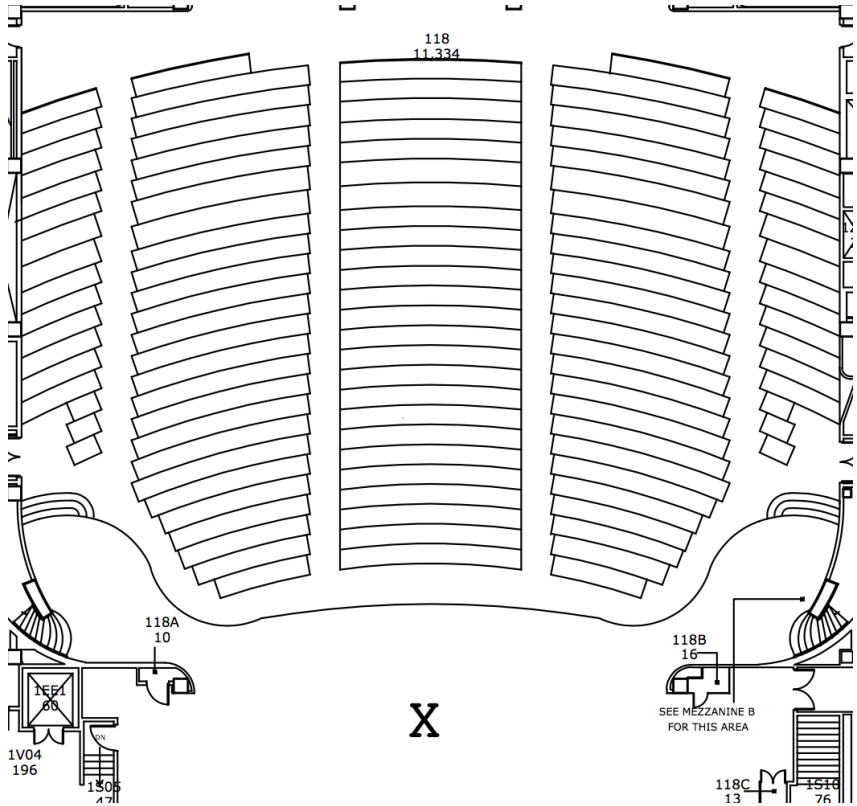

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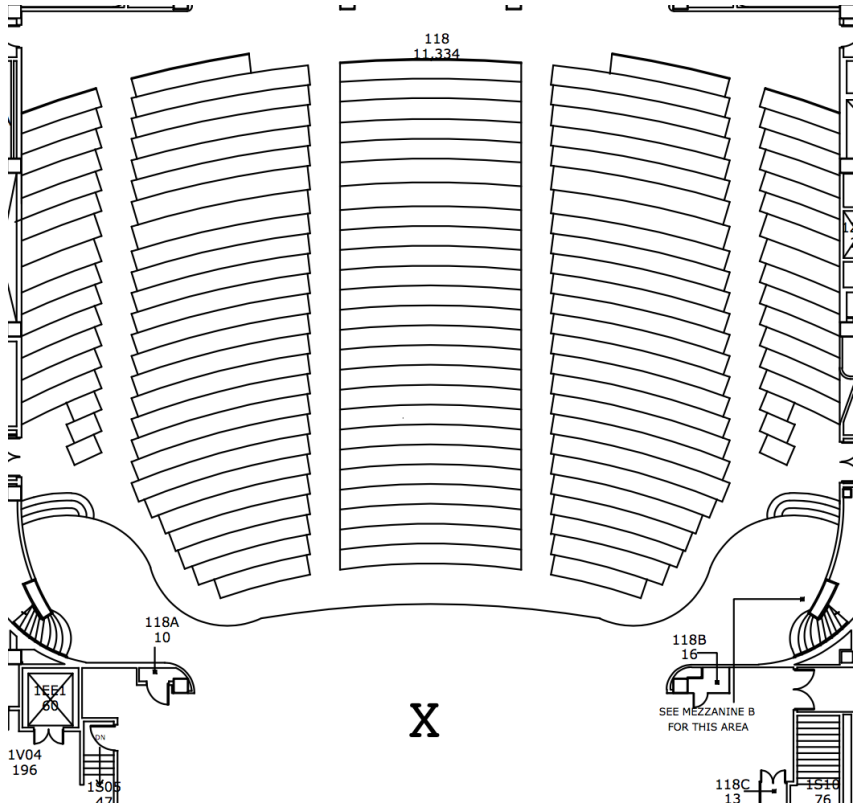

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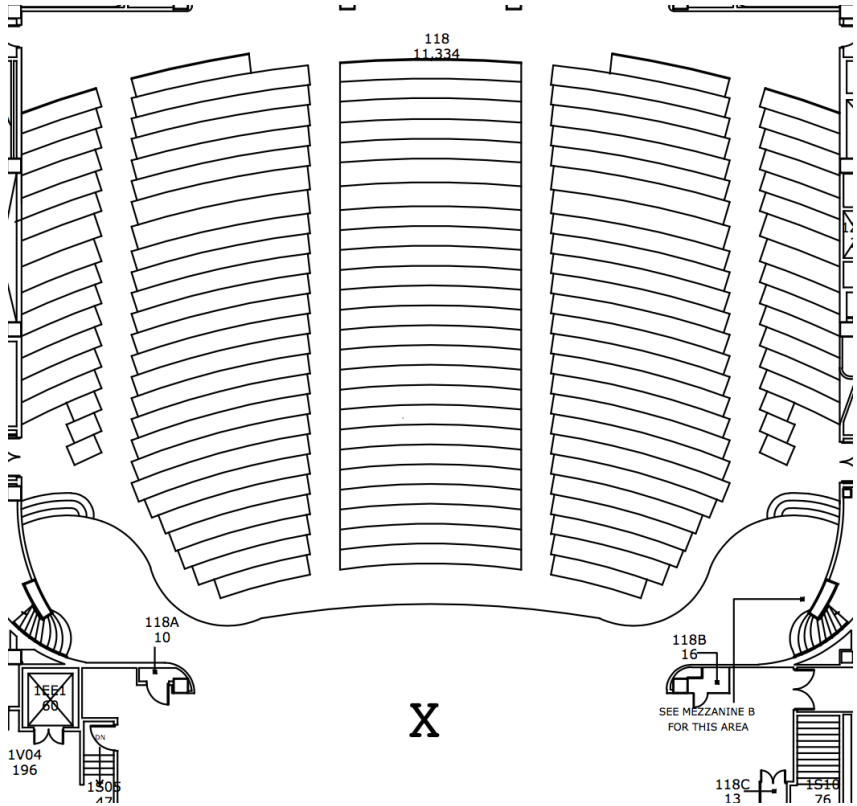

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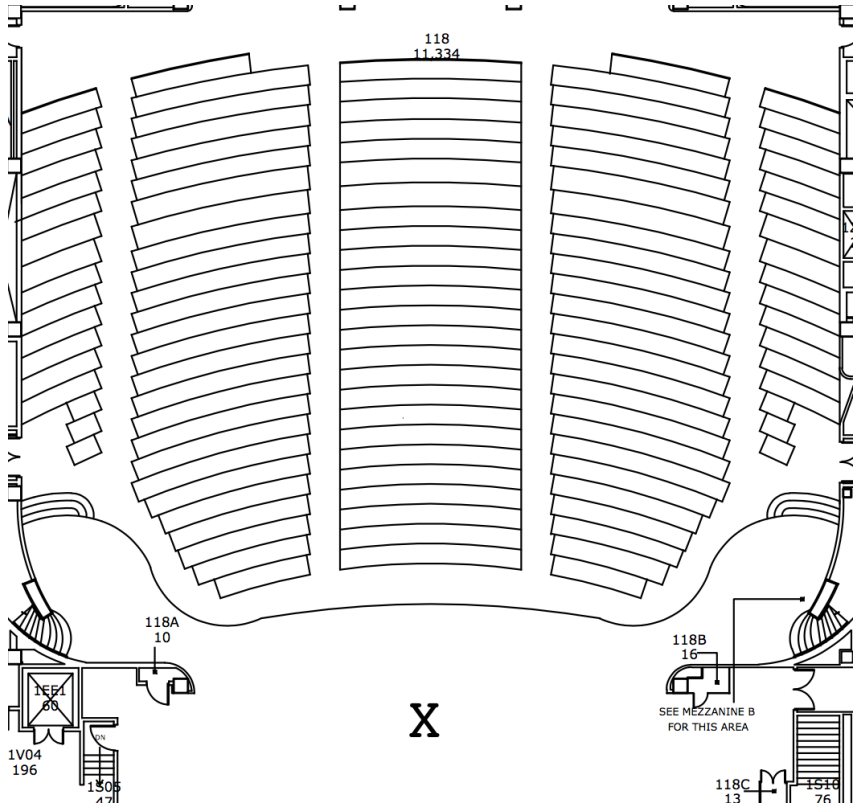

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   - Do not run turtles into walls, chairs, obstacles, etc.

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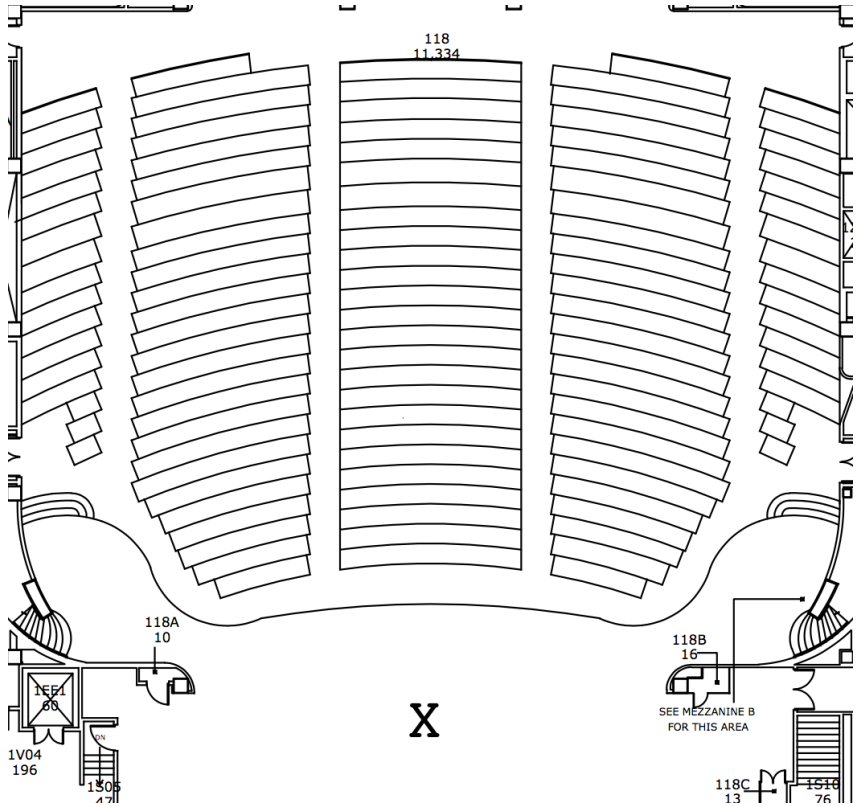

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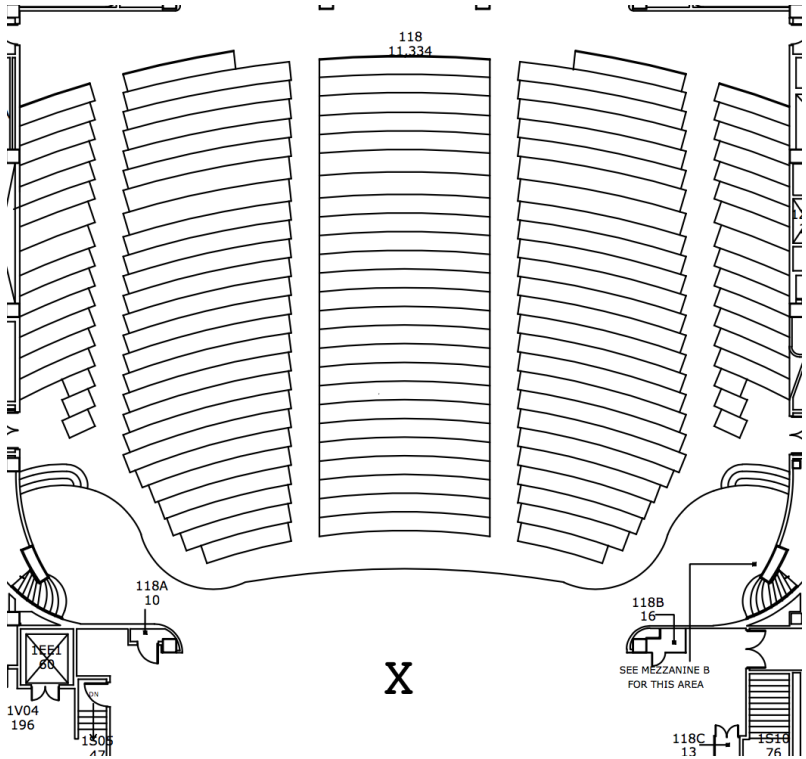
2. Write an algorithm (step-by-step directions) to get to `X`.
3. Basic Rules:
   - Use `turtle` commands.
   - Do not run turtles into walls, chairs, obstacles, etc.
   - Turtles cannot climb walls, must use stairs.

Group Work



- Have one person in your group be the "turtle."

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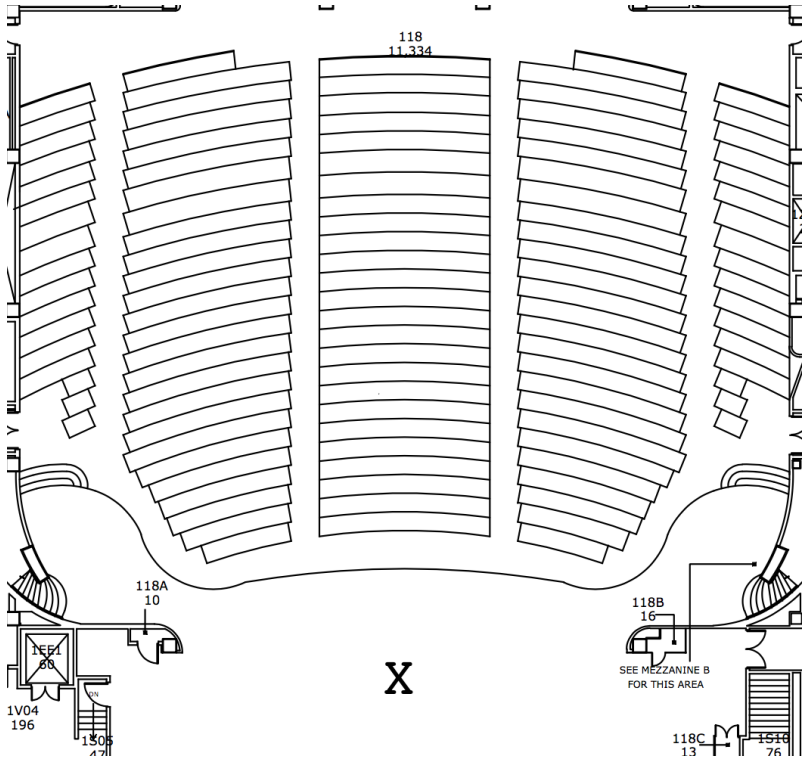

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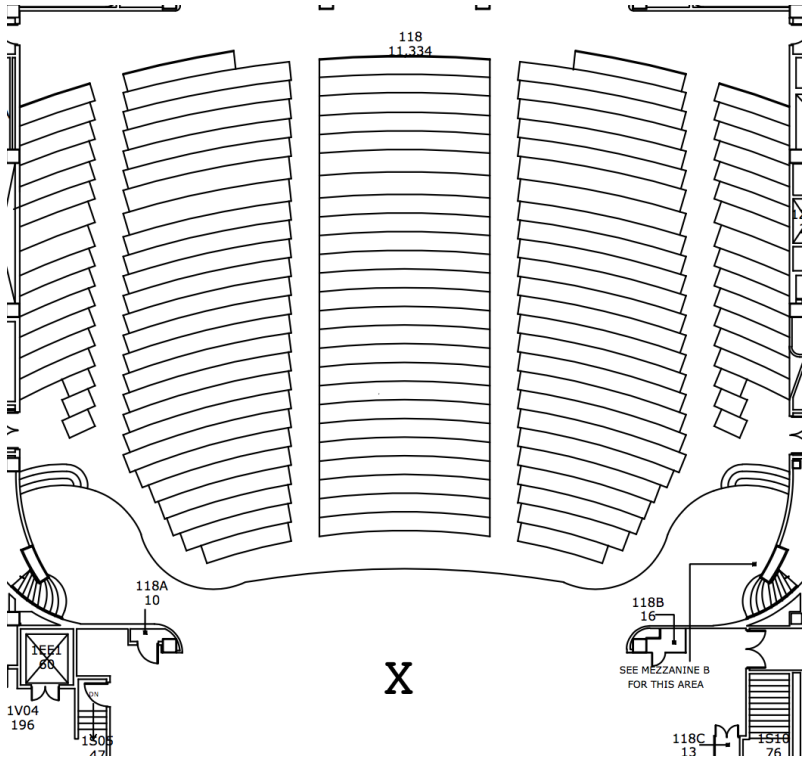

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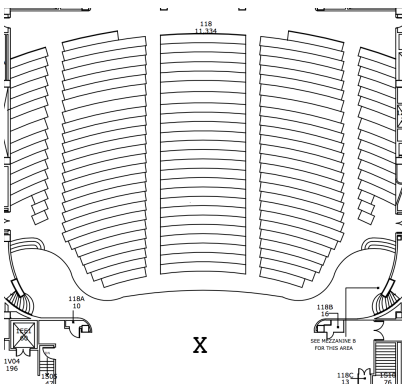
- Annotate any changes needed to the directions (i.e. debug your work).

Recap

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



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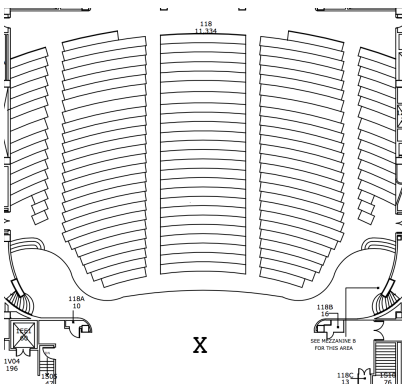

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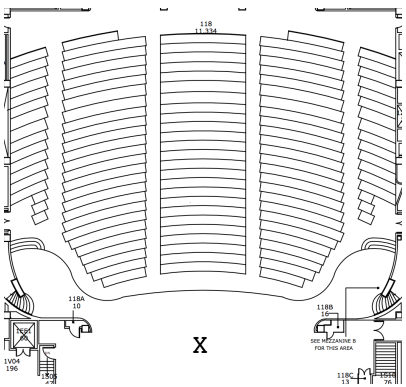

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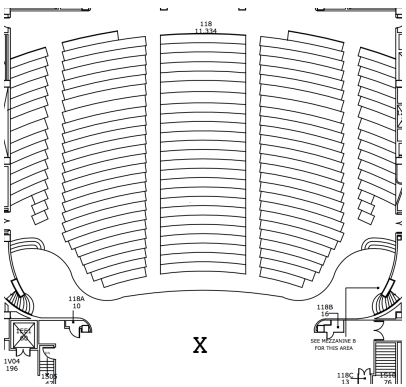

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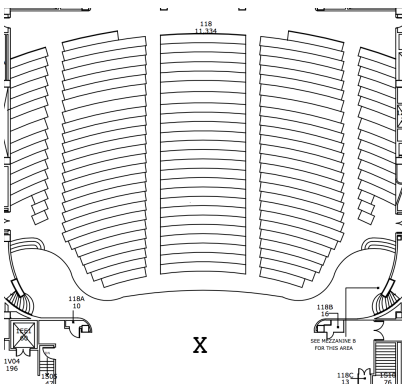

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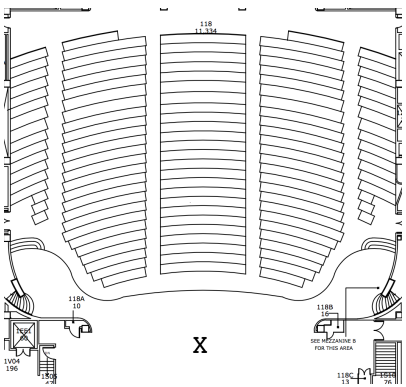

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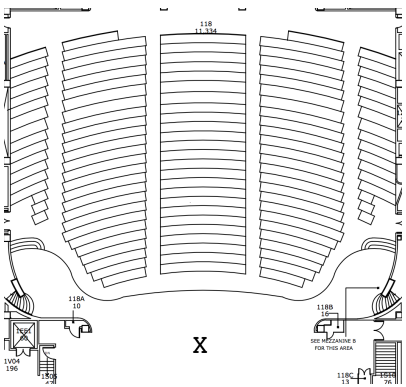

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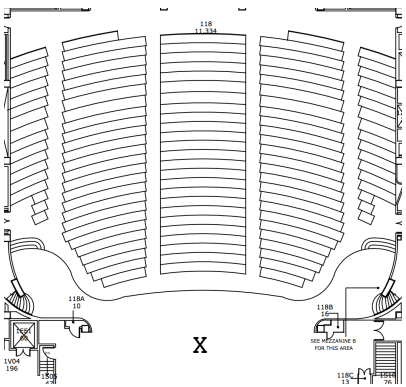

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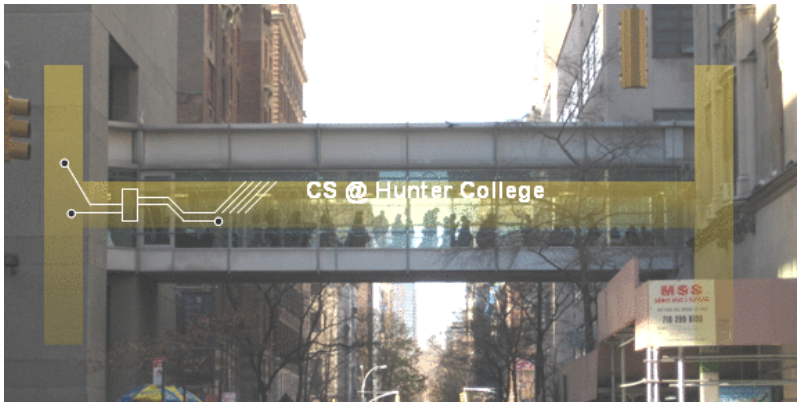
- Pass your lecture slips to the aisle for the UTA's to collect.

Weekly Reminders!



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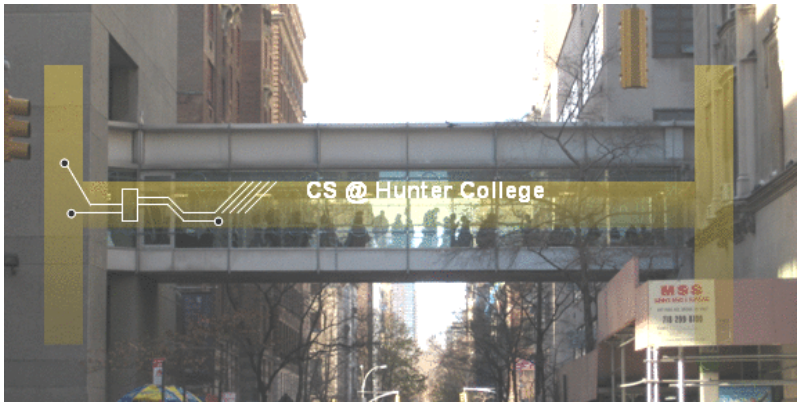

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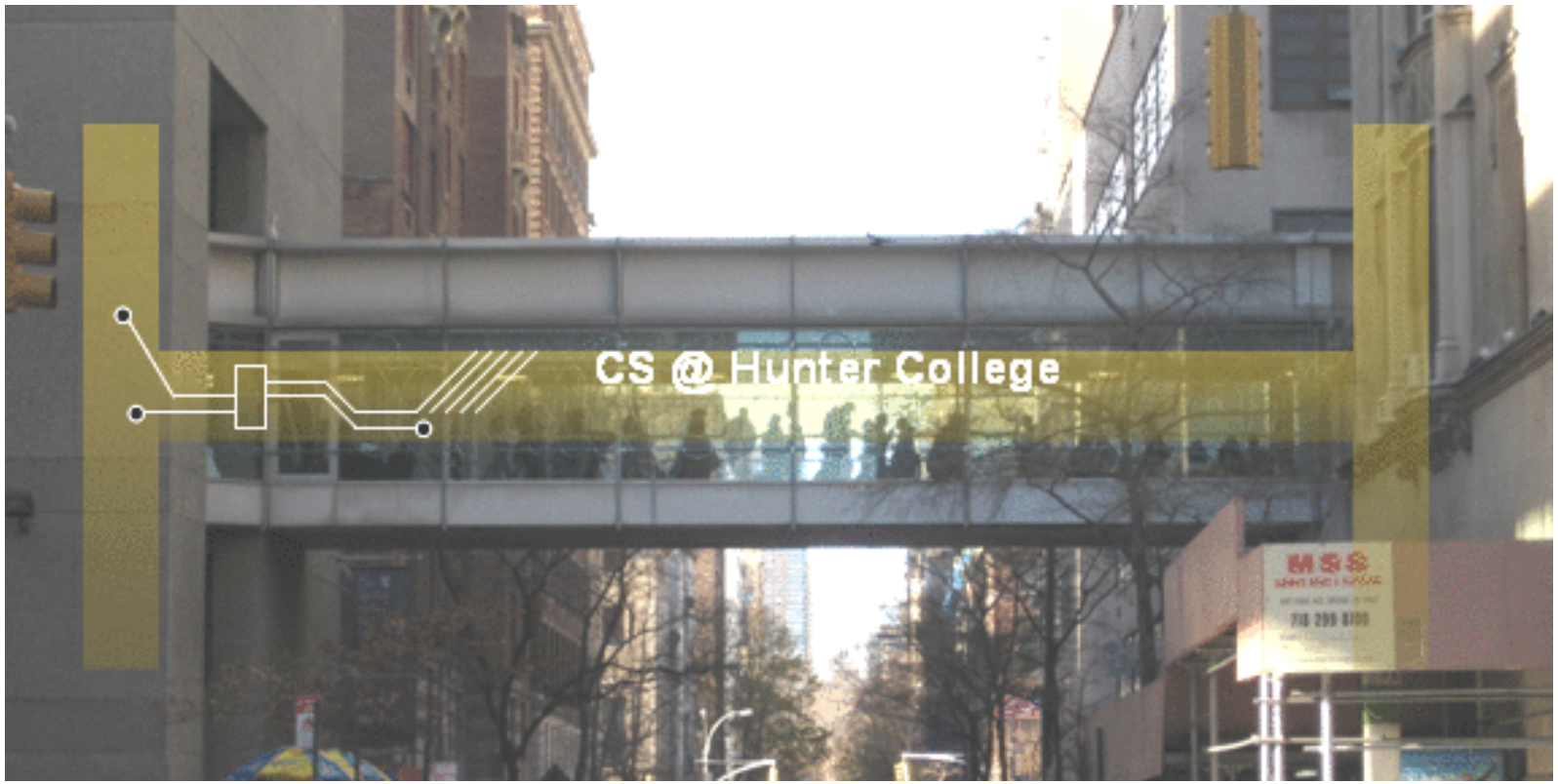
- If you need help, schedule an appointment for Tutoring in lab 1001E 11am-5pm
- Take the Lecture Preview on Blackboard on Monday (or no later than 10am on Tuesday)

Lecture Slips & Writing Boards



- Hand your lecture slip to a UTA
- Return writing boards as you leave.