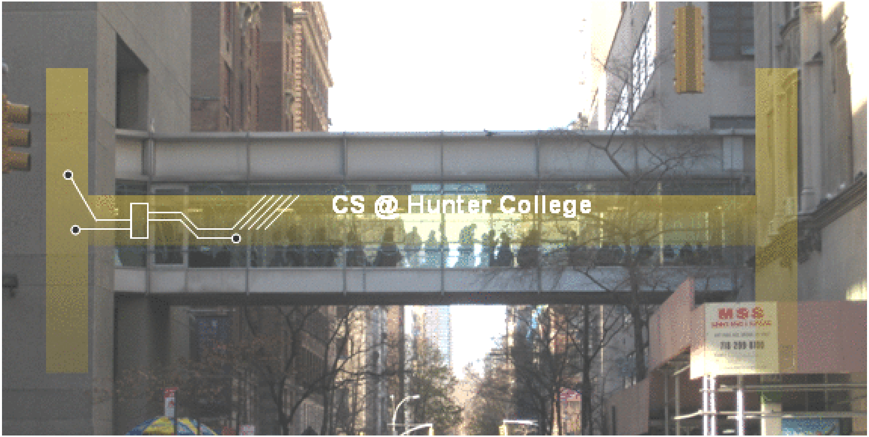
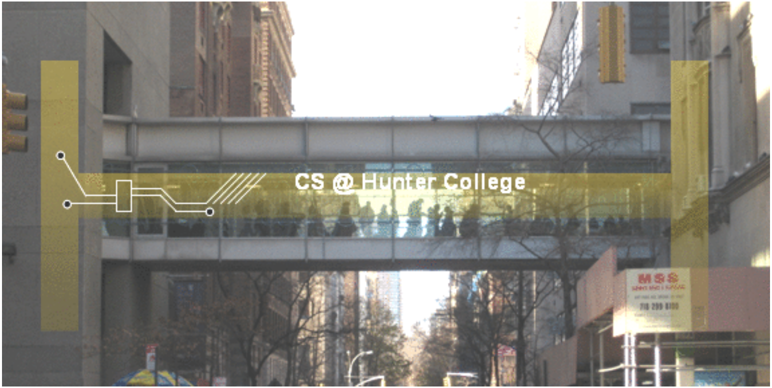
CSci 127: Introduction to Computer Science



hunter.cuny.edu/csci

Welcome



Acknowledgments

Thank you to the amazing support of:

President Raab

Dean Polsky
Arts & Science

Judy Spitz
WiTNY

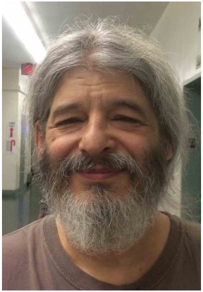
Introductions: Course Designers

Dr. Katherine St. John

Professor,
Course Coordinator

Dr. William Sakas

Associate Professor,
Chair



Prof. Eric Schweitzer

Undergraduate Program
Coordinator

Introductions: Instructors

Katherine Howitt

Early College Initiative

Dr. Tiziana Ligorio

Macaulay Honors Section

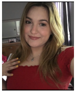
Dr. Katherine St. John

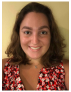
Large Lecture

Introductions: Undergraduate Teaching Assistants

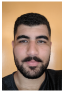
Aleena Thomas

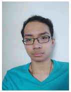
Arterio Rodrigues


Caitlin Selca

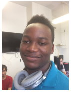

Camryn Buonamassa

Charles Richards


David Moncayo

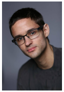

David Yuen

Destiny Barbery


Ferdi Lesporis

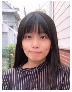
Hyeaji Lee

Ifte Ahmed


Ilya Baburashvili

Isaac Lapides

Kevin Wong

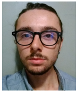

Kristy Lau

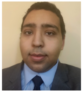
Leonardo Matone

Liulan Zheng

Lola Samigjonova

Mandy Yu


Matthew Rozanoff


Natanael Feltosa

Nigel Ferrer

Nixon Lazaro

Owen Kunhardt

Patrick Chaca

Ralph Vente

Rhia Singh

Rose Mishaan

Shaina Lowenthal

Shantel Dixon

Sheva Vulakh

Stephanie Yung

Steven Milani

Such Singh

Thomas Joy

Toby Au

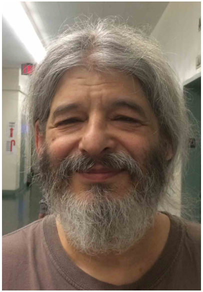
Tyler Robinson

Yash Mahtani

Introductions: Advisors

Amanda Bell

Pre-majors &
Early Majors



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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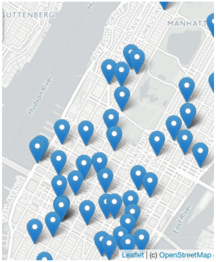

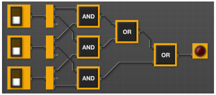

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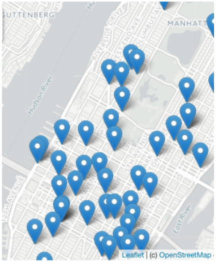

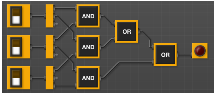

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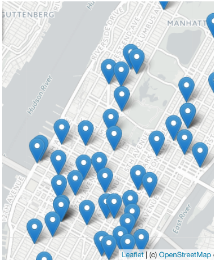

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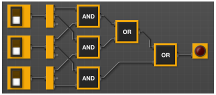

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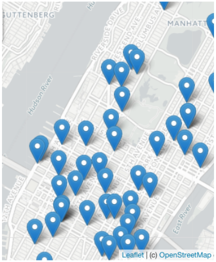

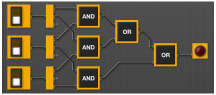

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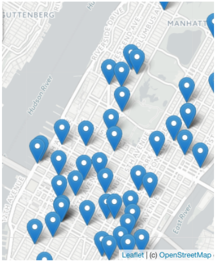

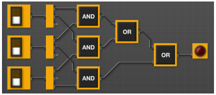

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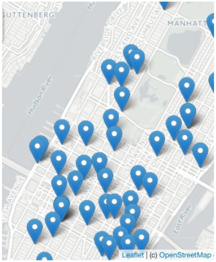

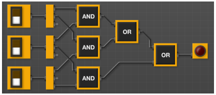

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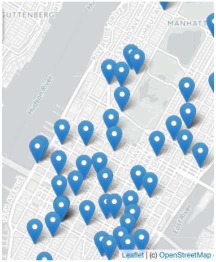

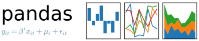

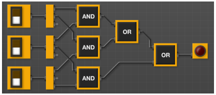

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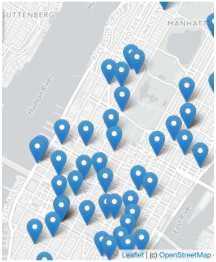

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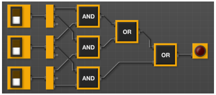
pandas
$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$



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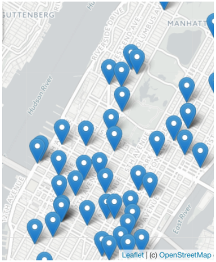

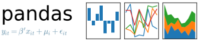

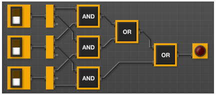

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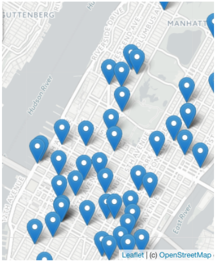
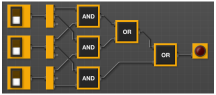
Syllabus: Topics





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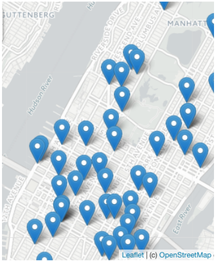

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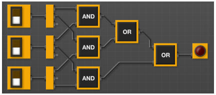

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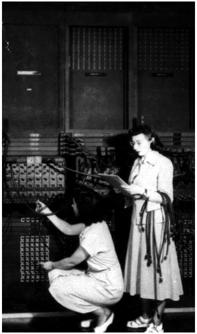
Class Structure

Lecture:

- Tuesdays, 9:45-11:00am, 118 North.



First "computers"

ENIAC, 1945.

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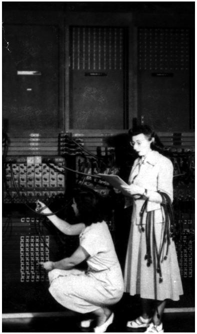

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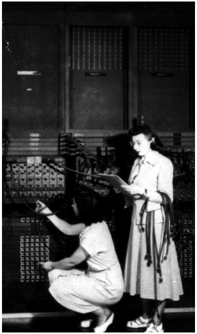

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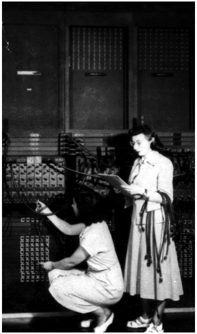

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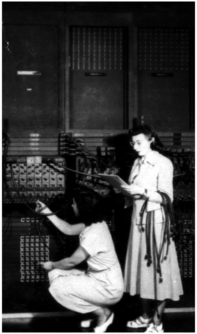

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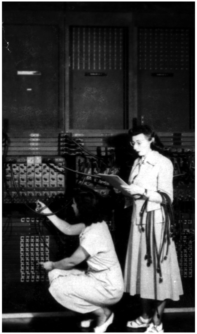

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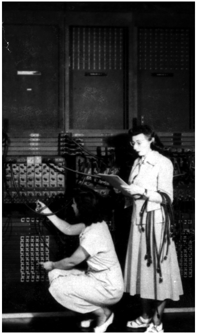

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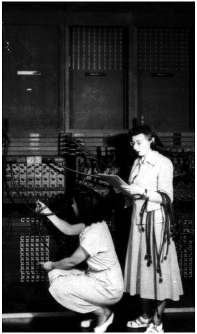

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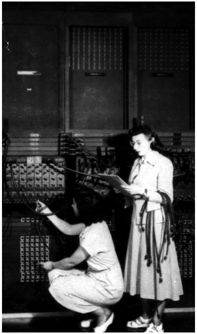

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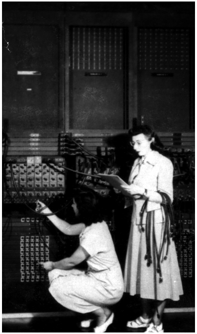

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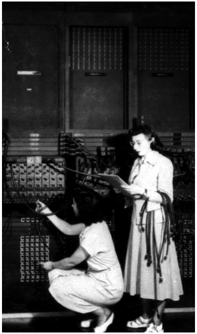

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Software Platforms:

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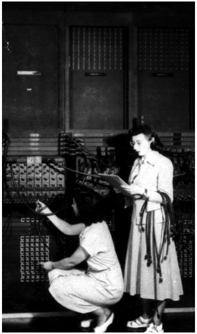

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Lecture:

- Tuesdays, 9:45-11:00am, 118 North.
- Mix of explanation, challenges, & group work.
- Lecture Preview: on-line prior to each lecture.
- Lecture Slips: group challenges during lecture.
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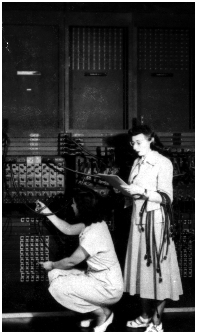
Quizzes & Code Reviews:

- Offered most M-F, 11am-6:30pm, 1001E HN.
- Paper Quiz: questions follow final exam style.
- Code Review: walk-through of program.
- One-on-one help with UTAs.

Software Platforms:

- Blackboard: visit ICIT for access issues.

Class Structure



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  We will end most lectures with past final exam questions and review.

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  Active learning increases student performance.
  Also, it provides excellent practice explaining technical ideas (i.e. tech interviews).

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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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- Our first language, Python, is popular for its ease-of-use, flexibility, and extendibility.
- 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.

Variations on Hello, World!

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

print(’Get your education,’)
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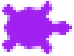
- Results in three lines of output.
- Can use single or double quotes, just need to match.

Turtles Introduction



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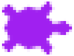

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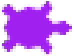

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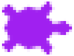

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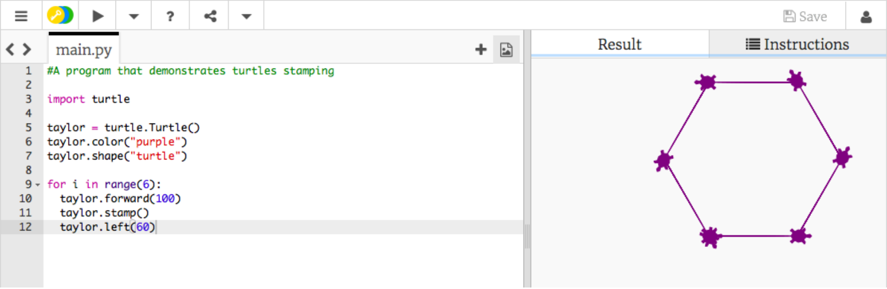

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#A program that demonstrates turtles stamping

import turtle

taylor = turtle.Turtle()
taylor.color("purple")
taylor.shape("turtle")

for i in range(6):
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- Creates a turtle, called `taylor`.

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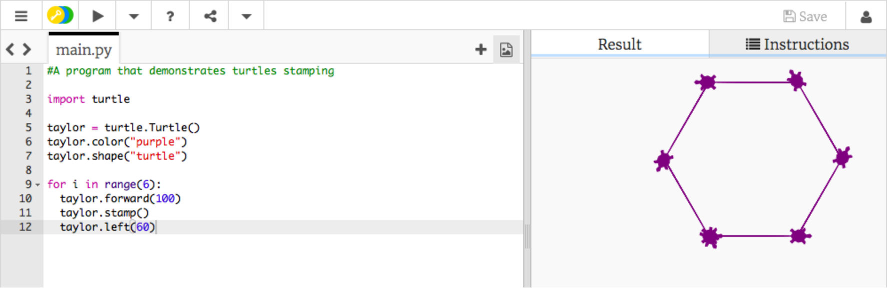

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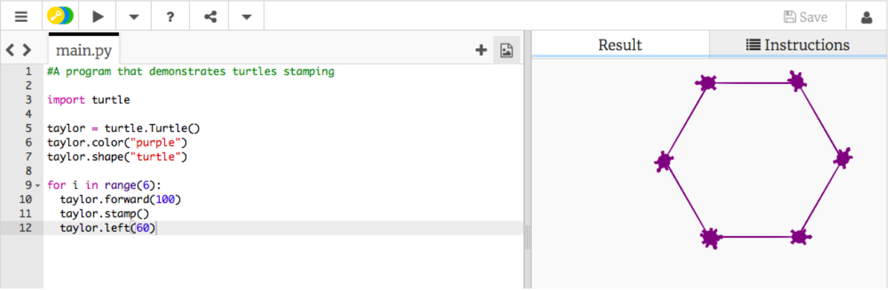

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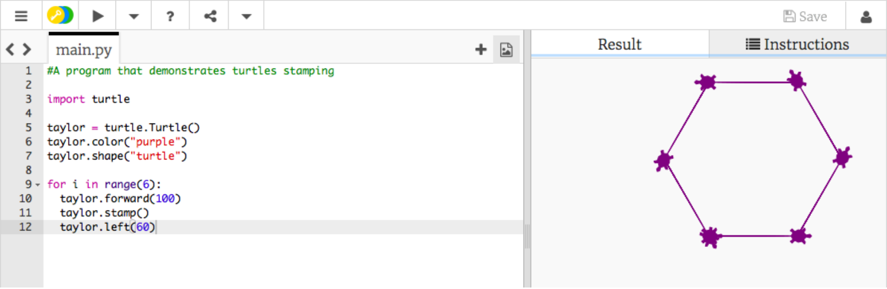

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- Repeats 6 times:
  - Move forward; stamp; and turn left 60 degrees.

Group Work

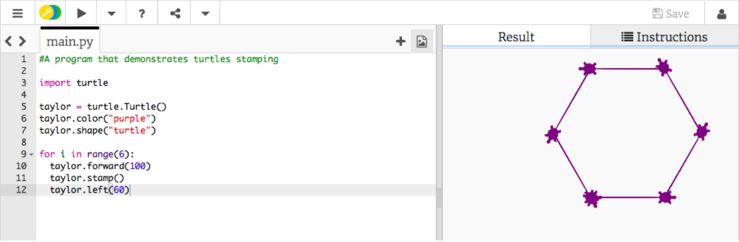
Working in pairs or triples:

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



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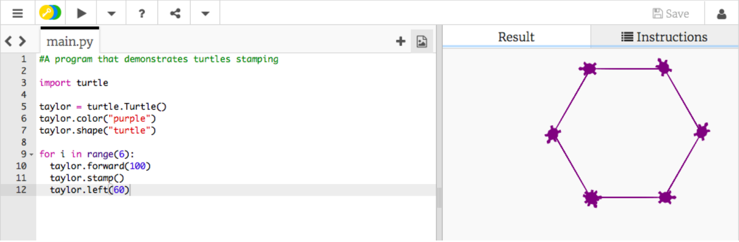

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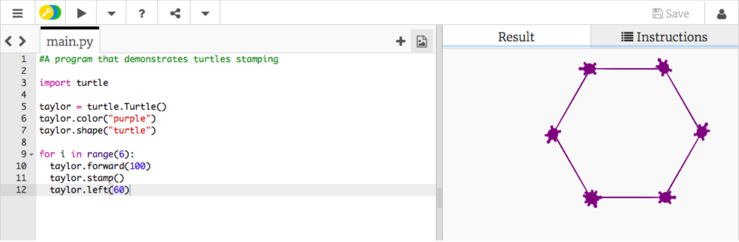

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- Start with the hexagon program.
- Has 10 sides (instead of 6), so change the `range(6)` to `range(10)`.
- Makes 10 turns (instead of 6),
  so change the `taylor.left(60)` to `taylor.left(360/10)`.

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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:

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

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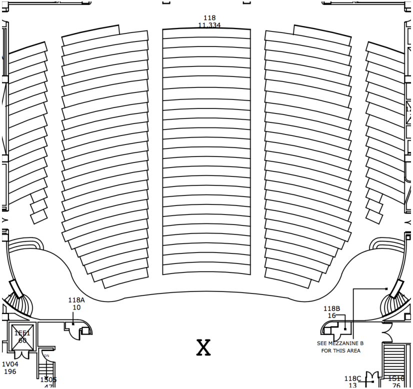
- Programming is a skill that allows a computer scientist to take an algorithm and represent it in a notation (a program) that can be followed by a computer.

Group Work



Working in pairs or triples:

1. On the floorplan, mark your current location.
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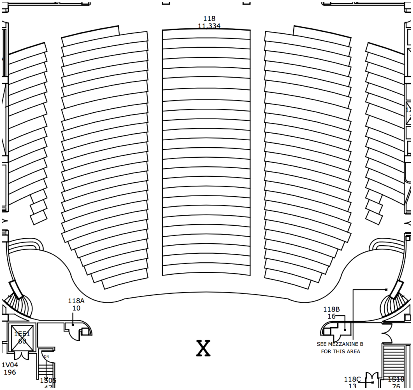

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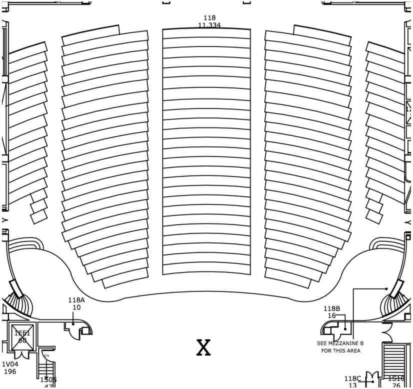

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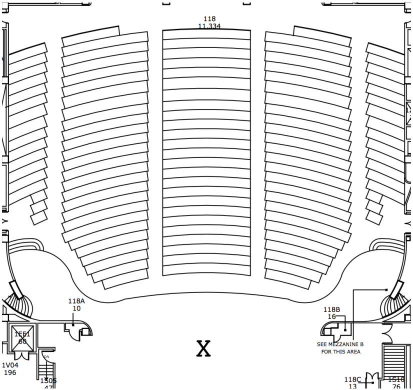

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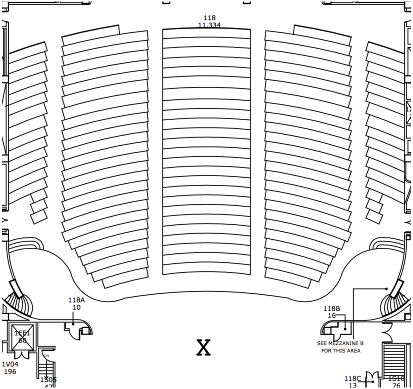

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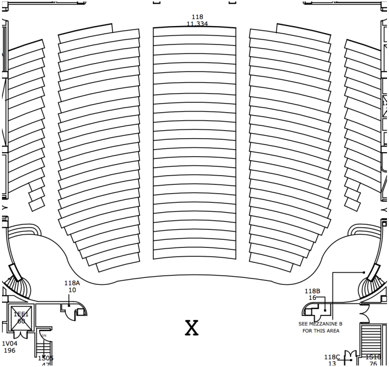

- Have one person in your group be the “turtle.”

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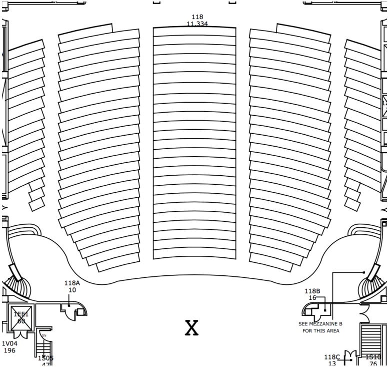

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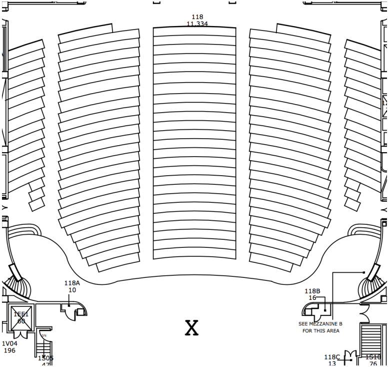

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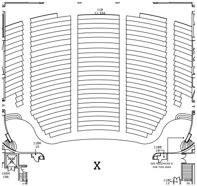
- Annotate any changes needed to the directions (i.e. debug your work).

Recap



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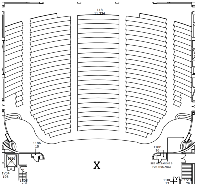

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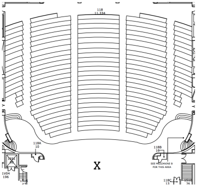

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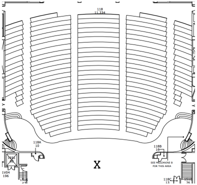

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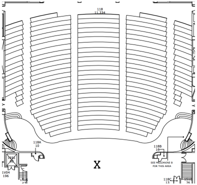

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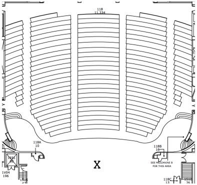

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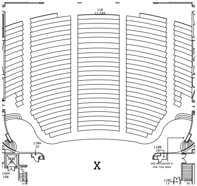

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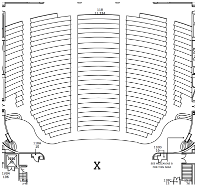

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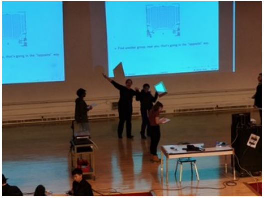
- Pass your lecture slips to the aisle for the UTA's to collect.

Practice Quiz & Final Questions



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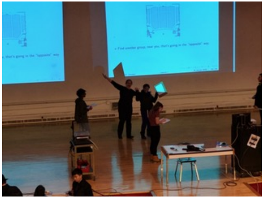

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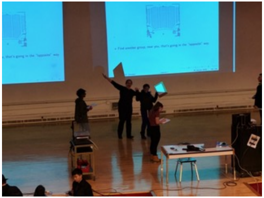

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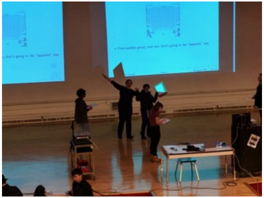

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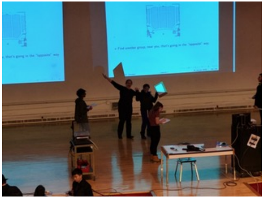

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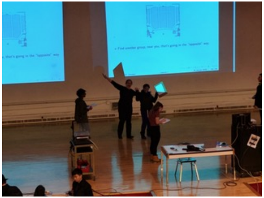

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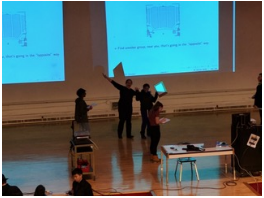

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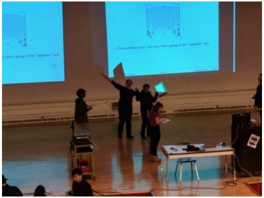

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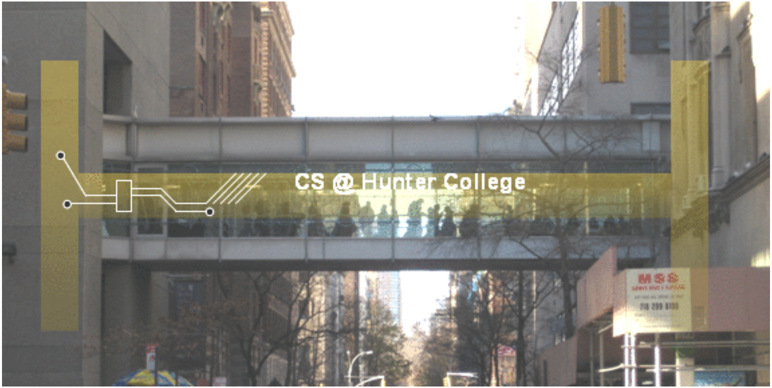
Writing Boards



- Return writing boards as you leave...