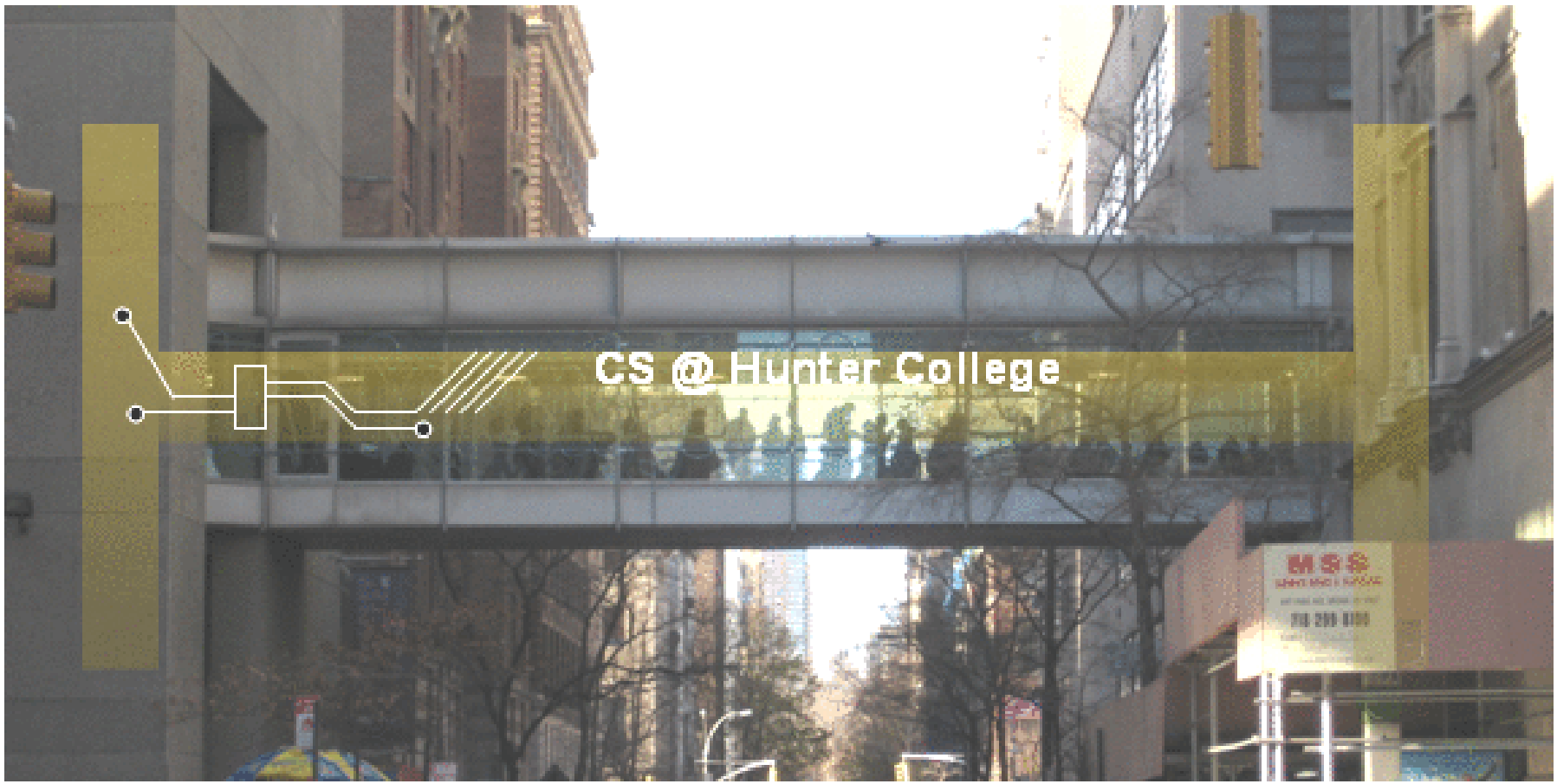
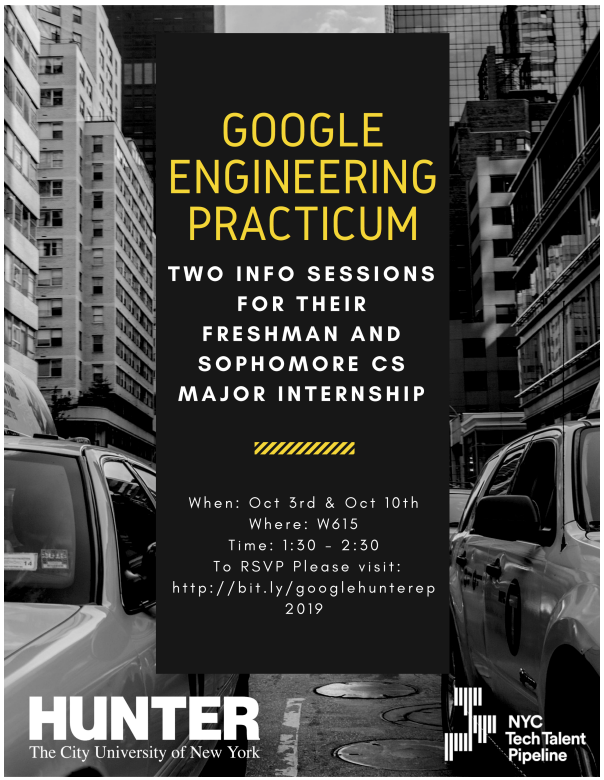
CSci 127: Introduction to Computer Science



hunter.cuny.edu/csci

Announcements



- Google Engineering Info Session: Today, 1:30pm, 614HW

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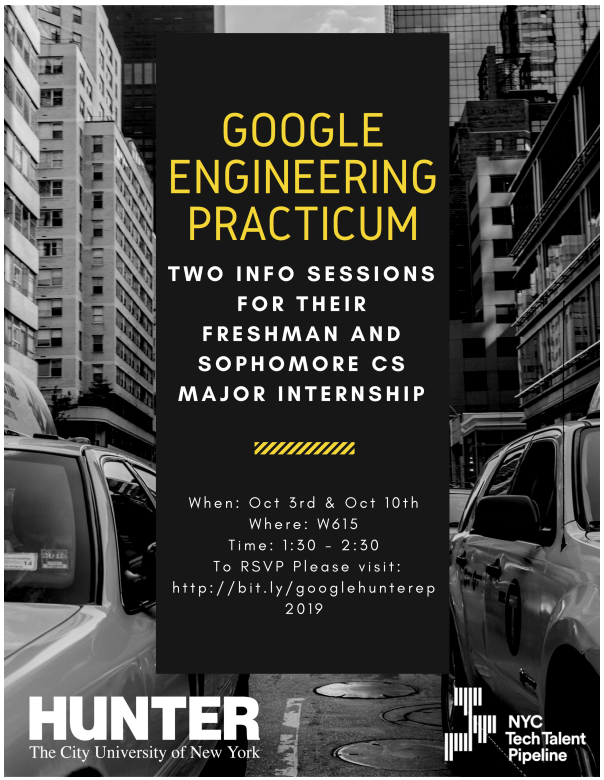

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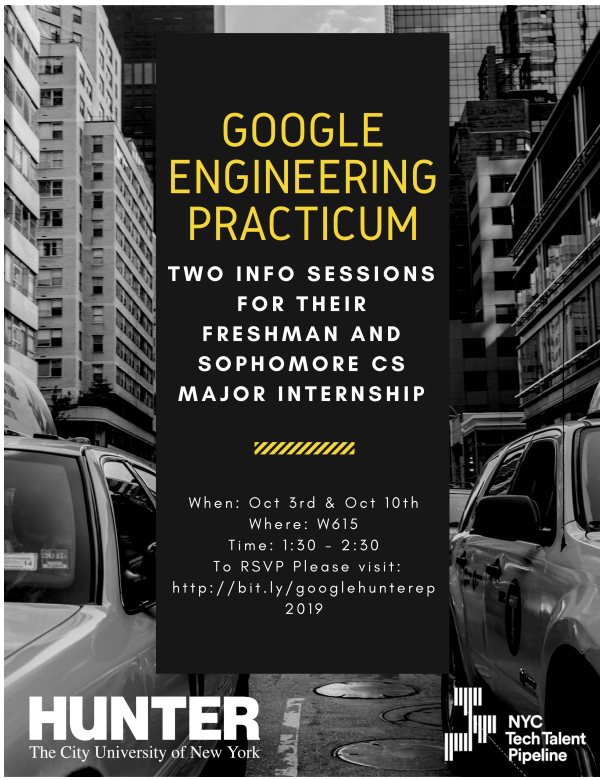

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  - Lily Caplan, president, Hunter ACM Student Chapter

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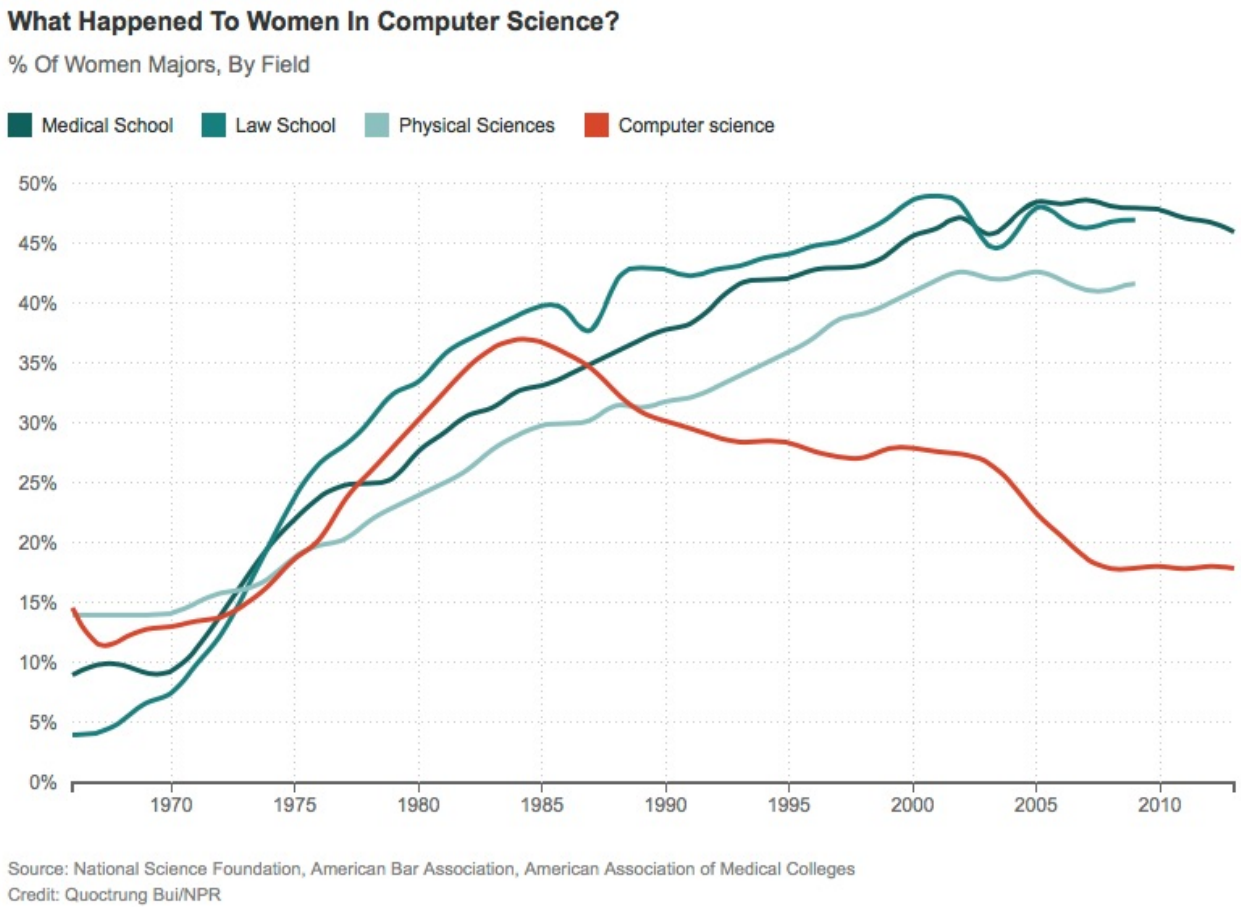

(PlanetMoney)

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Today's Topics

- CS Survey
- Recap: Indexing, Slicing, & Decisions
- Logical Expressions
- Circuits

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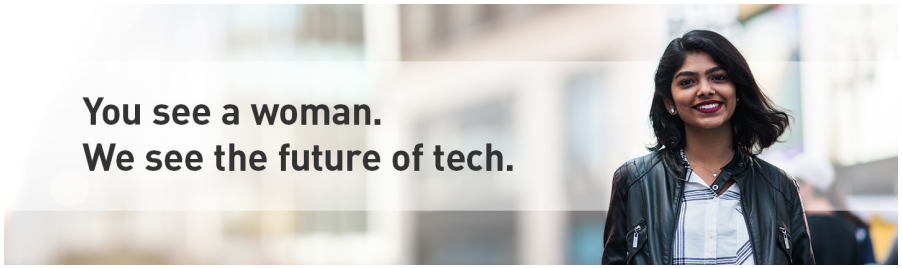

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Why should I apply for a Winternship?
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IMPORTANT DATES
- October 5, 2018: Applications due
- Mid-November: Placements announced
- January 7-24, 2019: Winternships take place in NYC and the surrounding tri-state area

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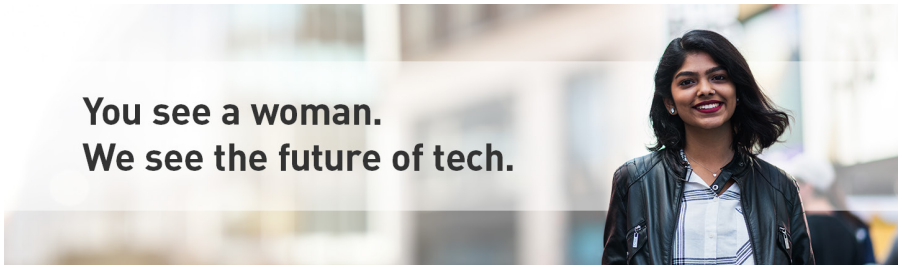

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Lecture Slip: In Pairs or Triples...

Some review:

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motto = "Mihi cura futuri"
print(motto[2:4])
print(motto[2:4].upper())
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ER = "The future belongs to those who believe in the beauty of their dreams."
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0	1	**2**	3	4	5	6	7	8	9	10	11	12	**13**	14	15	16	17

Recap: Indexing & Slicing

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ER = "The future belongs to those who believe in the beauty of their dreams."
print(ER.upper()[2], ER[13], ER[2], "a", ER[15], ER[14], "r  R.")
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Output:

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Output:

E l e a n o r R.

In Pairs or Triples...

Some challenges with types & decisions:

```
#What are the types:
y1 = 2017
y2 = "2018"
print(type(y1))
print(type("y1"))
print(type(2017))
print(type("2017"))
print(type(y2))
print(type(y1/4.0))

x = int(y2) - y1
if x < 0:
    print(y2)
else:
    print(y1)
```

```
cents = 432
dollars = cents // 100
change = cents % 100
if dollars > 0:
    print('$'+str(dollars))
if change > 0:
    quarters = change // 25
    pennies = change % 25
    print(quarters, "quarters")
    print("and", pennies, "pennies")
```

Python Tutor

```
#What are the types:
y1 = 2017
y2 = "2018"
print(type(y1))
print(type("y1"))
print(type(2017))
print(type("2017"))
print(type(y2))
print(type(y1/4.0))

x = int(y2) - y1
if x < 0:
    print(y2)
else:
    print(y1)
```

(Demo with pythonTutor)

Decisions

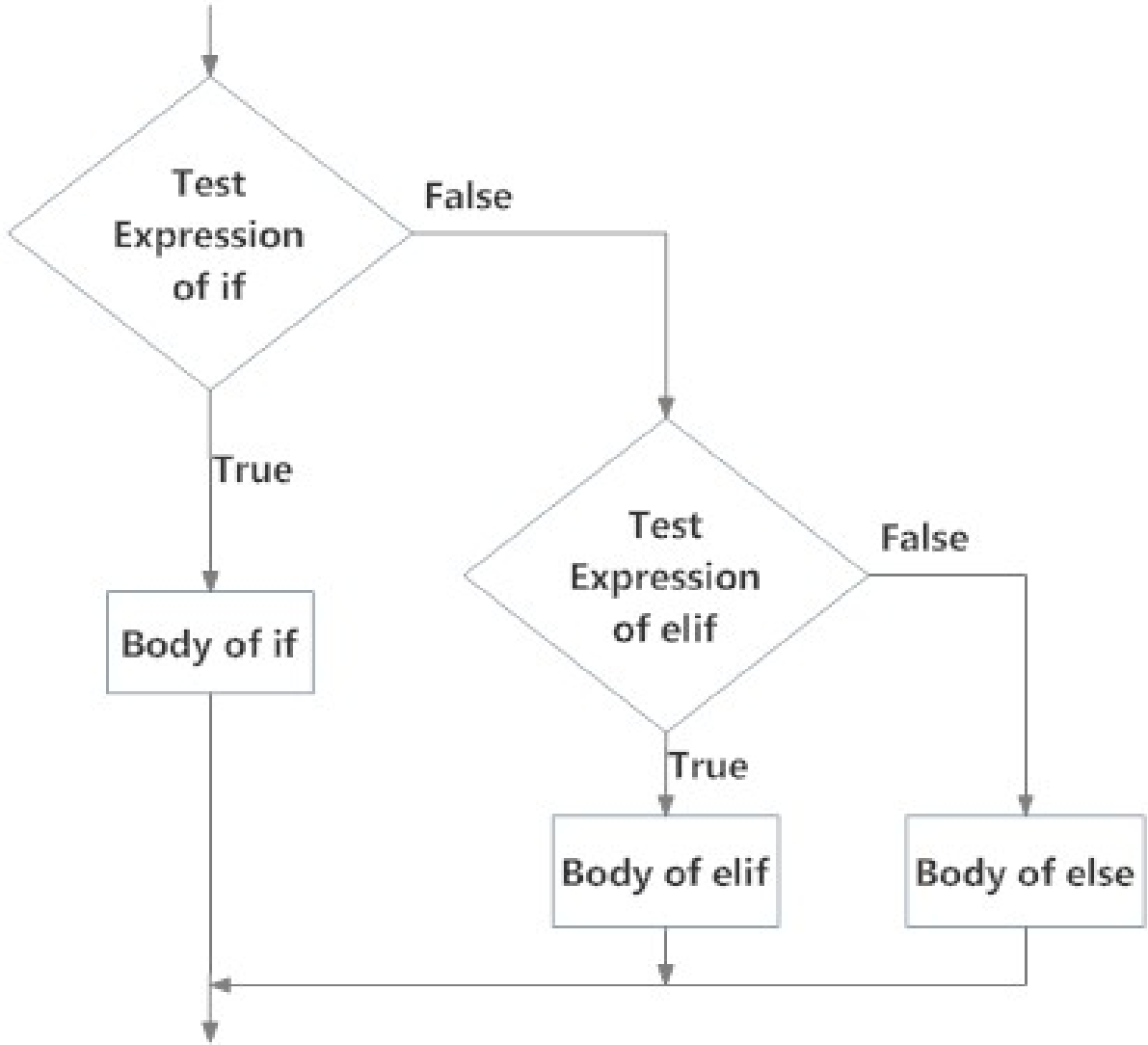
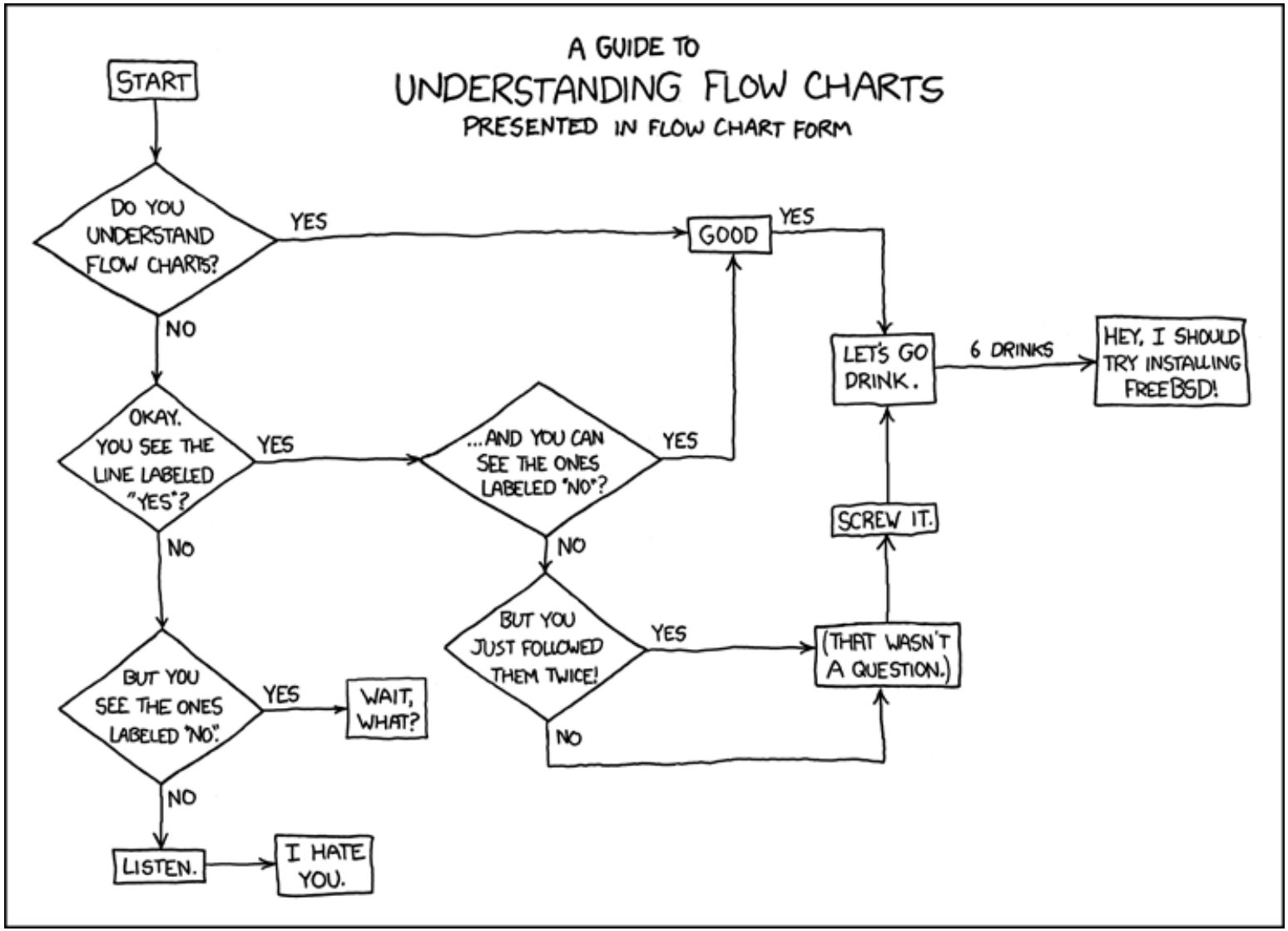


Fig: Operation of if...elif...else statement

(programiz)

Side Note: Reading Flow Charts



(xkcd/518)

In Pairs or Triples

Predict what the code will do:

```
origin = "Indian Ocean"
winds = 100
if (winds > 74):
    print("Major storm, called a ", end="")
    if origin == "Indian Ocean" or origin == "South Pacific":
        print("cyclone.")
    elif origin == "North Pacific":
        print("typhoon.")
    else:
        print("hurricane.")

visibility = 0.2
winds = 40
conditions = "blowing snow"
if (winds > 35) and (visibility < 0.25) and \
      (conditions == "blowing snow" or conditions == "heavy snow"):
    print("Blizzard!")
```

Python Tutor

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(Demo with `pythonTutor`)

Logical Operators

and

in1		in2	*returns:*
`False`	`and`	`False`	`False`
`False`	`and`	`True`	`False`
`True`	`and`	`False`	`False`
`True`	`and`	`True`	`True`

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`False`	`and`	`False`	`False`
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`True`	`and`	`False`	`False`
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or

in1		in2	*returns:*
`False`	`or`	`False`	`False`
`False`	`or`	`True`	`True`
`True`	`or`	`False`	`True`
`True`	`or`	`True`	`True`

Logical Operators

and

in1		in2	*returns:*
False	and	False	False
False	and	True	False
True	and	False	False
True	and	True	True

or

in1		in2	*returns:*
False	or	False	False
False	or	True	True
True	or	False	True
True	or	True	True

not

	in1	*returns:*
not	False	True
not	True	False

In Pairs or Triples

Predict what the code will do:

```
semHours = 18
reqHours = 120
if semHours >= 12:
    print('Full Time')
else:
    print('Part Time')

pace = reqHours // semHours
if reqHours % semHours != 0:
    pace = pace + 1
print('At this pace, you will graduate in', pace, 'semesters,')
yrs = pace / 2
print('(or', yrs, 'years).')


for i in range(1,20):
    if (i > 10) and (i % 2 == 1):
        print('oddly large')
    else:
        print(i)
```

Python Tutor

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if semHours >= 12:
     print('Full Time')
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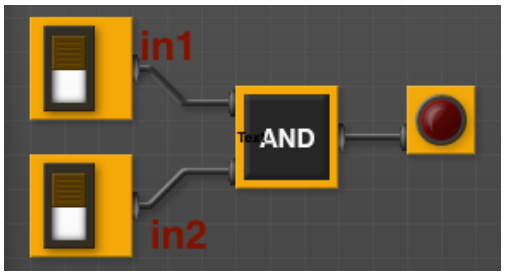
(Demo with pythonTutor)

Circuit Demo

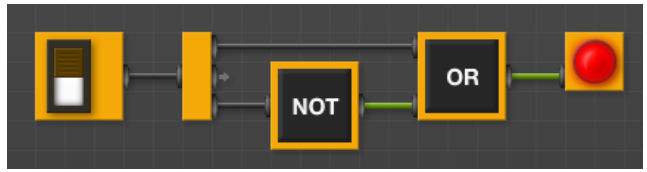


(Demo with `neuroproductions`)

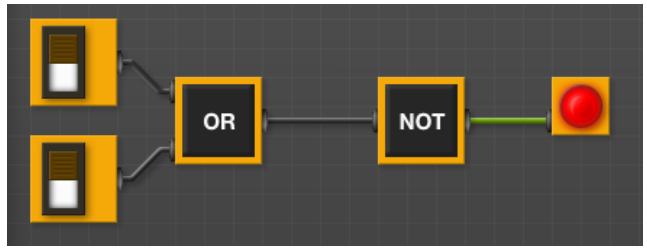
In Pairs or Triples

Predict when these expressions are true:

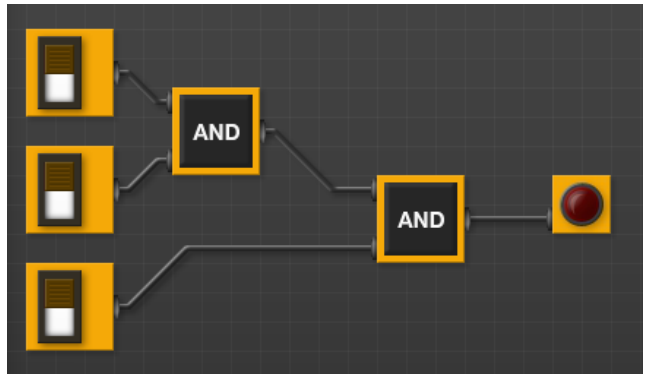
- `in1 or not in1`:



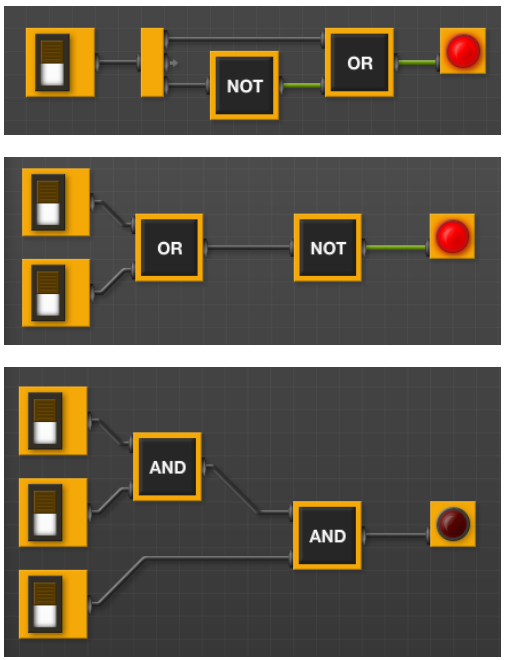
- `not(in1 or in2)`:



- `(in1 and in2) and in3`:



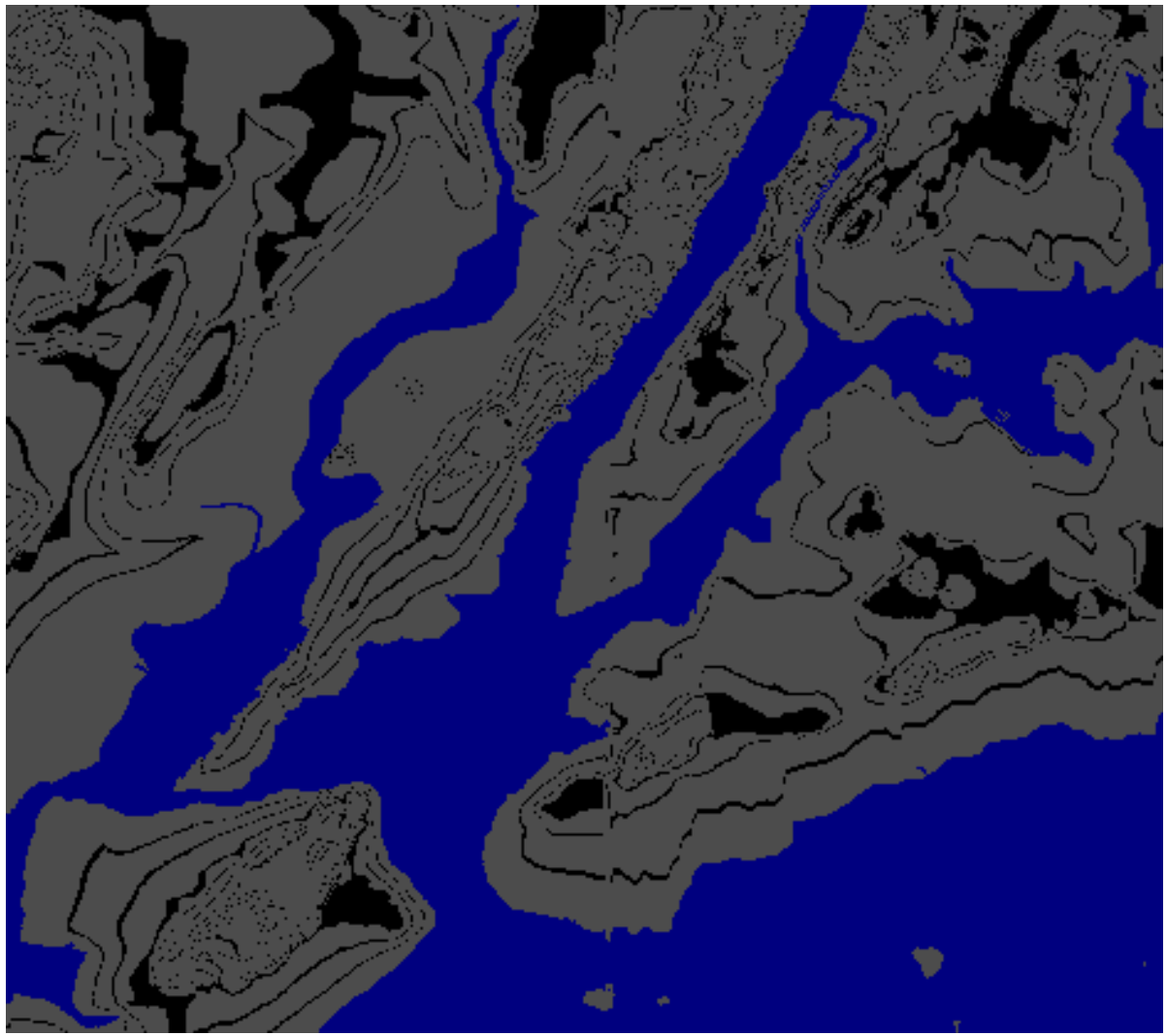
Circuit Demo



(Demo with `neuroproductions`)

Lecture Slip: In Pairs or Triples

Fill in the comments to describe the code (output below):



Recap

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

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  - Logical Expressions
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- Pass your lecture slips to the aisles for the UTAs to collect.

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Practice Quiz & Final Questions

- Since you must pass the final exam to pass the course, we end every lecture with final exam review.

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- Lightning rounds:

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  - write as much you can for 60 seconds;

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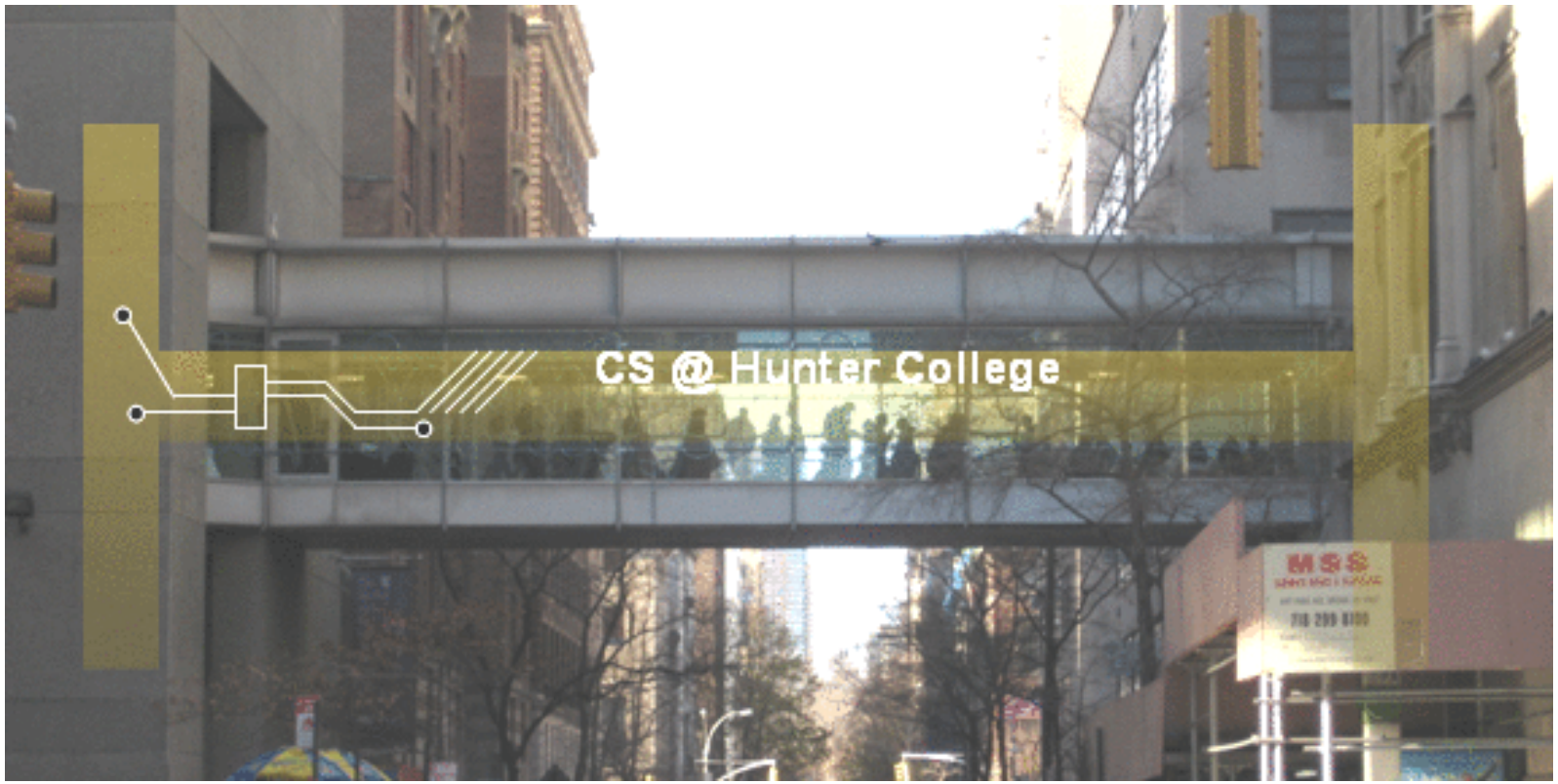
- Past exams are on the webpage (under Final Exam Information).
- We're starting with Fall 2018, Version 1.

Writing Boards



- Return writing boards as you leave...