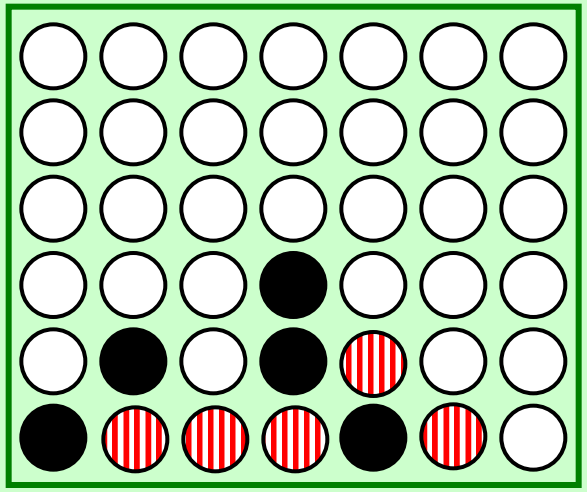
CS 4 this week

Hw #10 due **04/09**

Building classes...

`hw10pr2`

Connect Four **`Board`** class



... vs. *using* classes!

`hw10pr3`

the `file` and `dictionary` classes

files

dictionaries

If I had a dictionary, I guess I could look up what was!

CS 60?

Same as CS5 ← → 2 x the work → Much harder

2+ languages

Racket

```
(define (whoami n)
    (if (
```

```
whoami(n-1);
```

On the subject of classes...

Runtime!

O(N)	O(N^2)	O(2^N)
fast!	medium	slow...

How efficient is **whoami** ?

CS 60?

Same as CS5 ← → 2 x the work ← → Much harder

2+ languages

Racket

```
(define (whoami n)
   (if (= n 0)
     1
     (* n (whoami (- n 1)))))
```

Who is **whoami** ?

Java

```
public static int whoami(int n)
{
   if (n<2) return 1;
   else return n * whoami(n-1);
}
```

Runtime!

$O(N)$	$O(N^2)$	$O(2^N)$
fast!	medium	slow...

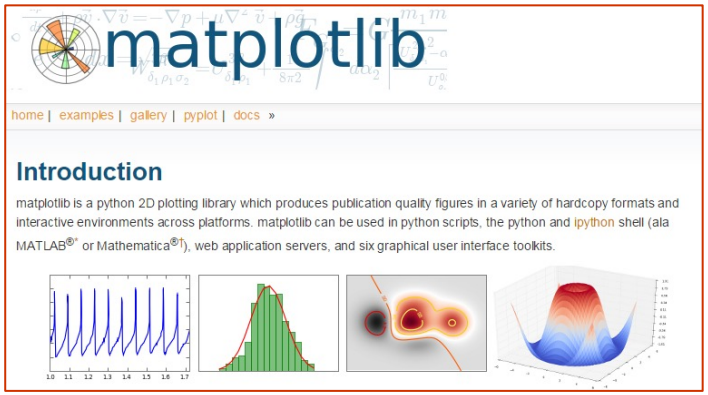
How efficient is **whoami** ?

CS 35?

Same as CS5 ← → Much harder

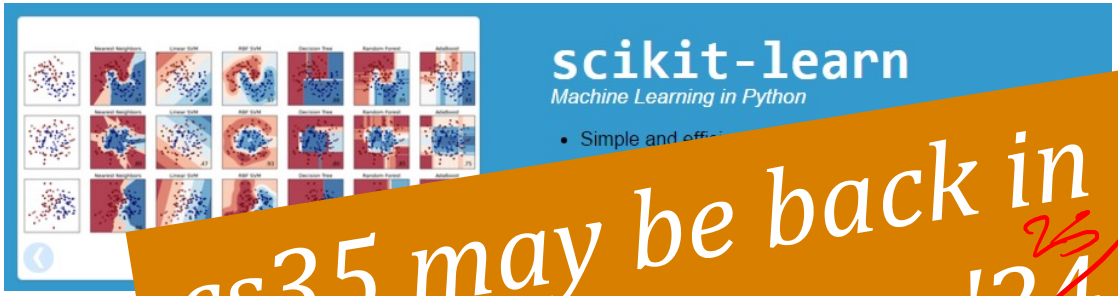
2 x the work

2-3 libraries *each week…*



VPython
3D Programming for Ordinary Mortals

wk11



~~24~~ 25

cs35 may be back in Fall '23 (or Spring '24…)

Classes: DIY data

design-it-yourself!

Class: a (new) datatype

Object: a single instance of a class

OOP

object-oriented programming

... is the organization for most of ...

Python's Libraries

Classes: DIY data

Class: a (new) datatype

Object: a single instance of a class

```
d = Date( 11, 11, 2021 )
d.tomorrow()
print(d)
```

constructor

object

method

uses repr

d will be **self** inside the **Date** class's source code...

Method: a function defined *in a class* called *by an object*

`self`: in a class, the name of the object calling a method

Constructor: the **`__init__`** function for creating a new object

repr: the **`__repr__`** function returning a string to print

data attribute: the data in **`self`**: **`self.day, self.month, self.year`**

Lab **on Friday**

You'll create a **`Date`** class with

```
yesterday(self)  ──►  -= 1
tomorrow(self)   ──►  += 1
addNDays(self, N) ──►  += N
subNDays(self, N) ──►  -= N
isBefore(self, d2) ──►  <
isAfter(self, d2) ──►  >
diff(self, d2)   ──►  -
dow(self)        ──►
```

Prof. Benjamin !

no computer required…

methods

operators!

Standardizing dates was a big project!

Current date and time expressed according to ISO 8601 [refresh]

Date	2022-04-05
Date and time in UTC	2022-04-05T17:09:23+00:00 2022-04-05T17:09:23Z 20220405T170923Z
Week	2022-W14
Week with weekday	2022-W14-2
Date without year	--04-05[1]
Ordinal date	2022-095

Not all years are the same!

Calendar for year 1752 (United States)

<1751 | 1753> | 2007>>

January

Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

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February

Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

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March

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

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April

Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

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May

Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

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June

Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

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July

Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

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August

Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

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September

Su	Mo	Tu	We	Th	Fr	Sa
		1	2	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

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October

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

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November

Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

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December

Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

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Calendar for year 1712 (Sweden)

<1711 | 1713> | 2007>>

January

Wno	Mo	Tu	We	Th	Fr	Sa	Su
1	1	2	3	4	5	6	7
2	8	9	10	11	12	13	14
3	15	16	17	18	19	20	21
4	22	23	24	25	26	27	28
5	29	30	31				

5:◐ 13:○ 21:◑ 27:●

February

Wno	Mo	Tu	We	Th	Fr	Sa	Su
5				1	2	3	4
6	5	6	7	8	9	10	11
7	12	13	14	15	16	17	18
8	19	20	21	22	23	24	25
9	26	27	28	29	30		

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March

Wno	Mo	Tu	We	Th	Fr	Sa	Su
9					1	2	
10	3	4	5	6	7	8	9
11	10	11	12	13	14	15	16
12	17	18	19	20	21	22	23
13	24	25	26	27	28	29	30
14	31						

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April

Wno	Mo	Tu	We	Th	Fr	Sa	Su
14		1	2	3	4	5	6
15	7	8	9	10	11	12	13
16	14	15	16	17	18	19	20
17	21	22	23	24	25	26	27
18	28	29	30				

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May

Wno	Mo	Tu	We	Th	Fr	Sa	Su
18				1	2	3	4
19	5	6	7	8	9	10	11
20	12	13	14	15	16	17	18
21	19	20	21	22	23	24	25
22	26	27	28	29	30	31	

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June

Wno	Mo	Tu	We	Th	Fr	Sa	Su
22							1
23	2	3	4	5	6	7	8
24	9	10	11	12	13	14	15
25	16	17	18	19	20	21	22
26	23	24	25	26	27	28	29
27	30						

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July

Wno	Mo	Tu	We	Th	Fr	Sa	Su
27		1	2	3	4	5	6
28	7	8	9	10	11	12	13
29	14	15	16	17	18	19	20
30	21	22	23	24	25	26	27
31	28	29	30	31			

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August

Wno	Mo	Tu	We	Th	Fr	Sa	Su
31					1	2	3
32	4	5	6	7	8	9	10
33	11	12	13	14	15	16	17
34	18	19	20	21	22	23	24
35	25	26	27	28	29	30	31

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September

Wno	Mo	Tu	We	Th	Fr	Sa	Su
36	1	2	3	4	5	6	7
37	8	9	10	11	12	13	14
38	15	16	17	18	19	20	21
39	22	23	24	25	26	27	28
40	29	30					

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October

Wno	Mo	Tu	We	Th	Fr	Sa	Su
40		1	2	3	4	5	
41	6	7	8	9	10	11	12
42	13	14	15	16	17	18	19
43	20	21	22	23	24	25	26
44	27	28	29	30	31		

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November

Wno	Mo	Tu	We	Th	Fr	Sa	Su
44						1	2
45	3	4	5	6	7	8	9
46	10	11	12	13	14	15	16
47	17	18	19	20	21	22	23
48	24	25	26	27	28	29	30

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December

Wno	Mo	Tu	We	Th	Fr	Sa	Su
49	1	2	3	4	5	6	7
50	8	9	10	11	12	13	14
51	15	16	17	18	19	20	21
52	22	23	24	25	26	27	28
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Not all years are the same!

Calendar for year 1752 (United States)

<1751 | 1753> | 2007>>

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March

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August

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September

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15:◐ 23:○ 30

October

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Calendar for year 1712 (Sweden)

<1711 | 1713> | 2007>>

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February

Wno	Mo	Tu	We	Th	Fr	Sa	Su
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7	12	13	14	15	16	17	18
8	19	20	21	22	23	24	25
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March

Wno	Mo	Tu	We	Th	Fr	Sa	Su
9						1	2
10	3	4	5	6	7	8	9
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12	17	18	19	20	21	22	23
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12:○ 18:◑ 26:●

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Wno	Mo	Tu	We	Th	Fr	Sa	Su
14		1	2	3	4	5	6
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Wno	Mo	Tu	We	Th	Fr	Sa	Su
18				1	2	3	4
19	5	6	7	8	9	10	11
20	12	13	14	15	16	17	18
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2:◐ 9:○ 16:◑ 24:●

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22							1
23	2	3	4	5	6	7	8
24	9	10	11	12	13	14	15
25	16	17	18	19	20	21	22
26	23	24	25	26	27	28	29
27	30						

1:◐ 8:○ 14:◑ 22:● 30:◐

July

Wno	Mo	Tu	We	Th	Fr	Sa	Su
27		1	2	3	4	5	6
28	7	8	9	10	11	12	13
29	14	15	16	17	18	19	20
30	21	22	23	24	25	26	27
31	28	29	30	31			

7:○ 14:◑ 22:● 30:◐

August

Wno	Mo	Tu	We	Th	Fr	Sa	Su
31					1	2	3
32	4	5	6	7	8	9	10
33	11	12	13	14	15	16	17
34	18	19	20	21	22	23	24
35	25	26	27	28	29	30	31

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September

Wno	Mo	Tu	We	Th	Fr	Sa	Su
36	1	2	3	4	5	6	7
37	8	9	10	11	12	13	14
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October

Wno	Mo	Tu	We	Th	Fr	Sa	Su
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Wno	Mo	Tu	We	Th	Fr	Sa	Su
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52	22	23	24	25	26	27	28
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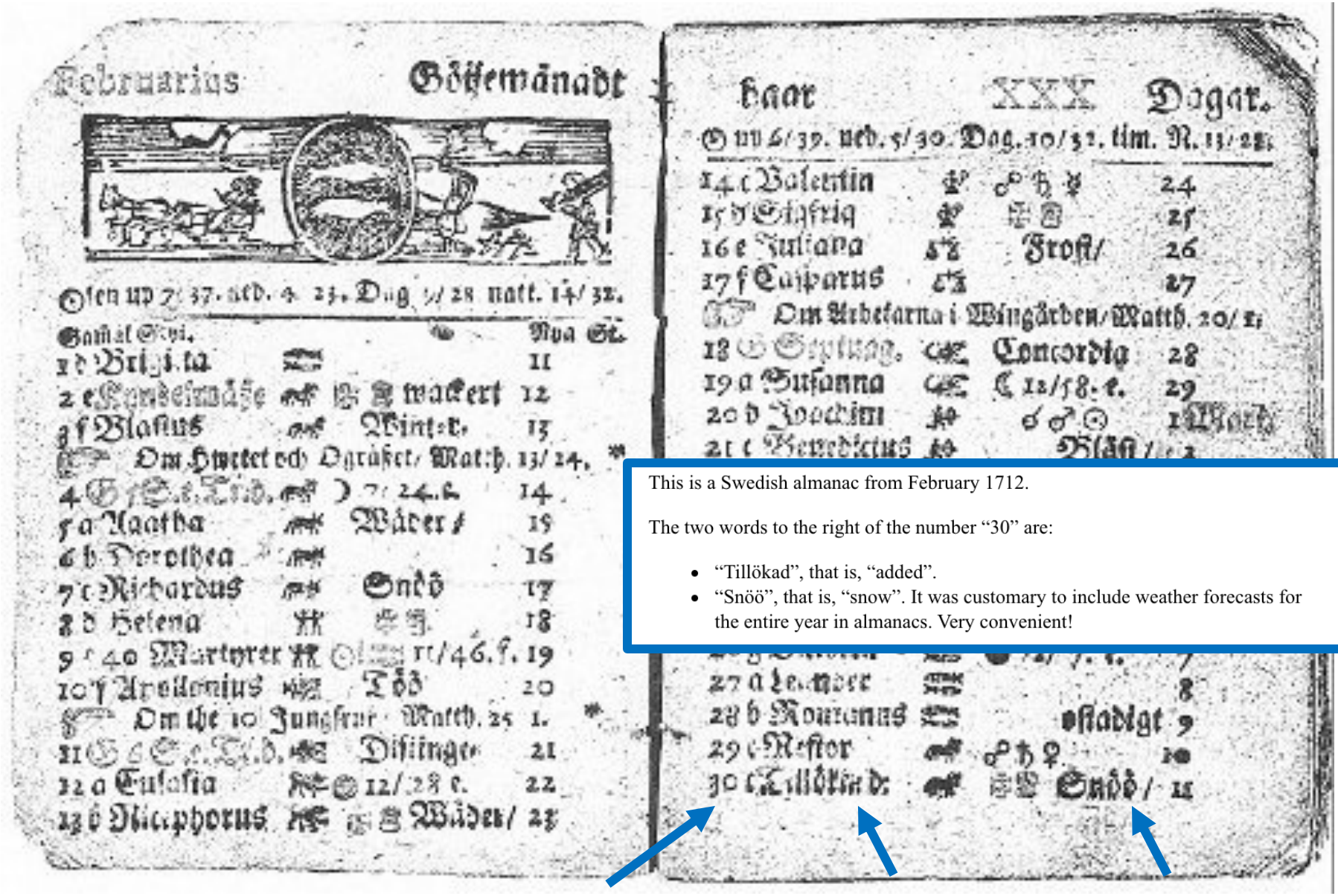
Feb. 30, 1712



This is a Swedish almanac from February 1712.

The two words to the right of the number "30" are:

- "Tillökad", that is, "added".
- "Snöö", that is, "snow". It was customary to include weather forecasts for the entire year in almanacs. Very convenient!

https://www.tondering.dk/claus/cal/gregorian.php

__eq__

```
class Date:

    def __init__( self, mo, dy, yr ):
    def __repr__(self):
    def isLeapYear(self):

    def __eq__(self, d2):
        """ returns True if they
            represent the same date;
            False otherwise
        """
        if self.year == d2.year and \
           self.month == d2.month and \
           self.day == d2.day:
                return True
        else:
                return False
```

Not recursion?!
Perish the thought!

redefined for *our convenience*!

To use this, write `d == d2`

isBefore

(with bugs!)

```
class Date:

    def isBefore(self, d2):
        """ True if self is before d2, else False """
        if self.year  < d2.year:
            return True
        elif self.month < d2.month:
            return True
        elif self.day   < d2.day:
            return True
        else: return False
```

```
Date(11,9,2021).isBefore(Date(12,31,1999))
```

No wonder I was late to all my millenium parties!

isBefore

(correct)

```
class Date:

    def isBefore(self, d2):
        """ True if self is before d2, else False """
        if self.year  < d2.year:
            return True

        elif self.month < d2.month :
            return True

        elif self.day < d2.day :
            return True

        else:
            return False
```

I <3 Elf! But what about Elif?

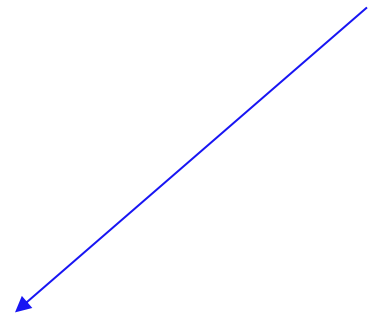
isBefore

(correct)

```
class Date:

    def isBefore(self, d2):
        """ True if self is before d2, else False """
        if self.year  < d2.year:
            return True

        elif self.month < d2.month and self.year == d2.year :
            return True

        elif self.day < d2.day and self.year == d2.year \
                               and self.month == d2.month :
            return True

        else:
            return False
```

I <3 Elf! But what about Elif?

__lt__ <



```
class Date:

    def __lt__(self, d2):
        """ if self is before d2, this should
            return True; else False """

        if self.isBefore(d2) == True:
            return True
        else:
            return False
```

*I want **LESS** !*

__lt__

<


```
class Date:

    def __lt__(self, d2):
        """ is self less than d2? (before) """
        return self.isBefore(d2)
```

__lt__ <

```
class Date:

    def __lt__(self, d2):
        """ is self less than d2? (before) """
        return self.isBefore(d2)
```

__gt__ >

```
    def __gt__(self, d2):
        """ is self greater than d2? (after) """
        return d2.isBefore(self)
```

LESS really is MORE!

The two *most essential methods*

```
In1: wd = Date(2,22,2022)
In2: print(wd)
2/22/2022
```

construct with the **CONSTRUCTOR** …

print uses **__repr__**

```
In1: wd.tomorrow()
In2: print(wd)
2/23/2022
```

the **tomorrow** method returns nothing at all. Is it doing anything?

wd has changed!

```
d += 1
```

```
In1: wd.yesterday()
In2: print(wd)
2/22/2022
```

yesterday is pretty much just like **tomorrow** (is this a good thing!?)

```
d -= 1
```

yesterday does not return anything!
But, it does *change* the date that calls it ("self")

```
class Date:
```

Try writing tomorrow!

Use this for lab!

```
    def tomorrow(self):
        """ moves the self date ahead 1 day """

        DIM = [0,31,28,31,30,31,30,31,31,30,31,30,31]

        self.day += 1
```

first, add 1 to `self.day`

DIM looks pretty bright to me!

```
        if self.day > DIM[self.month]:
```

test if we have gone "out of bounds!"

```
            self.day = 1
            self.month += 1
            if self.month > 12:
                self.year += 1
                self.month = 1
```

then, adjust the month and year, but only as needed Use another if!

Don't return anything. We **CHANGE** the date object itself.

Extra How could we make this work for leap years, too?


```
class Date:

  def tomorrow(self):
    """ moves the self date ahead 1 day """
```

better as a *variable*!

```
    DIM = [0,31,fdays,31,30,31,30,31,31,30,31,30,31]

    self.day += 1       # add 1 to the day!

    if self.day > DIM[self.month]:    # check day
        self.month += 1
        self.day = 1

        if self.month > 12:           # check month
            self.year += 1
            self.month = 1
```

```
class Date:

  def tomorrow(self):
    """ moves the self date ahead 1 day """

    if self.isLeapYear() == True:    fdays = 29
    else: fdays = 28

    DIM = [0,31,fdays,31,30,31,30,31,31,30,31,30,31]

    self.day += 1      # add 1 to the day!

    if self.day > DIM[self.month]:    # check day
        self.month += 1
        self.day = 1

        if self.month > 12:           # check month
            self.year += 1
            self.month = 1
```

```
class Date:

  def tomorrow(self):
    """ moves the self date ahead 1 day """

    fdays = 28 + self.isLeapYear()      # What ?!

    DIM = [0,31,fdays,31,30,31,30,31,31,30,31,30,31]

    self.day += 1       # add 1 to the day!

    if self.day > DIM[self.month]:    # check day
        self.month += 1
        self.day = 1

        if self.month > 12:           # check month
            self.year += 1
            self.month = 1
```

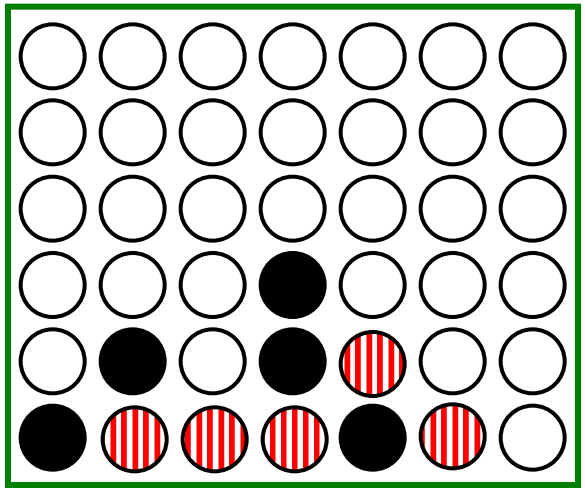
Use for lab!

```
class Date:

  def yesterday(self):
    """ moves the self date backwards 1 day """

    fdays = 28 + self.isLeapYear()     # Yay!

    DIM = [0,31,fdays,31,30,31,30,31,31,30,31,30,31]

    self.day
```

For lab: how will "wrap-around" work in this case? *What cases do we need to worry about?!*

Why classes?

Python has no Connect-four datatype…



```
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |X |  |  |  |
|  |X |  |X |O |  |  |
|X |O |O |O |X |  |O |
-----------------------
 0  1  2  3  4  5  6
```

b2

Care for a game?

… now we can fix that!

Data design…

(**Data Members**) What data do we need?

Attributes

(Fields)

(**Methods**) What capabilities do we want?

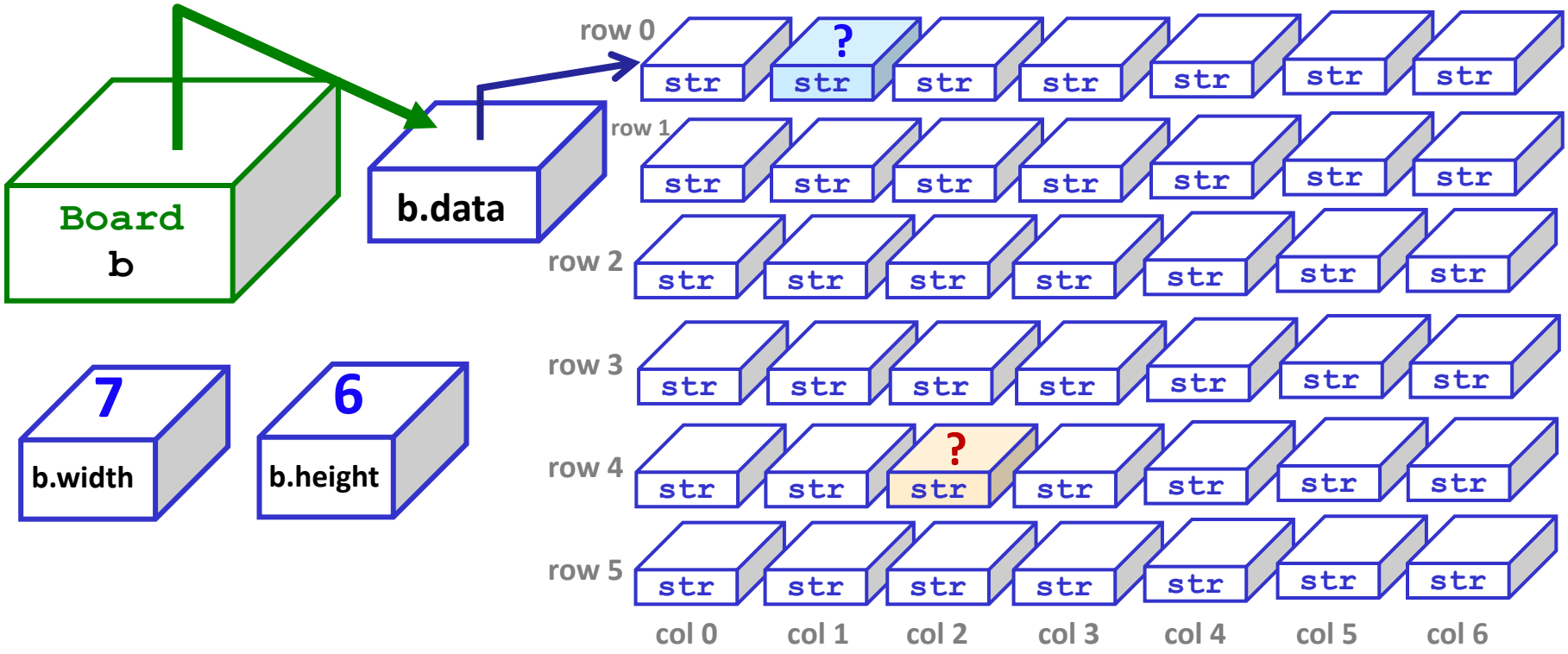
Our Board object, **b**

b.data[0][1] = 'X'

b.data[4][2] = 'O'

How could we set **?** to **'X'** and **?** to **'O'**

Our Board object, `b`

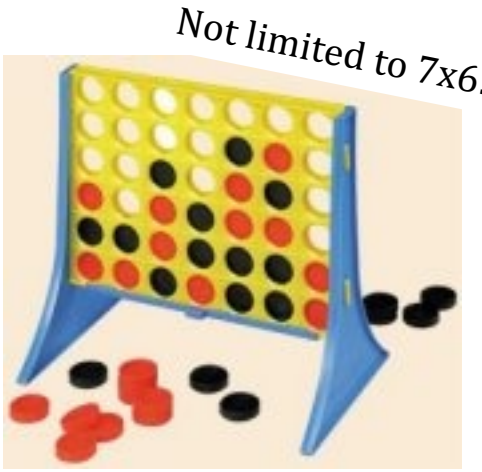



```
b.data[0][1] = 'X'
```

```
b.data[4][2] = 'O'
```

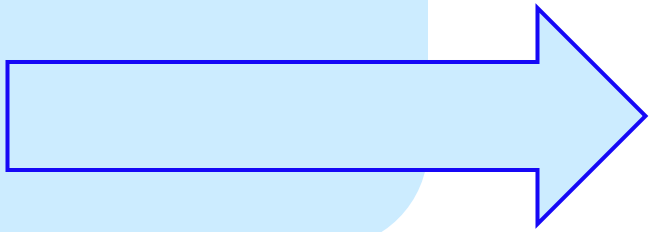
How could we set ? to **'X'** and ? to **'O'**

Data design…



(**Data Members**) What data do we need?

(**Methods**) What capabilities do we want?



__init__

the "constructor"

```
class Board:
    """ a datatype representing a C4 board
        with an arbitrary number of rows and cols
    """

    def __init__( self, width, height ):
        """ the constructor for objects of type Board """
        self.width = width
        self.height = height
        W = self.width
        H = self.height
        self.data = [ [' ']*W for row in range(H) ]
```

For lab, use the starter code—scroll down in the homework writeup!

I <3 LCs!

Maybe here it should be I <4 LCs?

__init__

the "constructor"

```
class Board:
    """ a datatype representing a C4 board
        with an arbitrary number of rows and cols
    """

    def __init__( self, width, height ):
        """ the constructor for objects of type Board """
        self.width = width
        self.height = height
        W = self.width
        H = self.height
        self.data = [ [' ']*W for row in range(H) ]
```

Convenient but optional!

A space, *not* an empty string!

This list comprehension lets us create **H** independent rows with **W** independent columns each.

I <3 LCs!

Maybe here it should be I <4 LCs?

__repr__

the "repr"

```
def __repr__(self):
    """ this method returns a string representation
        for an object of type Board
    """
    H = self.height
    W = self.width
    s = ''
    for r in range( H ):
        s += '|'
        for c in range( W ):
            s += self.data[r][c] + '|'
        s += '\n'

    s += (2*W+1)*'-'

    # what kind of loop will add the col #'s here?

    return s
```

r in [0,1,2,3,4,5]

c in [0,1,2,3,4,5,6]

```
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | |X| | | |
| |X| |X|O| | |
|X|O|O|O|X| |O|
---------------
 0 1 2 3 4 5 6
```

Name(s) _____

"Quiz"

```
class Board:

  def addMove(self, col, ox):
      """ buggy version! """
      H = self.height

      for row in range(0,H):
          if self.data[row][col] != ' ':
              self.data[row-1][col] = ox
              return
```

a C4 board

col #

'X' or 'O'

shortcut

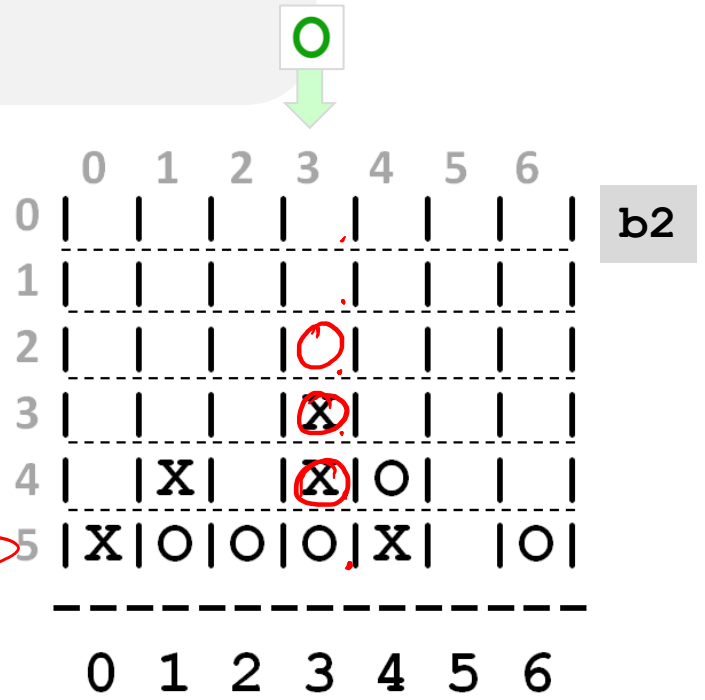
row: [0,1,2,3,4,5]

self.data[H-1][col] = ox

(1) Run **b2.addMove(3,'O')**

Draw how the C4 board will now look...

Warning: Three board spaces will change!!!



(2) ***There are 2 bugs in the code above...***

Can you find/fix them?!

b2.addMoveBUG(3,'O')

Quiz

Try on the back page first!

```
class Board:

    def addMove(self, col, ox):
        """ correct version! """
        H = self.height
        for row in range(0,H):
            if self.data[row][col] != ' ':
                self.data[row-1][col] = ox
                return

        self.data[H-1][col] = ox
```

a C4 board

col #

'X' or 'O'

shortcut

row: [0,1,2,3,4,5]

stop the loop! stop the function!

it gets here ***only*** when the column is empty – this line sets the _bottom_ spot to the correct checker

(1) Run `b2.addMove(3,'O')`

Draw how the C4 board will now look...

Warning: Three board spaces will change!!!

b

	0	1	2	3	4	5	6
0							
1							
2							
3				X			
4		X		X	O		
5	X	O	O	O	X		O
	0	1	2	3	4	5	6

(2) ***There are 2 bugs in the code above...***

Can you find/fix them?!

Try this on the other page first...

b2.addMoveBUG(3,'O')

Quiz

Try on the back page first!

```
class Board:

    def addMove(self, col, ox):
        """ correct version! """
        H = self.height
        for row in range(0,H):
            if self.data[row][col] != ' ':
                self.data[row-1][col] = ox
                return
```

a C4 board

col #

'x' or 'o'

shortcut

row: [0,1,2,3,4,5]

stop the loop!
stop the function!

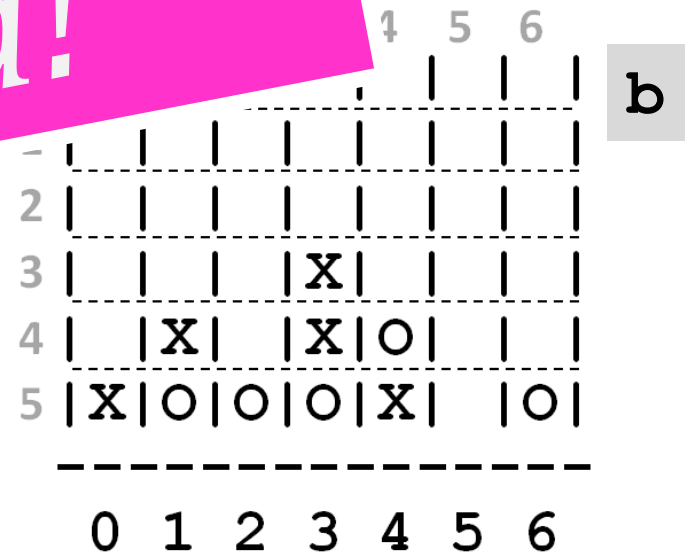
the column is he _bottom_ checker

Pass those Northward!

There are 2 bugs in the code above...

Can you find/fix them?!

Try this on the other page first...



b2.addMoveBUG(3,'O')

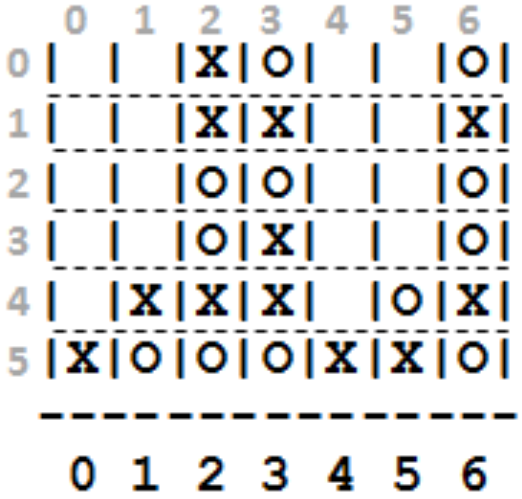
Let's understand the **allowsMove** method ...

```
class Board:

    def allowsMove(self, col):
        """ True if col is in-bounds + open
            False otherwise """
```

a C4 board

col #

b3.allowsMove



b3

```
b.allowsMove(0) == True
b.allowsMove(1) == True
b.allowsMove(2) == False
b.allowsMove(3) == False
b.allowsMove(4) == True
b.allowsMove(5) == True
b.allowsMove(6) == False
b.allowsMove(7) == False
```

If `col` is ***out-of-bounds*** or ***full***, return **False**.

If `col` is *in-bounds and not full*, return **True**.

Let's *finish* this **allowsMove** method ...

a C4 board

col #

```
class Board:

    def allowsMove(self, col):
        """ True if col is in-bounds + open
            False otherwise """
        H = self.height
        W = self.width
        D = self.data

        if col >= W or col < 0:
            return False

        elif D[0][col] != ' ':
            return False
        else:
            return True
```

shortcuts!

out of bounds?

col full?

Allowed!

If **col** is ***out-of-bounds*** or ***full***, return **False**.

If **col** is *in-bounds and not full*, return **True**.

b3.allowsMove

b3

```
  0 1 2 3 4 5 6
0|   |   |X|O|   |   |O|
1|   |   |X|X|   |   |X|
2|   |   |O|O|   |   |O|
3|   |   |O|X|   |   |O|
4|   |X|X|X|   |O|X|
5|X|O|O|O|X|X|O|
  0 1 2 3 4 5 6
```

```
b.allowsMove(0) == True
b.allowsMove(1) == True
b.allowsMove(2) == False
b.allowsMove(3) == False
b.allowsMove(4) == True
b.allowsMove(5) == True
b.allowsMove(6) == False
b.allowsMove(7) == False
```

hw10pr2: **Board** class

✓ the "constructor"	`__init__( self, width, height )`
✓ checks if allowed	`allowsMove( self, col )`
✓ places a checker	`addMove( self, col, ox )`
removes a checker	`delMove( self, col )` ← to write...
✓ outputs a string	`__repr__( self )`
checks if any space is left	`isFull( self )` ← to write...
checks if a player has won	`winsFor( self, ox )` ← to write...
the game...	`hostGame( self )` ← to write...

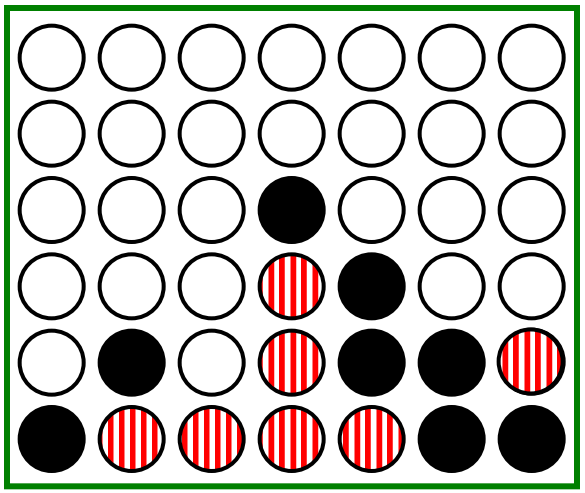
Which are similar to others?

Which requires the most thought?

winsFor(self, ox)

X O

b4



```
b.winsFor('X')
```

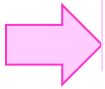
or 'O'

```
def winsFor(self, ox):
    """ does ox win? """
    H = self.height
    W = self.width
    D = self.data

    for row in range(
      for col in range(
            if
            if
            if
            if
```

Is this familiar?!

```
>>> b4.winsFor( 'X' )
True
>>> b4.winsFor( 0 )
False
>>> b4.winsFor( '0' )
False
>>> b4.winsFor( 'O' )
True
```

Watch out for *corner and edge cases*!



Why objects and classes?

Simple – and *INVITING* --
building blocks!

```
if b.winsFor( 'X' ) == True:
```

Elegance: Objects *hide complexity!*

```
dow = self.diff( wd ) % 7
```

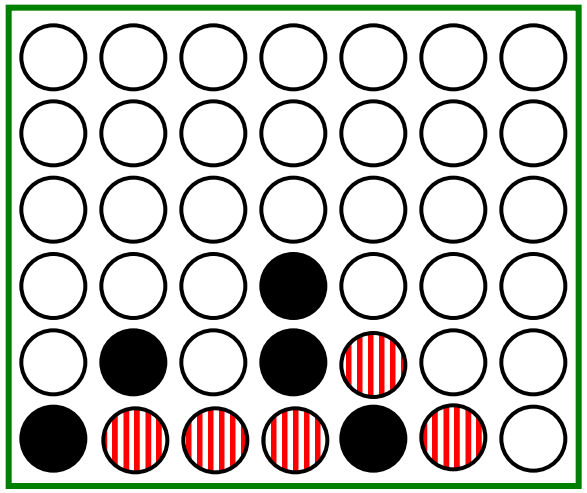
CS 4 this week

Hw #10 due **11/14**

Building classes...

`hw10pr2`

Connect Four **Board** class



... vs. using the library

`hw10pr3`

files and the dictionary class

files

dictionaries

Office hours ~ ***FRIDAY*** aft. in LAC

If I had a dictionary, I guess I could look up what it was!

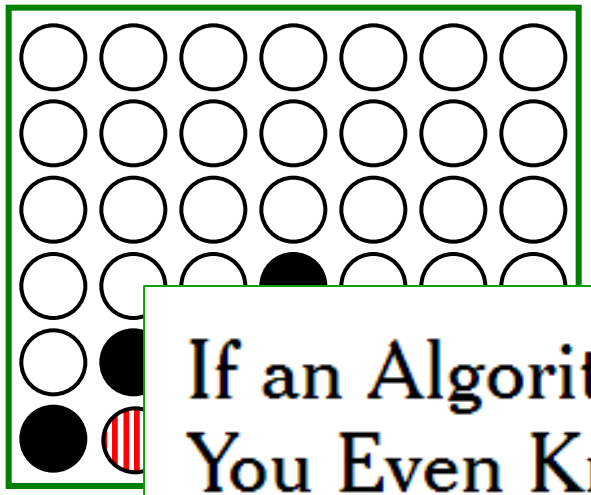
CS 4 this week

Hw #10 due **11/14**

Building classes...

hw10pr2

Connect Four **Board** class



... vs. using the library

hw10pr3

files and the dictionary class

If an Algorithm Wrote This, How Would You Even Know?

By SHELLEY PODOLNY MARCH 7, 2015

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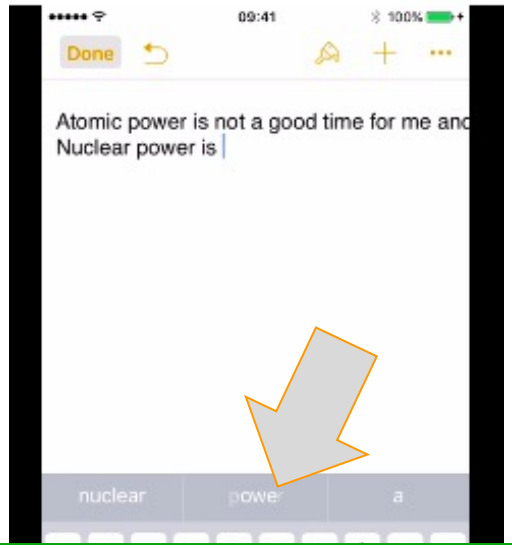
Office hou

iOS Just Got A Paper On Nuclear Physics Accepted At A Scientific Conference

Posted by Christoph Bartneck on Oct 20, 2016 in Featured, Research | 7 comments

Automatically generating scientific articles has become easy with dedicated software such as SCIgen. Even a paper that only repeated the sentence "Get me of your fucking mailing list" was recently accepted for publication. Today I received an invitation from the International Confere Atomic and Nuclear Physics to submit a paper. Since I have practically no knowledge of Nuclear Physics I resorted to iOS auto-complete function to help me writing the paper. I started a sentence with "Atomic" or "Nuclear" and then randomly hit the auto-complete sug The text really does not make any sense. After adding the first illustration on nuclear phy n Wikipedia, some references and creating a fake identity (Iris Pear, aka Siri that iOS is a pretty



UPDATE (27/10/2

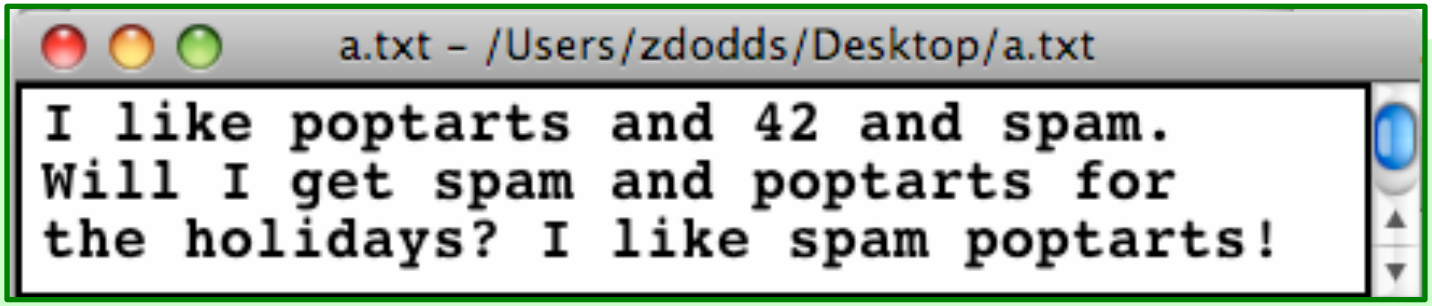
investigation.

If an Algorithm Wrote This, How Would You Even Know?

By SHELLEY PODOLNY MARCH 7, 2015

http://www.bartneck.de/2016/10/20/ios-just-got-a-paper-on-nuclear-physics-accepted-at-a-scientific-conference/

Algorithmic Authorship... ?

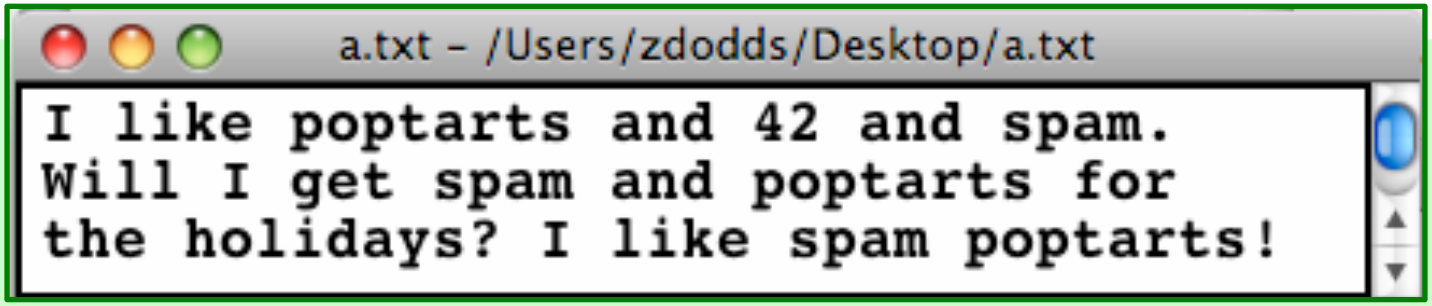


suppose this text represents my "style" ...

How could a *program* author new prose in this "style"?!

"Style" seems like the wrong word here...

Algorithmic Authorship... ?



suppose this text represents my "style" ...

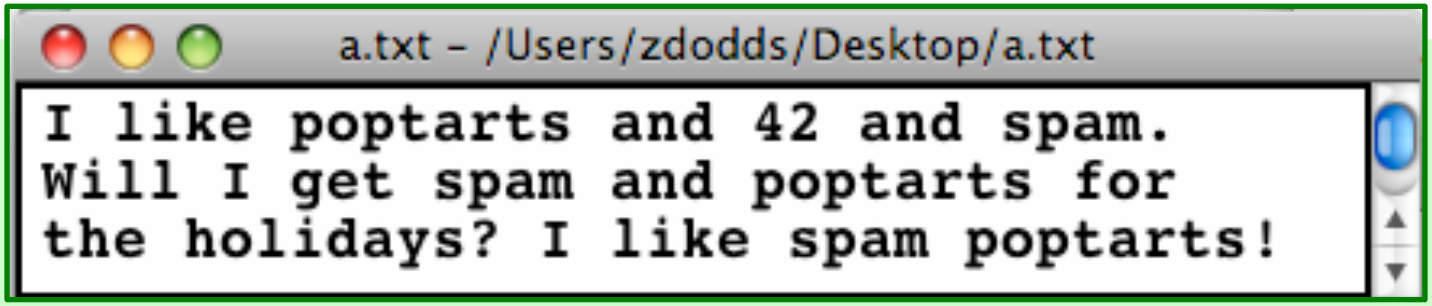
```
I like spam and 42 and poptarts and
poptarts and poptarts and 42 and spam.
```

```
I get spam for 42 poptarts! Will I spam
the holidays?
```

Which of these has more "characteristic" style?

Why?

Algorithmic Authorship... !



suppose this text represents my "style" ...

```
I like spam and 42 and poptarts and
poptarts and poptarts and 42 and spam.
```

How are **first words** chosen to start new sentences?

What are the **next words** that follow follow each?

What would be a reasonable **test for sentence-ending**?