15-112 Lecture 2

OOP Part 1

Instructor: Pat Virtue

Thursday Logistics

As you walk in

Quiz will start at the beginning of lecture

- Have pencil/pen ready
- Silence phones

Quiz

Before we start

- Don’t open until we start
- Make sure your name and Andrew ID are on the front
- Read instruction page
- No questions (unless clarification on English)

Additional info

- 25 min

Quiz Break

Turn to your neigbhor

- Thoughts on Term Projects?

Announcements

Midterm

- OOP Scope 8.1-8.4

TP

- Pre-reading Form due Mon 5pm

AI

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Week 10					Last quiz! OOP Part1		HW10 due
Week 11		TP form due **5pm**	Review		Midterm 2		
Week 12		TP0 due **5pm**	OOP Part2				

Announcements

HW10 Tip

- Backtracking performance

OOP

Object Oriented Programming

Quick example

```
class Pet:
    def __init__(self, name):
        self.name = name

    def sayHello(self):
        print(f'Hi my name is {self.name}')

sweetness = Pet('Walter')
```

Poll 1

What is `sweetness` in this code?

Select all that apply.

A. A class
B. An object
C. A string
D. An instance of Pet
E. A method
F. An attribute (property)
G. None of the above

```
class Pet:
    def __init__(self, name):
        self.name = name

    def sayHello(self):
        print(f'Hi my name is {self.name}')

sweetness = Pet('Walter')
```

Poll 2

What is `self` in this code?

Select all that apply.

A. A class
B. An object
C. A string
D. An instance of Pet
E. A method
F. An attribute (property)
G. None of the above

```
class Pet:
    def __init__(self, name):
        self.name = name

    def sayHello(self):
        print(f'Hi my name is {self.name}')

sweetness = Pet('Walter')
```

Poll 3

Which of the following lines prints, "Hi my name is Walter"?

Select all that apply.

A. print(sweetness)
B. print(sweetness.name)
C. sweetness.sayHello()
D. sayHello(sweetness)
E. Pet.sayHello()
F. Pet.sayHello('Walter')
G. None of the above

```
class Pet:
    def __init__(self, name):
        self.name = name

    def sayHello(self):
        print(f'Hi my name is {self.name}')

sweetness = Pet('Walter')
```

OOP: Constructor

Syntax reference

```
class CLASSNAME:
    def __init__(self):
        CONSTRUCTOR_BODY


VARIABLE_NAME = CLASSNAME()
```

OOP: Constructor

Syntax reference

```
class CLASSNAME:
    def __init__(self, CONSTRUCTOR_PARAM1, CONSTRUCTOR_PARAM2):
        CONSTRUCTOR_BODY


VARIABLE_NAME = CLASSNAME(CONSTRUCTOR_ARG1, CONSTRUCTOR_ARG2)
```

OOP: Special methods within a Class

__str__(self):

__repr__(self):

__eq__(self, other):

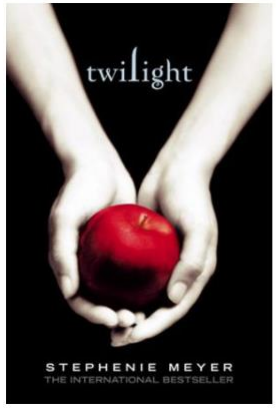
__hash__(self):

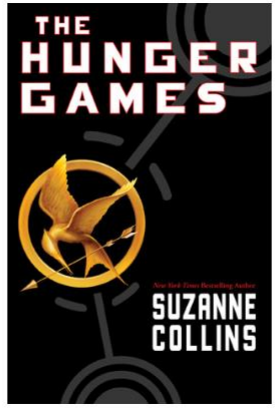
OOP Example

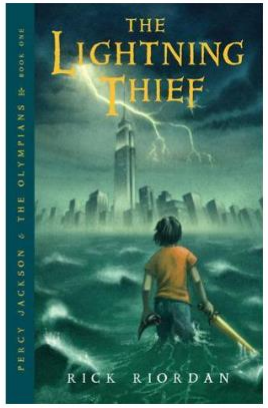
Polynomial exercise

OOP Example

Goodreads book data







books.csv

```
book_index,title,publication_year,book_id,link
0,The Hunger Games (The Hunger Games; #1),2008,2767052,http
1,Twilight (Twilight; #1),2006,41865,https://www.goodreads.
2,The Fault in Our Stars,2012,11870085,https://www.goodread
3,Divergent (Divergent; #1),2012,13335037,https://www.goodr
4,Catching Fire (The Hunger Games; #2),2009,6148028,https:/
```

OOP: Special methods within a Class

__str__(self):

__repr__(self):

__eq__(self, other):

__hash__(self):

Poll 4

What will be the type of `self` in the `__eq__` method?

A. Object
B. Class
C. Pet
D. String
E. Boolean
F. Not enough information

```
class Pet:
    def __init__(self, name):
        self.name = name

    def __eq__(self, other):
        # WHAT IS self HERE?
        # TODO
```

Poll 5

What will be the type of other in the __eq__ method?

A. Object
B. Class
C. Pet
D. String
E. Boolean
F. Not enough information

```
class Pet:
    def __init__(self, name):
        self.name = name

    def __eq__(self, other):
        # WHAT IS other HERE?
        # TODO
```