

CS 241 Lecture, 9/1/2020

OOP - Object oriented programming

Class

- Data type that you create, that can hold multiple pieces of info.
- Functions, that act upon the data.

Objects

- Object = an instance of a class.

"Members" of a class

- variables ← "State" - in Java = "fields"
- functions ← "behavior"
- in Java, often called "methods" of the class

Let's design a Dog class

FIELDS (Vars)

Breed - string
 Name - string
 Age - int
 Size
 Personality - string
 Weight - double/int
 Gender

fur length double
owners
 1 owner -
 string
 Person object
 ArrayList<String>
 <Person>

METHODS (FUNCTIONS)

- Bark
 - Eat
 - Fetch
 - Sit
 - Run
 - Tricks
 - Sleep

- Be adopted
 - Lay down
 - Roll over
 - Getters for properties
 - Setters

Public

Private

Everyone can access it.

- fields - anyone can change it.
- method - anyone can call it.

Visible only to members of the exact same class.

Rules of thumb (protected)

* fields - private
methods - public *

Getters & Setters

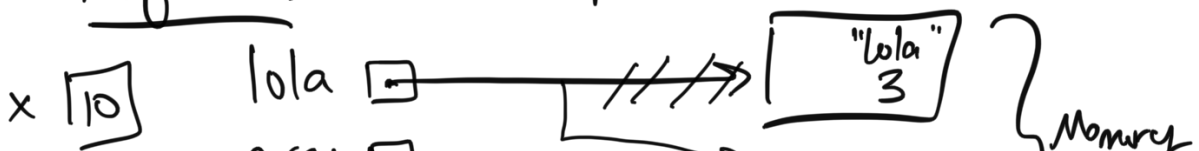
Constructors

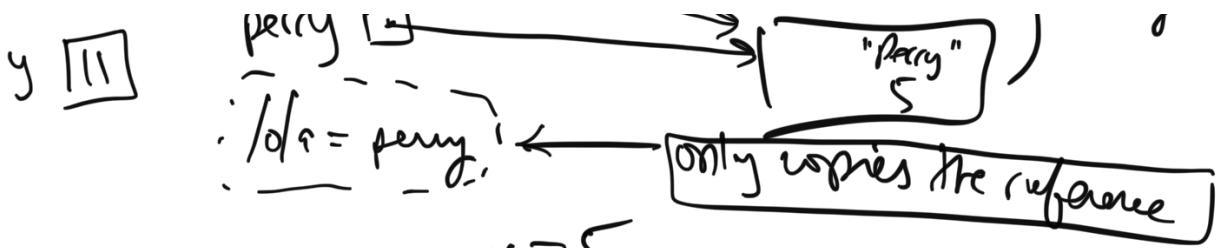
- Special method that runs automatically when an object is created.
- Purpose - to initialize an object into a "useful" state. (setting up an object)
- Name - ALWAYS the name of the class.

Immutability - once you create an object, it never changes.

- final keyword

References - "Safe" pointers





x = 5
y = 10
copy operation
x = y
x += 1
print(x, y)

