

CS 103000
Prof. Madeline Blount

Week 10



Dall-E 2: cats learning C++ in the forest on '90's technology



CLASSES + OBJECTS = NEW PARADIGM

- Procedural programming
- Functional programming
- Object-oriented programming (OOP)
 - *More* abstraction
 - *More* control





OBJECT ORIENTED = NEW PARADIGM, classes

- Bjarne Stroustrup made C++ with classes in mind
- CLASS = make your own data type
- WHEN make a class?
 - When some data type will repeat
 - When your data will have multiple attributes
 - “Model” something in the world



Lightbulb

isOn (boolean)

watts (number)

turnOn() (func)



Microphone

color (string)

isAnalog (boolean)

record() (func)



Animal

color (string)

age (number)

speak() (func)



Date

month (number)

year (number)

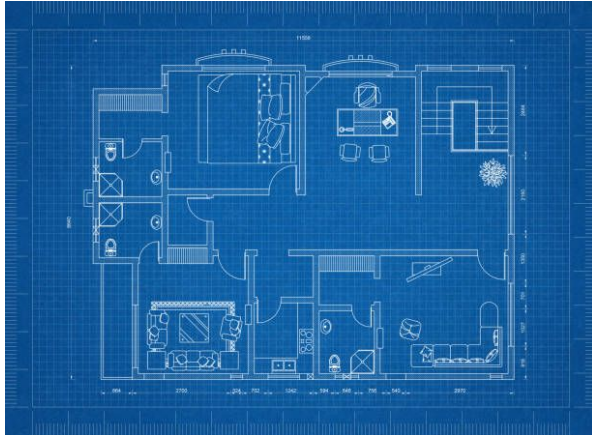
toString() (func)

CLASS vs. OBJECT

- Class is the blueprint; object is an INSTANCE of the class

CLASS

blueprint



OBJECT

building



CLASS vs. OBJECT

- Class is the blueprint; object is an INSTANCE of the class

CLASS

cookie cutter



OBJECT

cookie

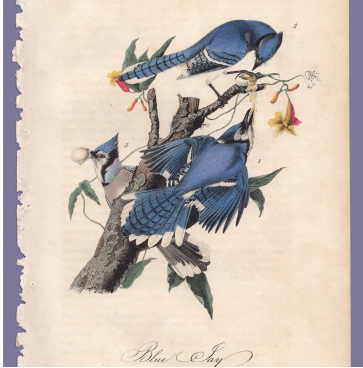


CLASS vs. OBJECT

- Class is the blueprint; object is an INSTANCE of the class

CLASS

species



OBJECT

Actual birds in the world



MAKING A CLASS

- Class definition
- Attributes, or member data (what are the THINGS that define the objects in this class? Size, name, color, rate, cost, etc.)
- Methods, or member functions (what are the things you can DO with the objects in this class)



FILE STRUCTURE

imagine class called Movie...



main.cpp

#include



Movie.h

Class encapsulation,
(attributes, member
data, declarations)

#include



Movie.cpp

Class methods
(function
definitions)

compile:

```
g++ main.cpp Movie.cpp
```