today

Due: Final Project: proposal, moodboard, research

Objects /

Final Project - exchange, plan

Student Presentations

Reading Ch 9, 8

Monday, Feb 29

Due: Final Project Proposal

Text + AV + data

rapid fire- proposal presentations: 1 min each

Student Presentations

objects

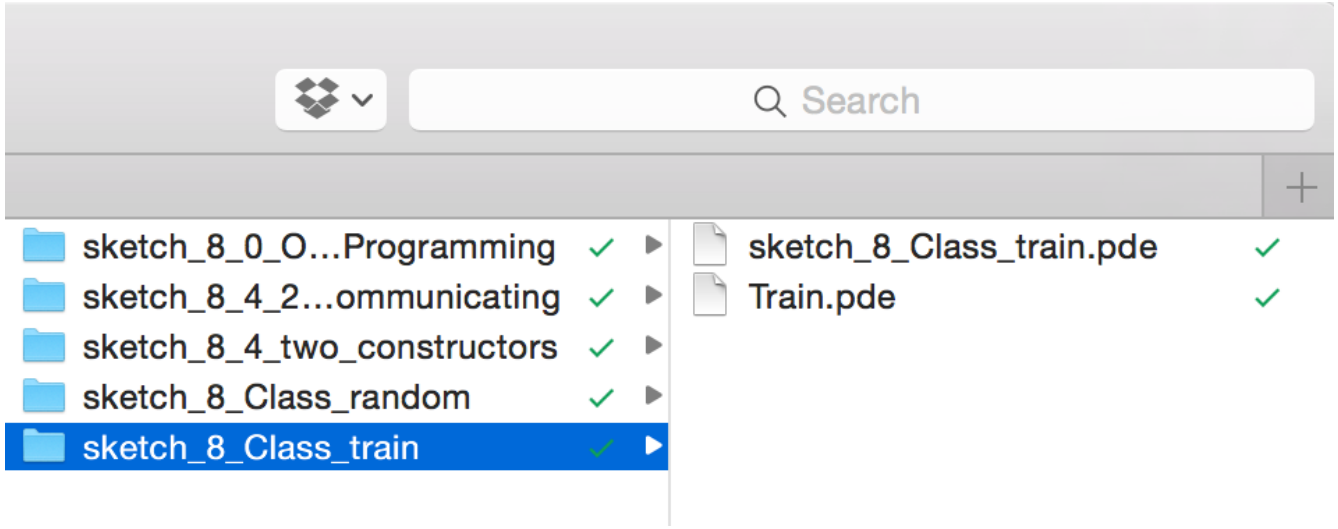
objects

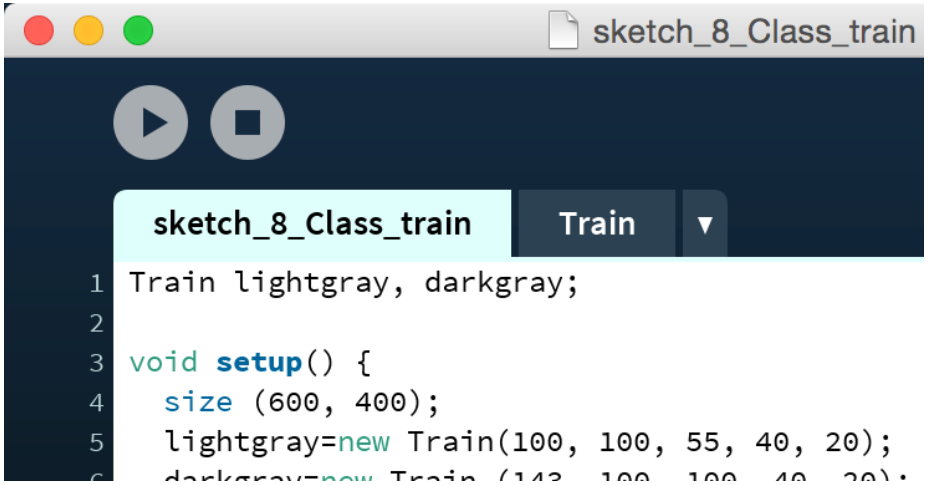
object-oriented programing (OOP)

purpose:

- to structure long codes more effectively for management
- divide and conquer
- AND, still have the code work!

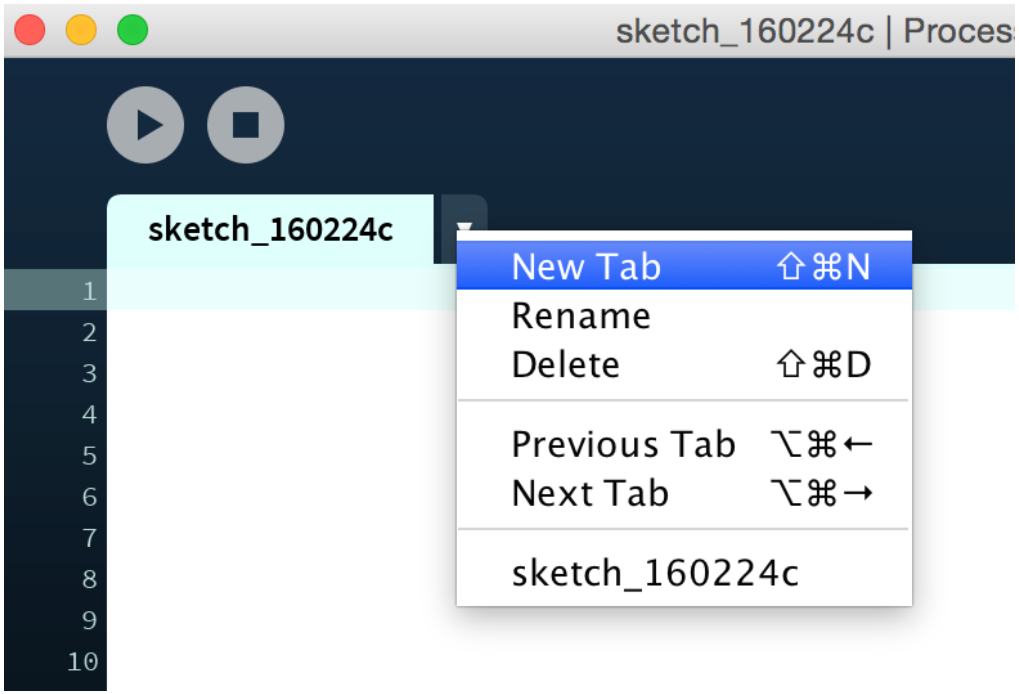
codes will now have 2 parts!

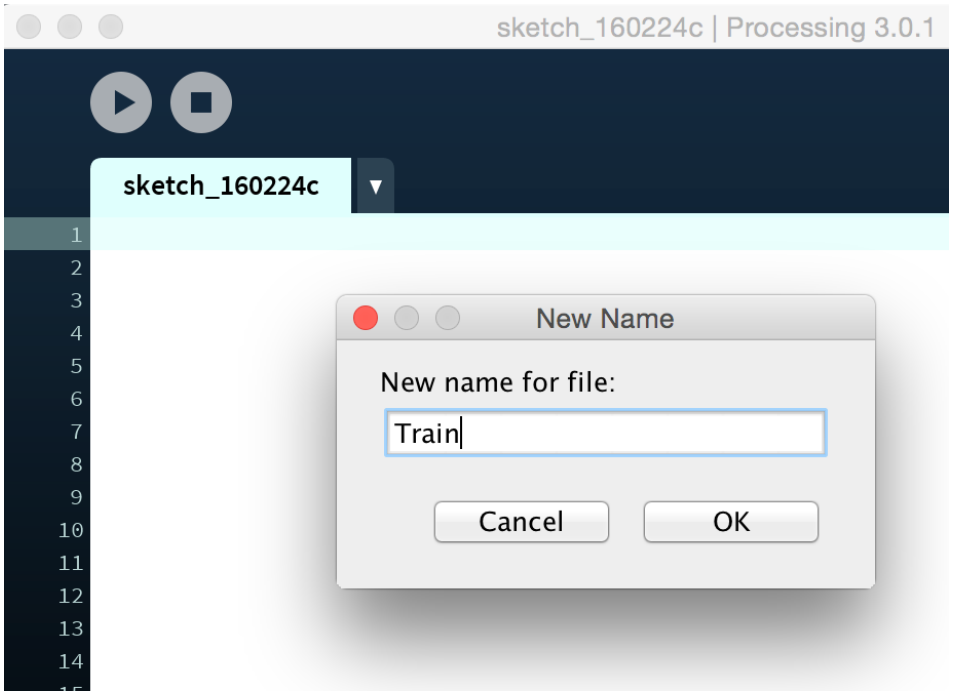




two parts, but

one continuous piece of code!


sketch_160224c | Proces
sketch_160224c
New Tab ⇧⌘N
Rename
Delete ⇧⌘D
Previous Tab ⌥⌘←
Next Tab ⌥⌘→
sketch_160224c


sketch_160224c | Processing 3.0.1
sketch_160224c
New Name
New name for file:
Train
Cancel
OK

sketch_8_Class_train.pde

```
Train lightgray, darkgray;

void setup() {
  size (600, 400);

  lightgray=new Train(100, 100, 55, 40, 20);
  darkgray=new Train (143, 100, 100, 40, 20);
}

void draw() {
  background(255);

  lightgray.display();
  lightgray.travel();

  darkgray.display();
  darkgray.travel();
}
```

Train.pde

```
class Train {

  float x;
  float y;
  float r;
  float w;
  float h;

  Train (float tempX, float tempY, float tempR,
                    float tempW, float tempH) {
    x=tempX;
    y=tempY;
    r=tempR;
    w=tempW;
    h=tempH;
  }


  void display() {
    noStroke();
    fill(r);
    rect(x, y, w, h);
  }
  void travel() {
    x++;
  }

}
```

define a Class: fields and methods

Train.pde

```
class Train {

  float x;
  float y;
  float r;
  float w;
  float h;

  Train (float tempX, float tempY, float tempR,
                  float tempW, float tempH) {
    x=tempX;
    y=tempY;
    r=tempR;
    w=tempW;
    h=tempH;
  }


  void display() {
    noStroke();
    fill(r);
    rect(x, y, w, h);
  }
  void travel() {
    x++;
  }

}
```

1 **fields:**

imagine all possible variables needed

- names
- data type

2 **methods:**

what will it do?

- display on screen
- travel

define a Class: constructor

Train.pde

```
class Train {

  float x;
  float y;
  float r;
  float w;
  float h;

  Train (float tempX, float tempY, float tempR,
                  float tempW, float tempH) {
    x=tempX;
    y=tempY;
    r=tempR;
    w=tempW;
    h=tempH;
  }

  void display() {
    noStroke();
    fill(r);
    rect(x, y, w, h);
  }
  void travel() {
    x++;
  }

}
```

3

constructor:

-assign initial values to fields

-specified variable order

- always has the same name as the class

make objects

sketch_8_Class_train.pde

```
Train lightgray, darkgray;

void setup() {
  size (600, 400);

  lightgray=new Train(100, 100, 55,
40, 20);
  darkgray=new Train (143, 100, 100,
40, 20);
}

void draw() {
  background(255);

  lightgray.display();
  lightgray.travel();

  darkgray.display();
  darkgray.travel();
}
```

a

declare object variables:

- lightgray
- darkgray

b

make objects in setup()

-make two trains (use keyword ***new***)

-follow specified variable order

- lightgray
- darkgray

c

access object's methods in draw()

lightgray will

- display
- travel

class

A *class* is the specification for an object:

1. fields
2. methods
3. constructor

main part of your code (for lack of a better word)

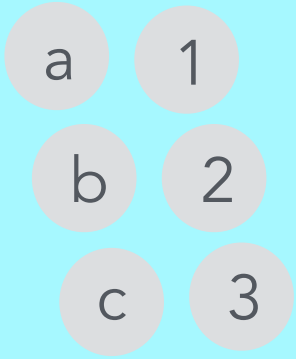
contain objects (each object is an *instance* of a class)

each instance can have a choice of associated fields and methods

```
lightgray.display();
lightgray.travel();

darkgray.display();
//darkgray.travel();
```

practice your



understand the logic
memorize the syntax!
variations on it next class!

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