

Assignment Review

Want to Learn Advance Tricks?

Creative Programming 2

Image processing, interactivity, and computer vision etc.

Interactive Installations

Arduino and digital fabrication
(Instructor: Jeffrey Thompson)

Classes & Objects

In Object Oriented Programming

Relationship between Class & Object

Human \longleftrightarrow you

College \longleftrightarrow Stevens

PFont \longleftrightarrow myFont



Some classes we've been using already

PImage

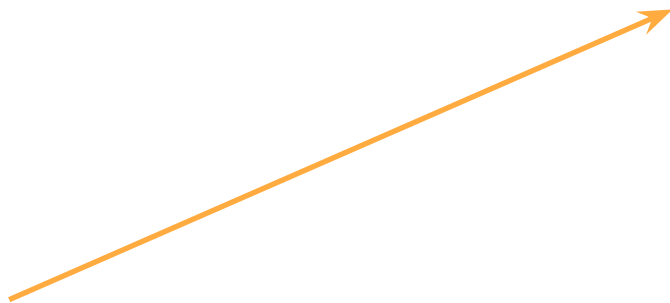
PFont

```
PGraphics pg;
```

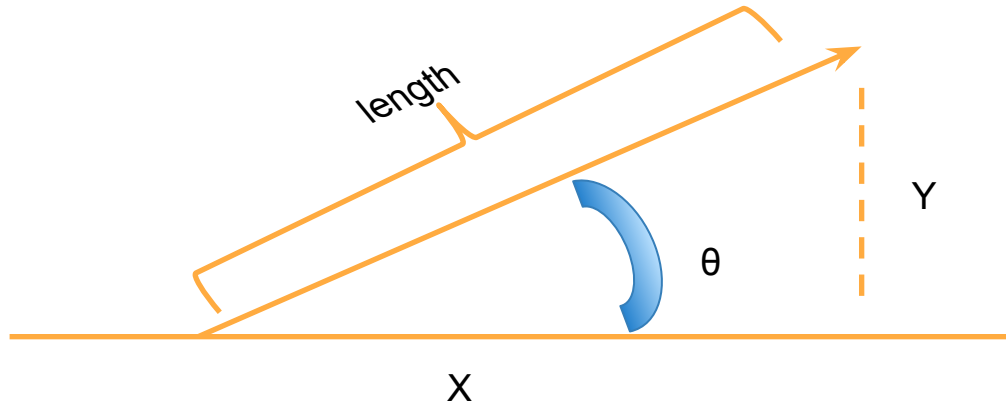
```
// a PGraphics "buffer" where we can draw to
```

Pvector;

- 1) Magnitude
- 2) Direction



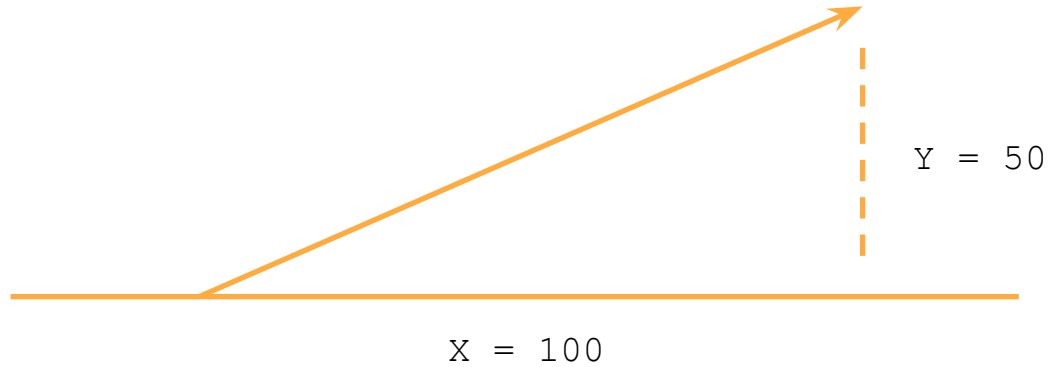
This is an arrow



- 1) Magnitude
- 2) Direction

Notice that there is an X component and a Y component of this arrow's direction

pVector



```
float x;  
float y;
```




```
Pvector location;
```


```
location = new  
Pvector(100, 50);
```


Class: Template for creating objects

Class = Data + Functionality

Object = The thing itself

Class  `Spaceship ss;`
Name

Define a new object  `ss = new Spaceship();`
in the class
Spaceship

Call the  `ss.update();`
pre-defined `ss.display();`
functions from
the "class
Spaceship" and
apply them to
the object "ss"

```
void setup() {
```

```
ss = new Spaceship();  
}
```

```
void draw() {
```

```
ss.update();  
ss.display();  
}
```

```
class Spaceship {
    PVector position;
    PVector velocity;
    PVector acceleration;

    Spaceship(PVector l) {
        acceleration = new PVector(0,0.05);
        velocity = new PVector(random(-1,1),random(-2,0));
        position = l.get();
        lifespan = 255.0;
    }

    void update() {
        // Method to update position
    }

    void display() {
        // Method to display
    }
}
```


Constructor Arguments

"Constructor is the place where the object is born"

What is the initial settings of the object? color / size / position etc.

Demo: Basic Class

Array List

An ArrayList stores a variable number of objects. This is similar to making an array of objects, but with an ArrayList, items can be easily added and removed from the ArrayList and it is resized dynamically.

<https://processing.org/reference/ArrayList.html>

```
add() ;  
get() ;  
remove() ;
```

How to make an array list
with particle objects in it?

What would be the benefit?

Demo: Array List

Setup

Draw

Class particle

Features of
individual
particle object

**Class particle
system**

**Define ArrayList
involves variable
of particle objects**

Define behaviours
of the array of
particle objects

Demo: Particle System

Assignment

Read the excerpt from **10 PRINT CHR\$**, found in the `Readings` folder. We'll talk about Critical Code Studies and analyzing code. Write up two responses, questions, or provocations and post them as an issue on TUMBLR under the title `Firstname Lastname: 10 PRINT CHR\$`. (Optionally, also check out the amazing collection **Software Studies: A Lexicon**, also in the `Readings` folder.)