

Images, Animations, & Fonts

day 3

You might want to use images to...

use characters in a game

make awesome animations

manipulate photographs

create narratives

incorporate your own non-code artwork

~~steal~~ source things from the internet and mod them

recap: how to draw shapes

```
rect(0, 0, 200, 100);
```

judging from this you might try to insert images by:

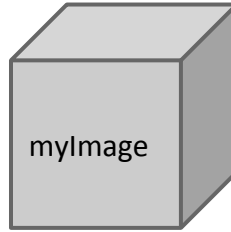
```
image(0, 0, 200, 100);
```

how does it know what image
you are referring to?

and you'd be on the right track, but...

```
PImage myImage;
```

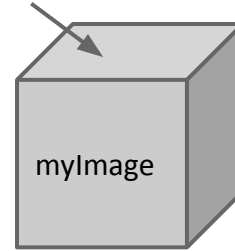
```
//Declaring a variable of type Image
```



img.jpg →
01010
11011
00100

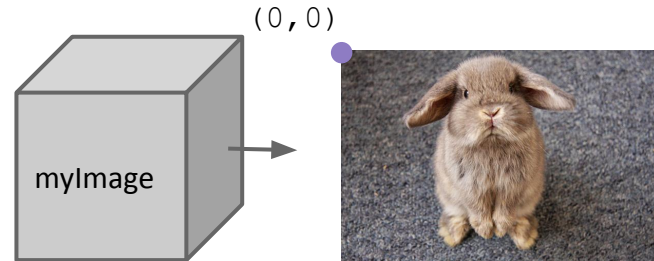
```
myImage = loadImage("image.jpg");
```

```
//Make a new instance of PImage by loading an image file
```



```
image(myImage, 0, 0);
```

```
//Draw an image to the screen at (0, 0)
```



Adding Images as PImage

PImage: Datatype for storing images.

Processing can display .gif, .jpg, .tga, and .png images.

```
PImage myImage;  
  
void setup() {  
  size(100, 100);  
  myImage = loadImage("bunnies.jpg");  
}  
  
void draw() {  
  image(myImage, 0, 0);  
}
```

Adding Images as PImage

PImage: Datatype for storing images.

Processing can display .gif, .jpg, .tga, and .png images.

```
//declare datatype and object name
PImage myImage;

void setup() {
  size(100, 100);
  //load image in setup
  myImage = loadImage("bunnies.jpg");
}

void draw() {
  //drawing and positioning image
  image(myImage, 0, 0);
}
```

image files must be in the “data” directory

Adding Images as PImage

PImage: Datatype for storing images.

Processing can display .gif, .jpg, .tga, and .png images.

```
PImage myImage;  
  
void setup() {  
  size(100, 100);  
  myImage = loadImage("bunnies.jpg");  
}  
  
void draw() {  
  image(myImage, 0, 0, 100, 200);  
}
```

you can also size the images by providing width and height

(myImage, x, y, width, height).

access the actual width and height of the image by the width and height fields:

myImage.width, myImage.height

if you leave these parts out, it will load automatically as its actual size.

imageMode()

default image mode is to start drawing from the upper left corner at the x & y positions you provide.

```
imageMode(CORNER);
```

```
//this is the default. you provide starting x & y positions, and width & height.
```

```
imageMode(CORNERS);
```

```
//you provide starting x & y positions for the upper left corner, and ending x & y positions for the lower right corner.
```

```
imageMode(CENTER);
```

```
//image is centered at the x & y positions you provide. you can provide additional information for width & height.
```


Fonts

```
PFont font;  
// The font must be located in the sketch's  
// "data" directory to load successfully  
font = loadFont("LetterGothicStd-32.vlw");  
textFont(font, 32);  
text("word", 10, 50);
```

PFont works in a similar way as PImage. You first declare a variable of datatype PFont above setup. Then load the name of the file in loadFont(). and give it a size parameter in textFont(). Use it to display texts with text(string, xPos, yPos).

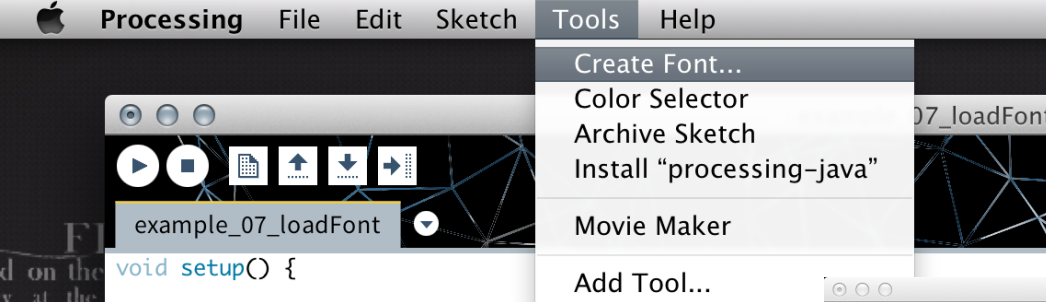
Fonts

```
// declare
PFont awesomeFont;

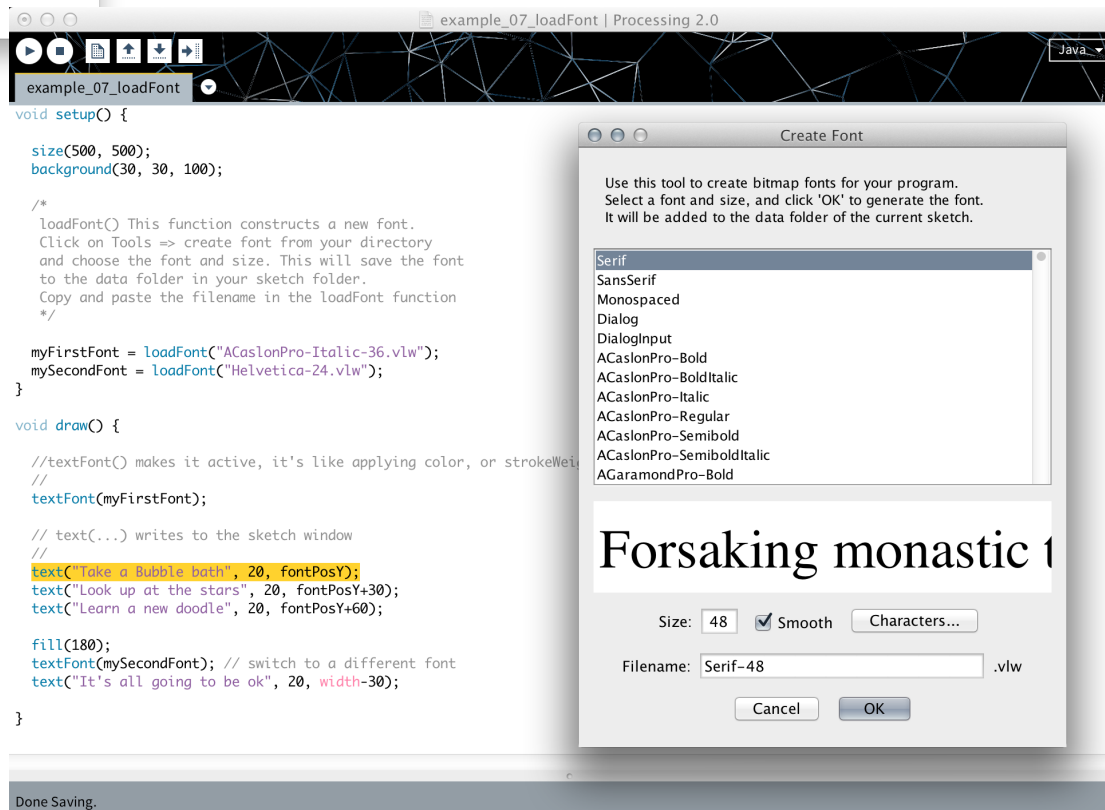
void setup(){
  // load (in setup)
  awesomeFont = loadFont("Arial-14.vlw");
}

void draw(){
  // set which font to use. draw it at 0,0 (in draw)
  textFont(awesomeFont, 32);
  text("Hello!", 0, 0);
}
```

The font must be located in the sketch's "data" directory to load successfully



Easy way to find and place a font
into your directory

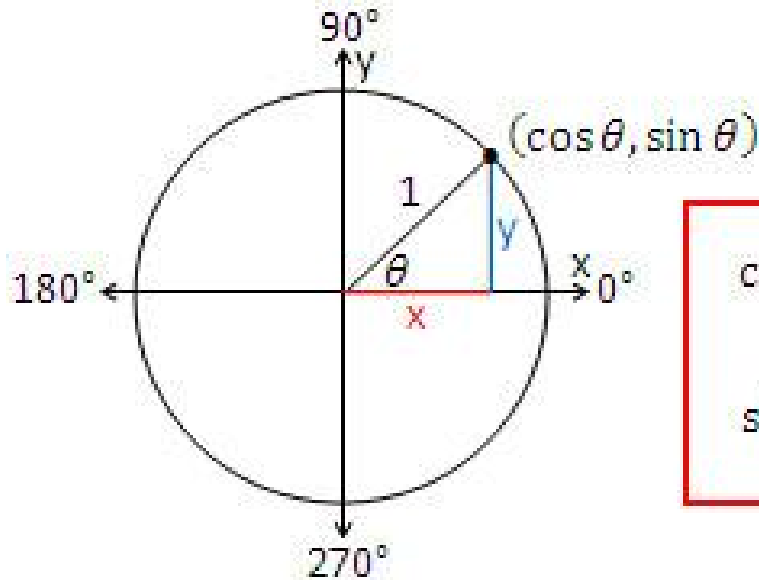


list()

```
PFont myFont;
```

```
void setup() {  
  size(200, 200);  
  // the following two lines will show you available fonts  
  String[] fontList = PFont.list();  
  println(fontList);  
  myFont = createFont("Georgia", 32);  
  textFont(myFont);  
  textAlign(CENTER, CENTER);  
  text("!@#$$%", width/2, height/2);  
}
```

Do You Remember Trigonometry?



$$\cos \theta = \frac{x}{1} = x$$

$$\sin \theta = \frac{y}{1} = y$$

Using Trig for Animations

See Example



“Great people do things before they're ready. They do things before they know they can do it. Doing what you're afraid of, getting out of your comfort zone, taking risks like that – that's what life is.

You might be really good. You might find out something about yourself that's really special and if you're not good, who cares? You tried something. Now you know something about yourself”

– **Amy Poehler**