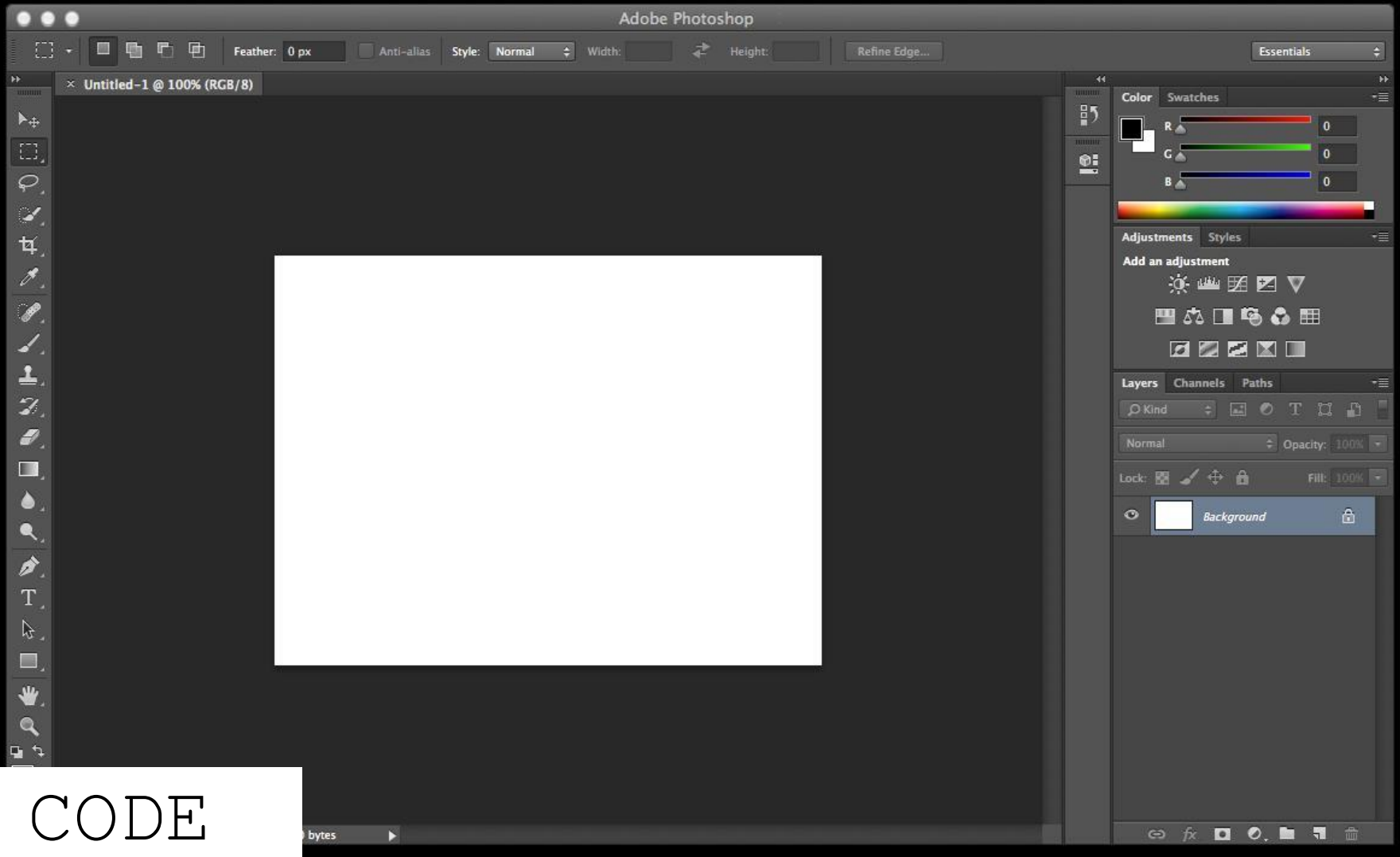
CODE

Bootcamp Day 01

Why do we `code`?


TIMES SQUARE
IMPORTED FROM DETROIT
ON BROADWAY
MOTOWN
THE MUSICAL
CHRYSLER 300 MOTOWN EDITION
THE CROWD GOES WILD!
THE PHANTOM OF THE OPERA
WICK
NICE WORK
If You Can Get It
PALACE
Annie
MONEY EXCHANGE
BARCLAYS
INSURANCE INVESTMENTS


Adobe Photoshop
Feather: 0 px
Anti-alias
Style: Normal
Width:
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Refine Edge...
Essentials
Untitled-1 @ 100% (RGB/8)
Color
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Layers
Channels
Paths
Kind
Normal
Opacity:
Lock:
Fill:
Background
bytes

CODE

What is `code`?

Translating Instructions For a Computer

What computers do:

Store information as 1s and 0s and

Perform math and logic operations on it

Intermediate Languages and Libraries

Expand the Computer's Vocabulary


9:41 PM
Instagram
chchoiboi
128 likes

Facebook

https://www.facebook.com

Search Facebook

Jonathan Home

Aggie Winsom shared フレッドYOLO's photo.
1 hr ·

Like Comment Share

5

Write a comment...

Mohini Freya Dutta shared Kavita Krishnan's post.
17 hrs ·

Omg dying

Amit Shah
@AmitShah

Julia West likes Pete Bogdis's post in Northsiders SFCFC.

R Hunter Gough likes Joy Swiontek's post.

Alexandra Mathews was tagged in Plath/Hughes's photo.

Fernando Ausin-Gómez likes Ryan Luckey's post.

Mercedes Cossich likes Faithfull the

1 event invite

Martin Hunt and 1 other

TRENDING

Reddit: Republican Presidential Nominee Donald Trump Participates in Website's 'Ask Me Anything'

#TrumpSacrifices: Hashtag Emerges After Donald Trump Asserts He Has Made Sacrifices for America

Ann Coulter: Commentator Calls Father of Late Soldier 'an Angry Muslim With a Thick Accent'

Mitt Romney: Former Presidential Nominee Says He Thinks Donald Trump Could Win Presidency

Hillary Clinton: Computer Systems Used by Presidential Candidate's Campaign Reportedly Hacked

Stephen Hawking: Physicist Says How Wealth Is Understood Played a Crucial Role in Brexit

North Korea: US 'Crossed the Red Line' by Putting Sanctions on Kim Jong Un, Country's Top Diplomat Says

FBI: Agency Investigating Cyberattacks Against Democratic Party Groups and Clinton Campaign

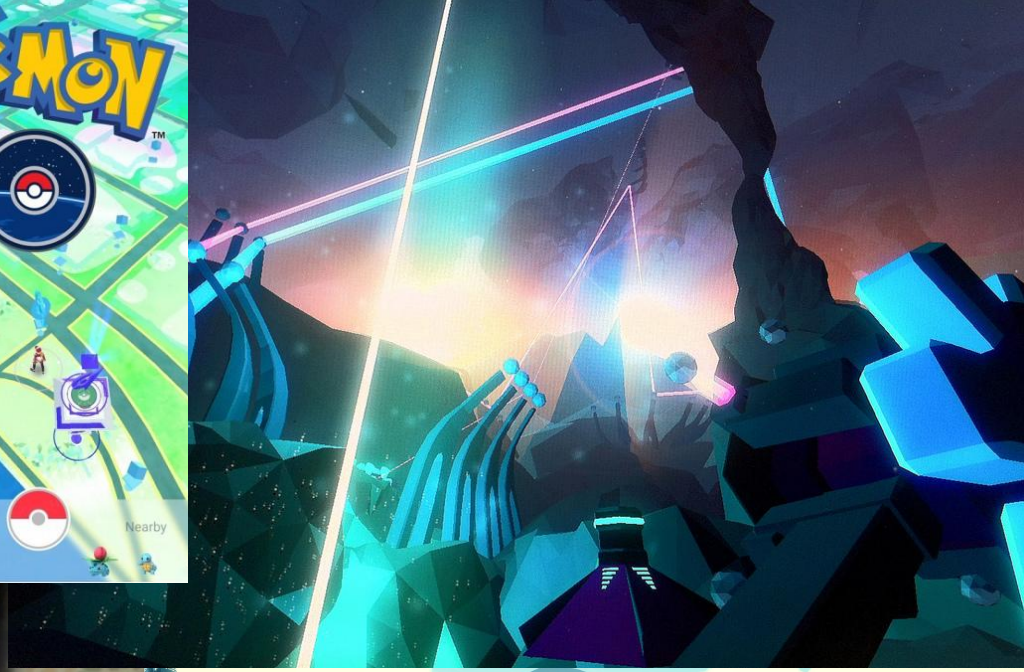
Roland S. Martin: Journalist Criticizes Rapper Bow Wow's Statement on Civil Rights Movement

KRLD: Meteo

Chat (53)


Squirtle
CP 278


Pokémon
GO
Lv 1
Paula
Nearby
Lv 9
Lynn96
Nearby




Turn TV off

Intermediate Languages and Libraries

Expand the Computer's Vocabulary

Variables

Types of Variables

`int`
- stores an integer (eg. 1)

`float`
- stores a number with a decimal point (eg. 9.31)

`String`
- stores text (eg. “Bootcamp 2016”)

`boolean`
- true/false

(etc)

Using variables

```
int myNumber;
myNumber = 10;
println(myNumber);
```

> 10

```
myNumber = myNumber + 1;
println(myNumber);
```

> 11

```
String thisSchool = “Parsons”;
println(thisSchool);
```

> Parsons

Functions

A real-life metaphorical example of a function

```
void putShoeOnFoot(Shoe myShoe, Foot myFoot) {

  pickUp(myShoe);
  liftFoot(myFoot);
  lowerFootIntoShoe(myFoot, myShoe);
  tieShoe(myShoe);
  releaseShoe(myShoe);

}
```

Problem Decomposition

Peanut Butter & Jelly Sandwich

2 slices of bread
Peanut Butter
Jelly

1) Spread peanut butter on one slice of bread
2) Spread jelly on the other slice of bread
3) Put the pieces of bread together

Recipe Breakdown

Variables:

`breadSlice1`
`breadSlice2`
`peanutButter`
`jelly`

Functions:

`spreadOnBread()`
`putBreadTogether()`

Pseudocode

Pseudocode 1

```
// spread peanutButter on breadSlice1
// spread jelly on breadSlice2
// put bread slices together
```

PseudoCode example 2

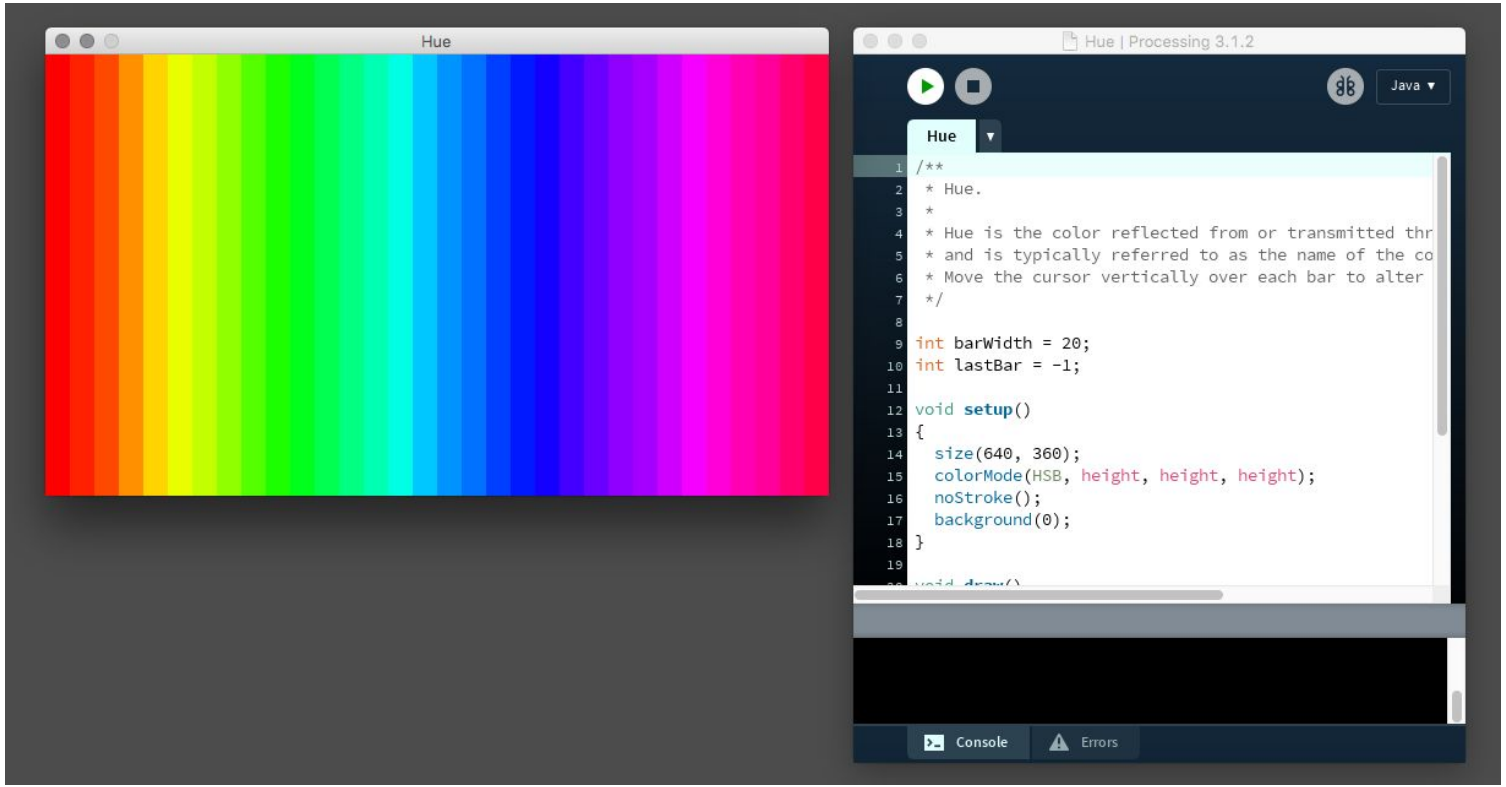
```
main() {
  spreadOnBread(peanutButter, breadSlice1)
  spreadOnBread(jelly, breadSlice2)
  putBreadTogether()
}
```

Pseudocode: Your Turn!

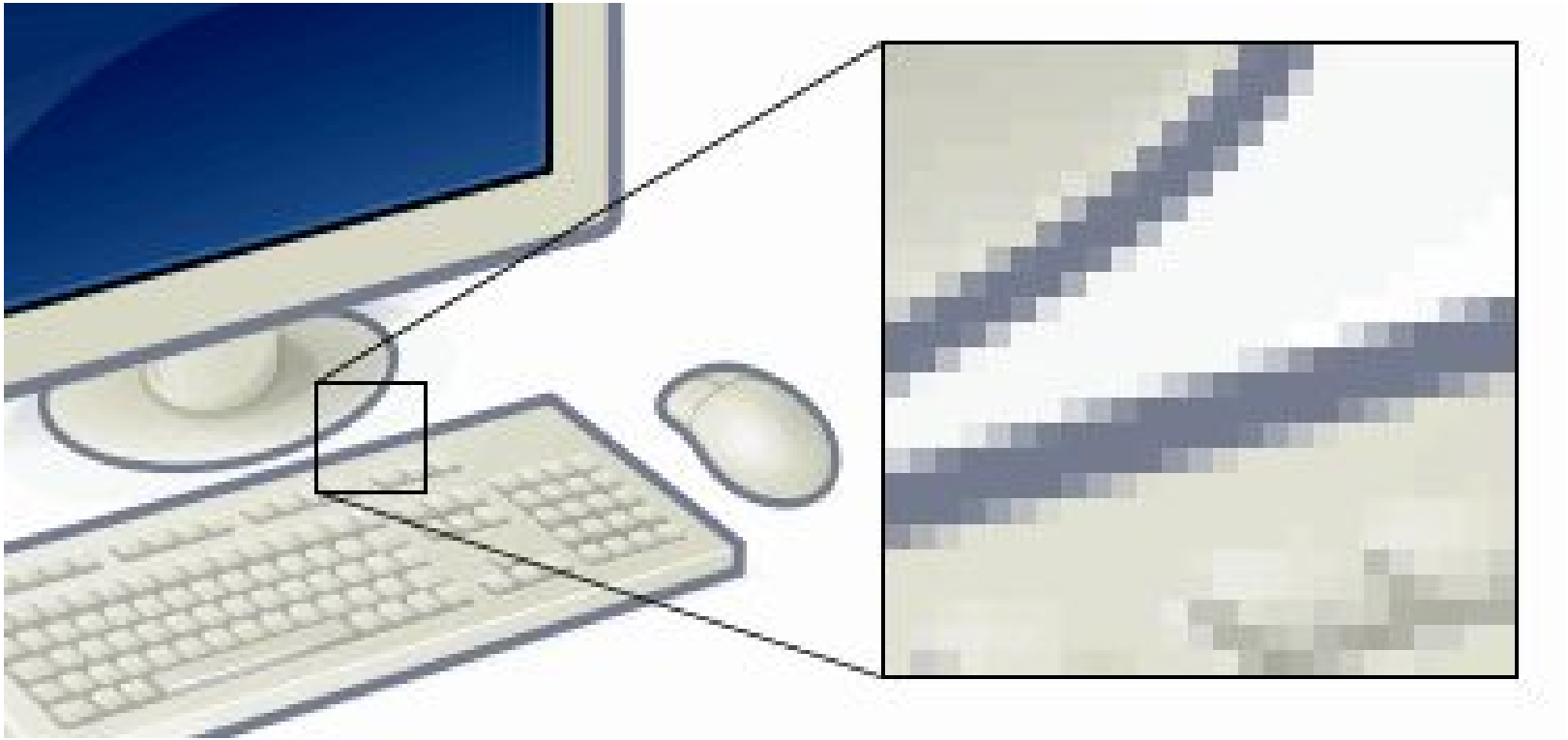
And Finally … Some Code

Processing

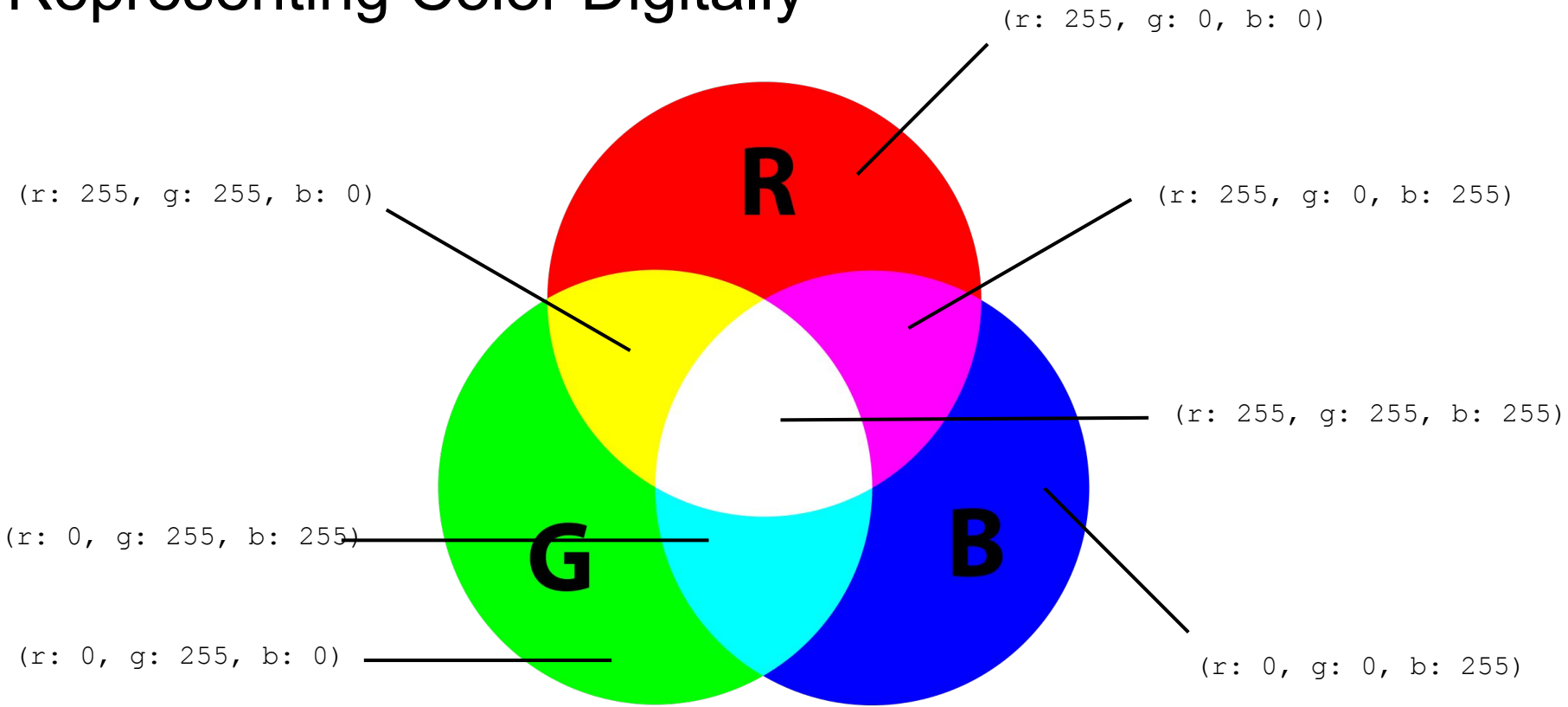
Processing & its canvas



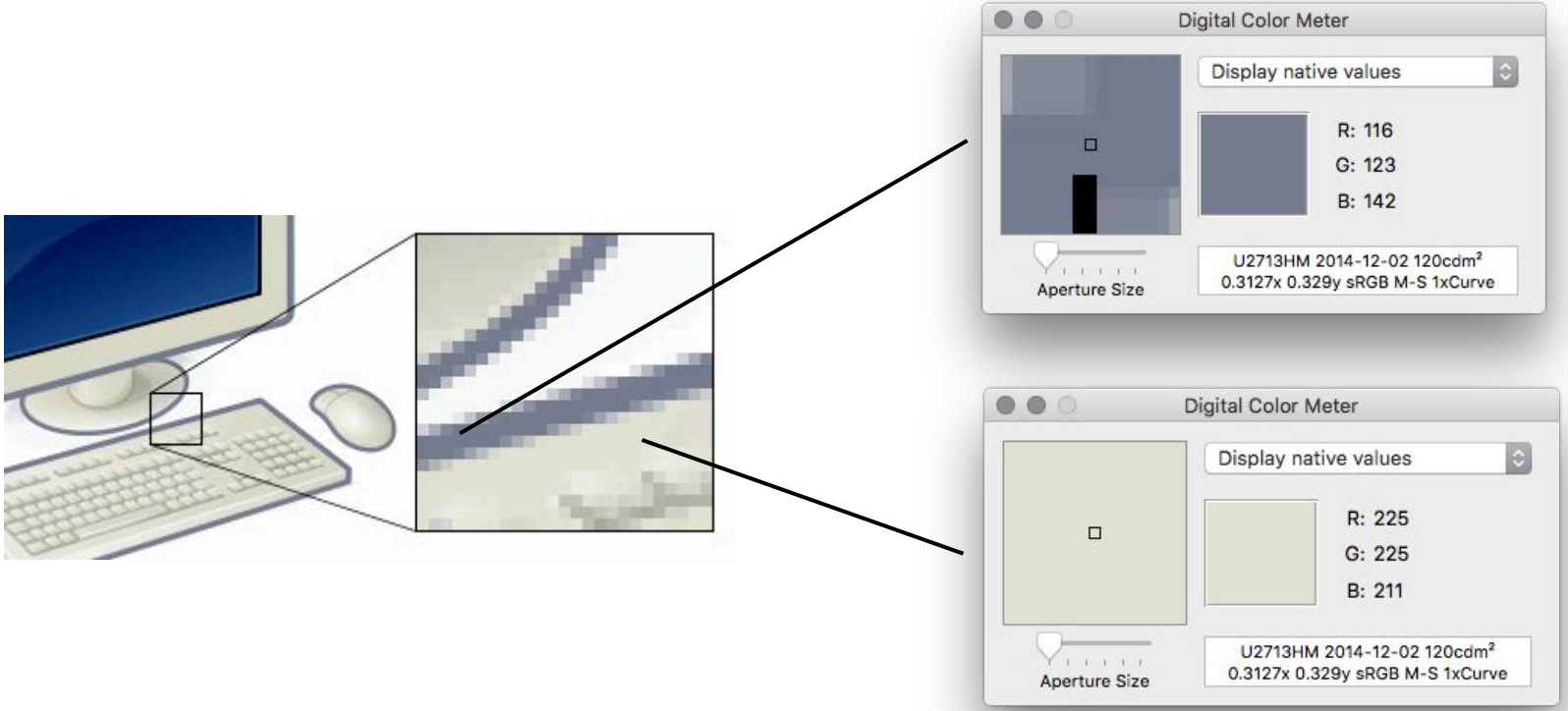
Pixels: How We Represent Images Digitally



Representing Color Digitally



Representing Color Digitally



Program Execution

Wrapping Up

Resources

https://processing.org/tutorials/

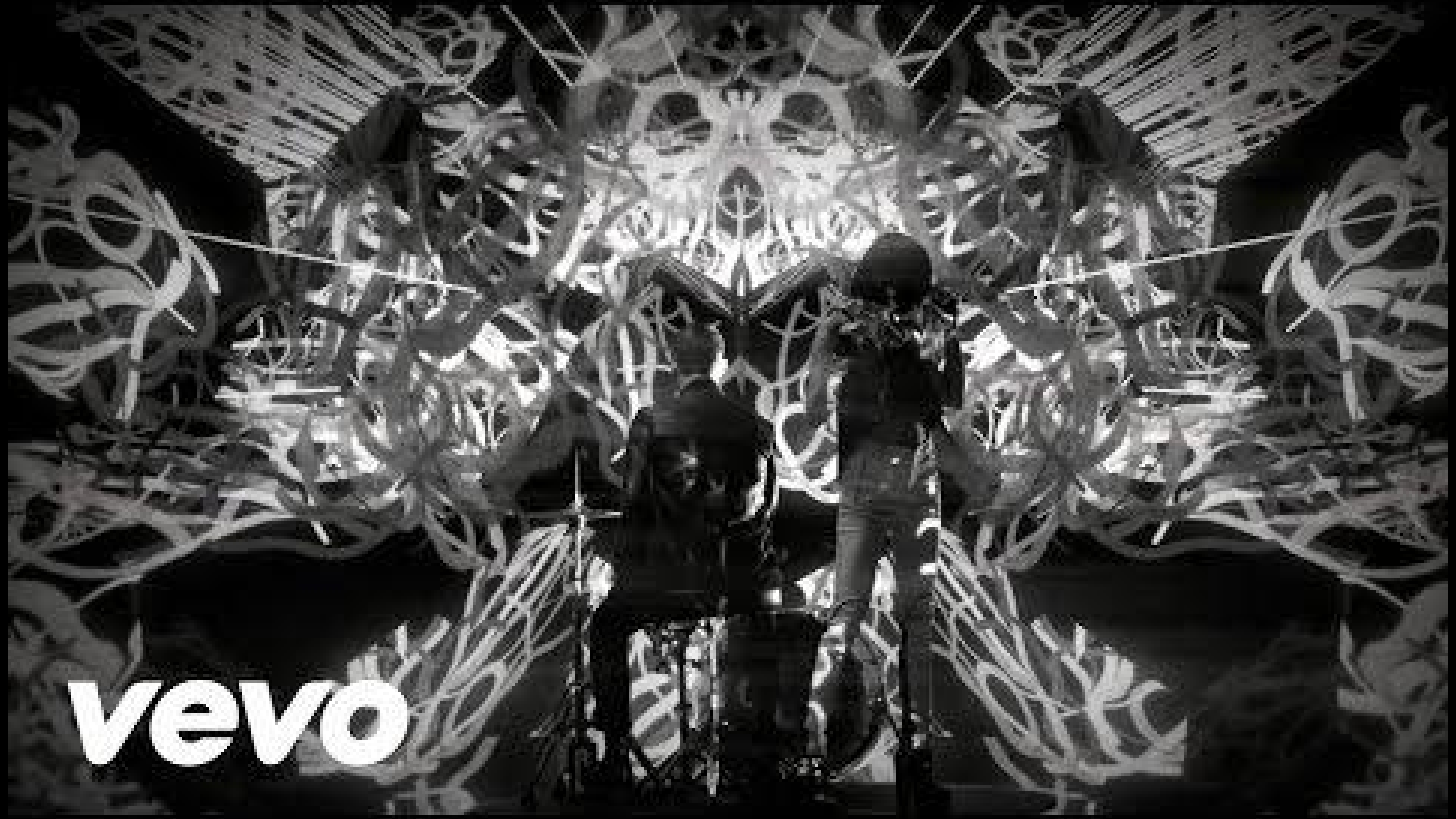
https://www.amazon.com/Learning-Processing-Second-Programming-Interaction

Homework

- Pseudocode: think of something simple you would like to make Processing draw. Decompose it and write the pseudocode for it.
- Bonus: actually program it (or try)
  - Look at the docs: https://processing.org/reference/
  - Good places to start: background(), fill(), rect(), triangle(), ellipse(), line()

Thanks~~

BONUS SLIDES


vevo

Control Flow

The ‘if’ statement

```
if (thisVariable == thatVariable) {

    // do stuff

}
```

Relational Operators

`==`	`<`
`!=`	`<=`
`&&`	`>`
`||`	`>=`

`1 == 2` evaluates to `FALSE`

`1 < 2` evaluates to `TRUE`

etc

Our First If Statement

```
if (frameCount % 5 == 0) {
    // do stuff
}
```

A slightly less simple function

```
drawRect(int x, int y, int width, int height) {

    drawLine(x, y, x+width, y);
    drawLine(x+width, y, x+width, y+height);
    drawLine(x+width, y+height, x, y+height);
    drawLine(x, y+height, x, y);

}
```

```
// check if there is a current frame, if so, copy to previous frame

// capture current frame from laptop’s camera

// compare current frame with previous frame, if there is a previous
frame

// etc
```

```
// check if there is a current frame, if so, copy to previous frame
if currentFrame is not null
    previousFrame = currentFrame

// capture current frame from laptop's camera
currentFrame = getCurrentFrame()

// etc
```