Section 6

Framer.js and HMP Evaluation

AGENDA

- Administrivia

- DES02/03 Recap

- Group tip

- Interactive Framer.js

- Key-Level Model (KLM) Activity

ADMINISTRIVIA

- Emulator Setup Support has ceased. OH will focus on **PROG02** Assignment help.

- **Prog 02:** YourFault due 10/16 11:59pm

- Watches to Groups ($150 Check) made out to UC Regents (will not be cashed unless…)

How'd it go? DES02, DES03

TEAM PRO-TIP

Assign a project lead for group projects.

ROLES

Coordinate times (send out When2Meet/Doodle, hound people)

Setup meeting agendas

Coordinate materials and track progress

Submit the assignment

Bolster team morale

Contact staff

GSI CONTACT

Think of us as your group mentor.

1-9	**Cesar**
10-17	**Jasper**
18-25	**Tricia**
26-33	**Diane**
34-38	**Jingyi**

FRAMER 101

You should have downloaded and installed *Framer.js*

COUPON CODE was sent through BCourses

FRAMER ANATOMY

Prototyping tool (browser-based, JS)

Integrates with Photoshop (CS160 Tutorial coming soon)

Main difference from other tools - _not static_
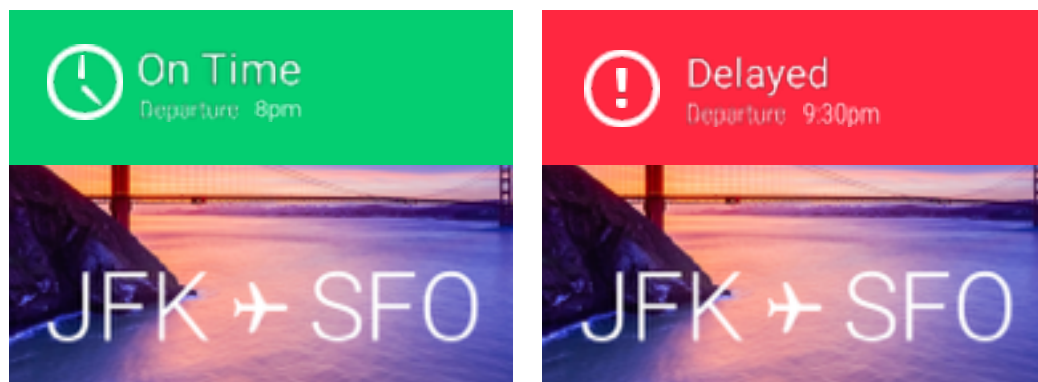
Animation, Navigation, Flows

Framer Studio is MacOS only; For PC, navigate to the folder and

run python -m SimpleHTTPServer

Then in your browser, type: **localhost:8000**

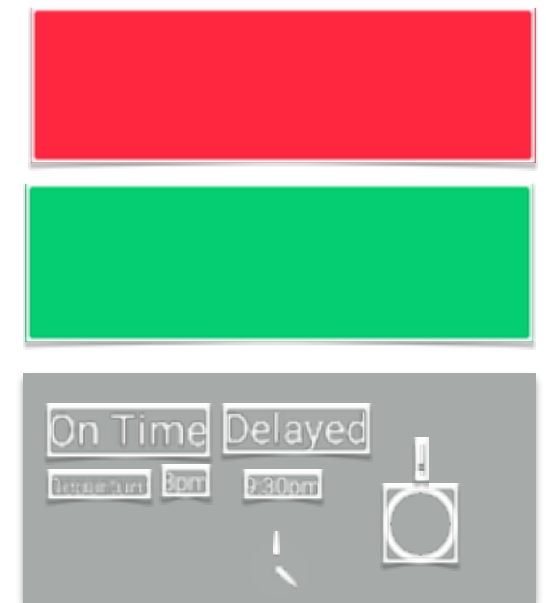_Edit_ **app.coffee**

FRAMER WORKFLOW

1. DESIGN VIEWS

A FLIGHT NOTIFICATION WATCH APP

TECH

ILLUSTRATOR /PHOTOSHOP

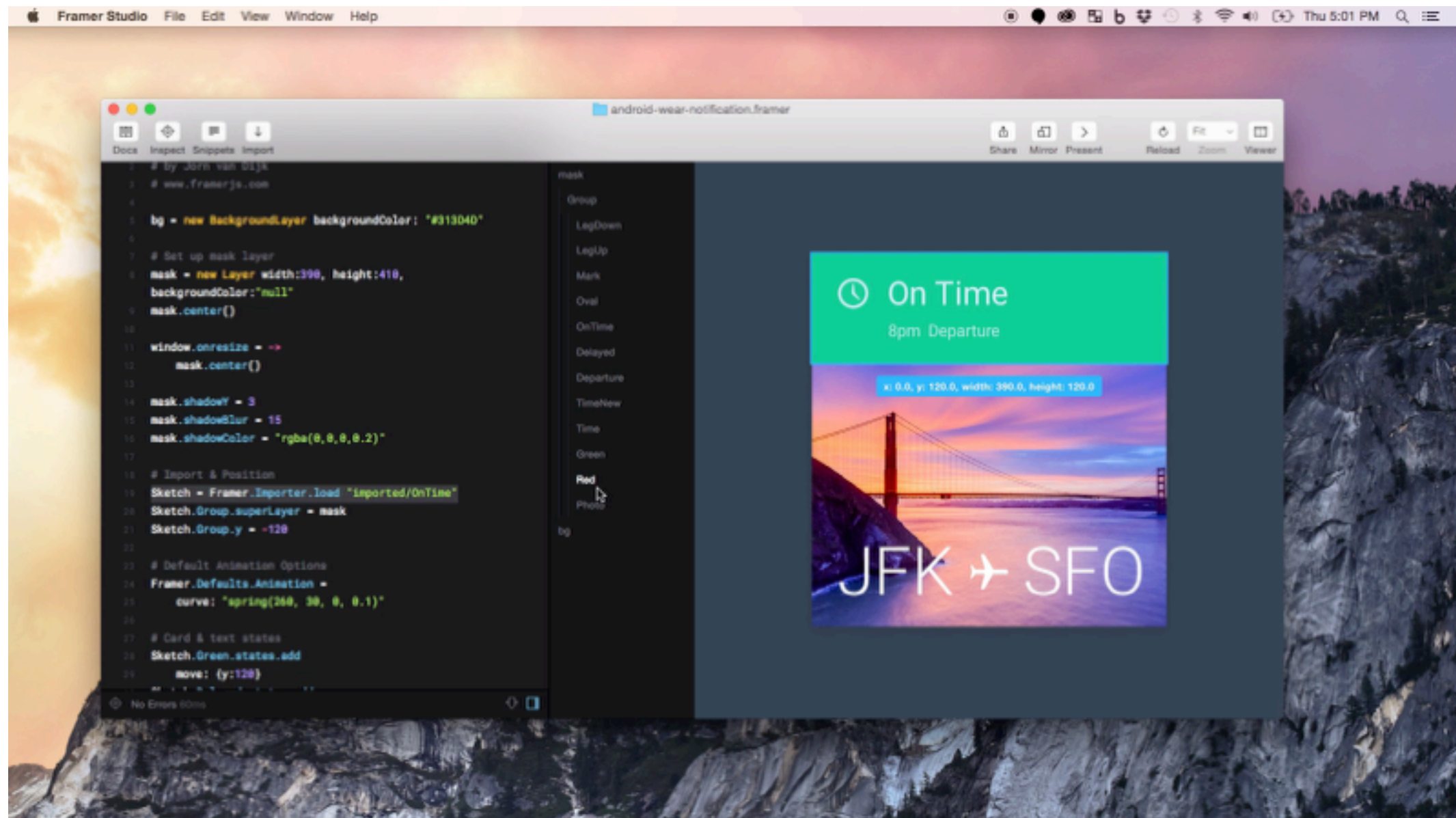*SKETCH ($99)*

2. EXTRACT IMAGE ASSETS

PNG ELEMENTS (EACH ELEMENT IS ONE A DIFFERENT PHOTOSHOP LAYER)

NOTE THE CLOCK ARROWS ARE SEPARATE FILES

TECH

FRAMER

PHOTOSHOP/SKETCH

FRAMER WORKFLOW

3. LOAD INTO FRAMER & ADD INTERACTIVITY

KEY FRAMER ELEMENTS

1. **LAYERS**: THINK PLASTIC TRANSPARENCIES STATIC!
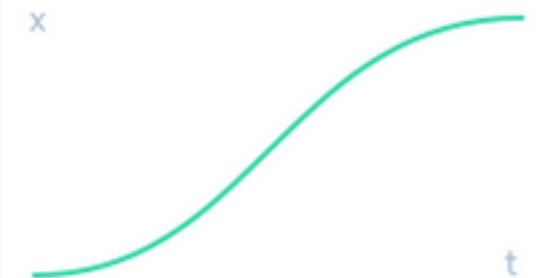
```
1    # Create a layer
2    layerA = new Layer
3        x: 0, y: 0, width: 100, height: 100
```

2. **ANIMATE**: ANIMATABLE PROPERTIES OF LAYERS

```
1    layerA.animate
2        properties:
3            opacity: 0.5
4        curve: "ease"
5        repeat: 1
6        delay: 2
7        time: 1
```
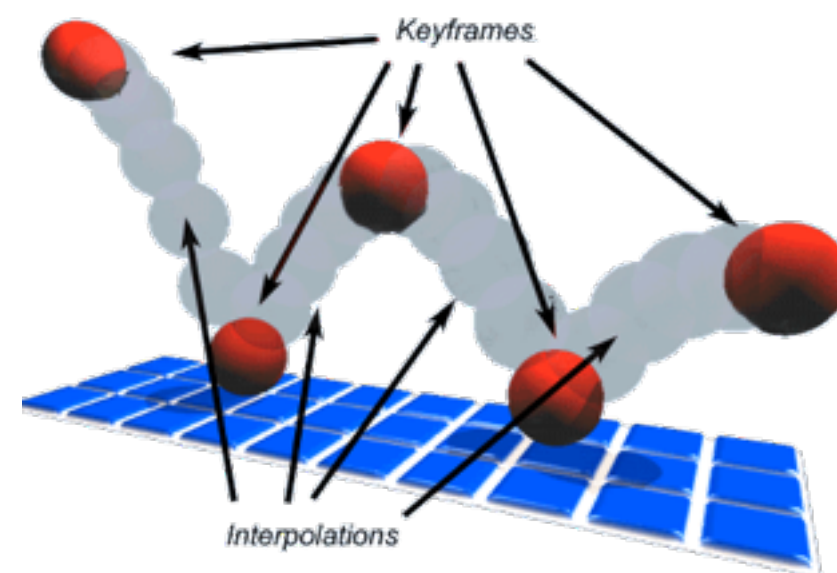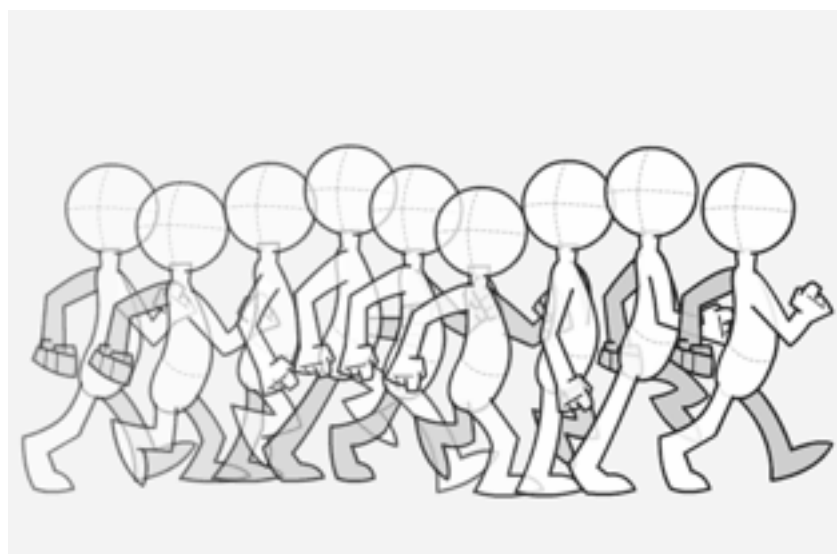
```
# Easing curve
curve:"ease-in-out"
```

KEY FRAMER ELEMENTS

3. **STATES** = KEYFRAMES in TRADITIONAL ANIMATION


```
1    # Add states
2    layerA.states.add
3        second: { scale: 0.75 }
4        third:  { rotation: 90, scale: 1 }
5
6    # Set the animation options
7    layerA.states.animationOptions =
8        curve: "spring(600,30,0)"
9
10   # Toggle states on click
11   layerA.on Events.Click, ->
12       layerA.states.next()
```
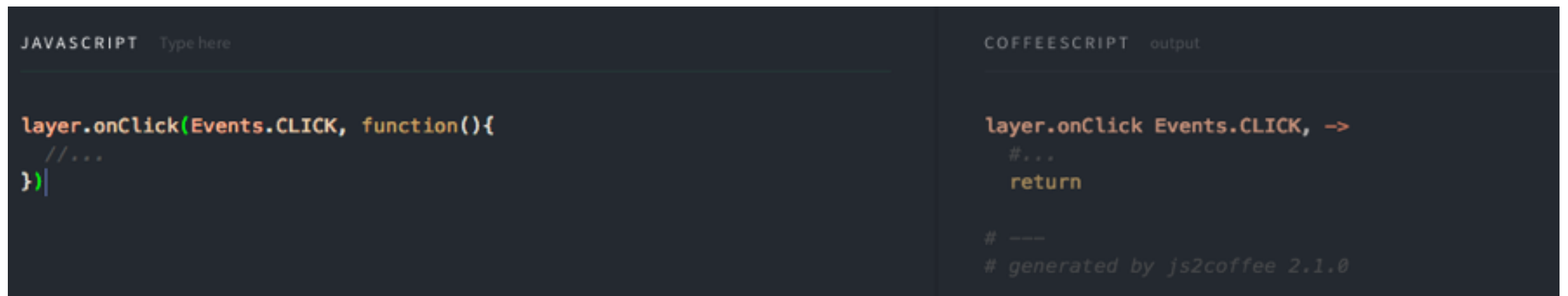

Keyframes

Interpolations

KEY FRAMER ELEMENTS

3. **EVENTS** = AN INTERACTION DESIGNER'S PLAYGROUND

```
1    # Listen to multiple events
2    layerA.on Events.Click, ->
3        ...
4    layerA.on Events.TouchStart, ->
5        ...
6    layerA.on Events.TouchMove, ->
7        ...
8    layerA.on Events.TouchEnd, ->
9        ...
```

FRAMER USES COFFEESCRIPT (A SHORTHAND VERSION OF JS)

```
JAVASCRIPT   Type here

layer.onClick(Events.CLICK, function(){
  //...
})|
```

```
COFFEESCRIPT   output

layer.onClick Events.CLICK, ->
  #...
  return

# ---
# generated by js2coffee 2.1.0
```

http://js2.coffee/

FRAMER BELLS & WHISTLES

3. **DRAGGABLE** : FOR A DIRECT MANIPULATION FEEL


```
1    # Make the layer draggable
2    layerA.draggable.enabled = true
3
4    # Prevent vertical dragging
5    layerA.draggable.horizontal = true
6    layerA.draggable.vertical = false
7
8    # Alternative way by setting the speed
9    layerA.draggable.speedX = 1
10   layerA.draggable.speedY = 0
```

FRAMER BELLS & WHISTLES

3. **SCROLLABLE** : FOR MOVING THROUGH ELEMENTS

```
1    # Create a ScrollComponent
2    scroll = new ScrollComponent
3         width: 120, height: 120
4
5    # Create the content layers
6    layerA = new Layer
7         width: 120, height: 50
8         superLayer: scroll.content
9
10   layerB = new Layer
11        width: 120, height: 50, y: 60
12        superLayer: scroll.content
```
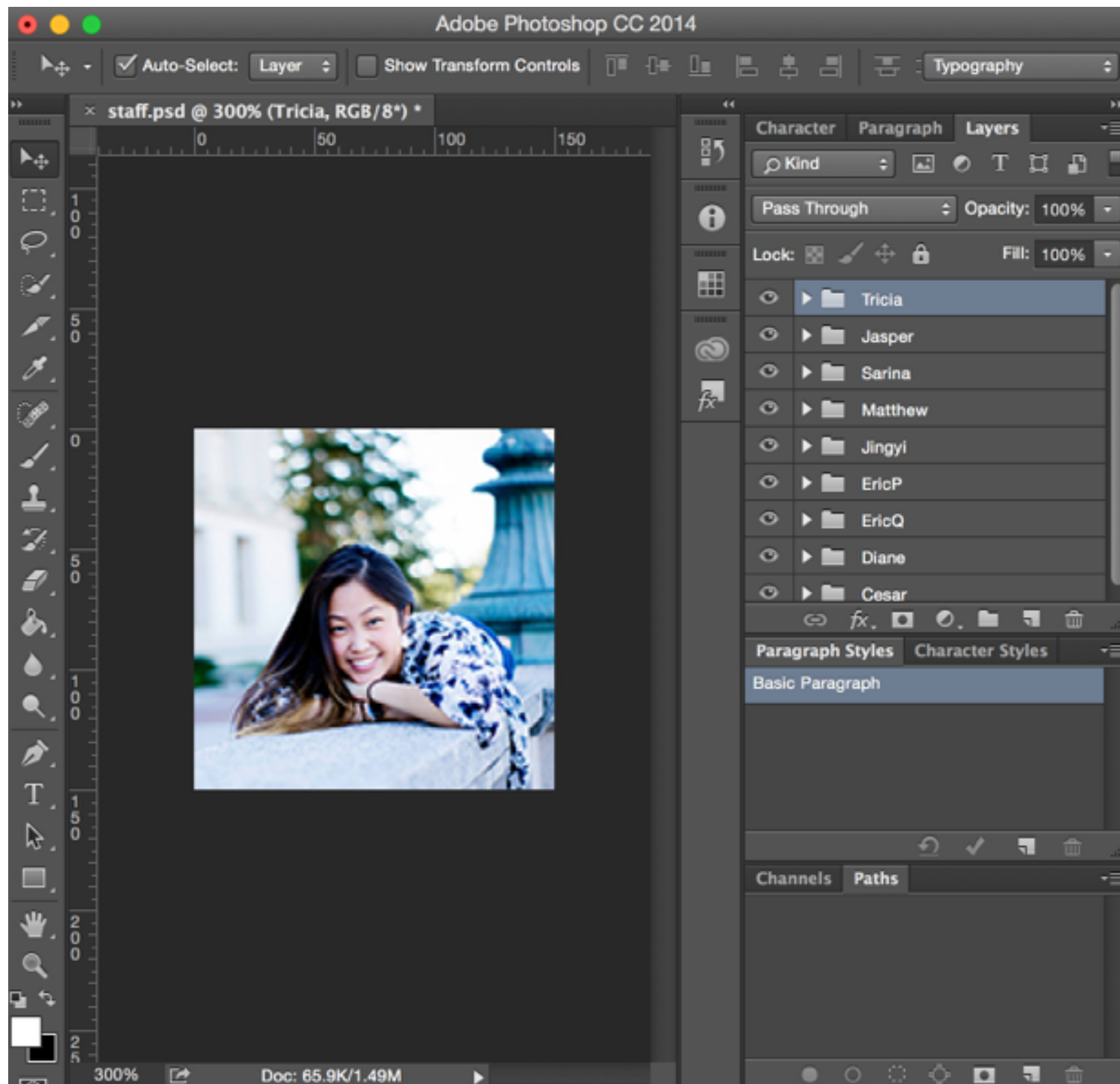
FRAMER QUICK START

```
1    # Create a PageComponent
2    page = new PageComponent
3        width: 120, height: 120
4
5    # Create page layers
6    layerA = new Layer
7        width: 120, height: 120
8        superLayer: page.content
9
10   layerB = new Layer
11       width: 120, height: 120, x: 125
12       superLayer: page.content
```
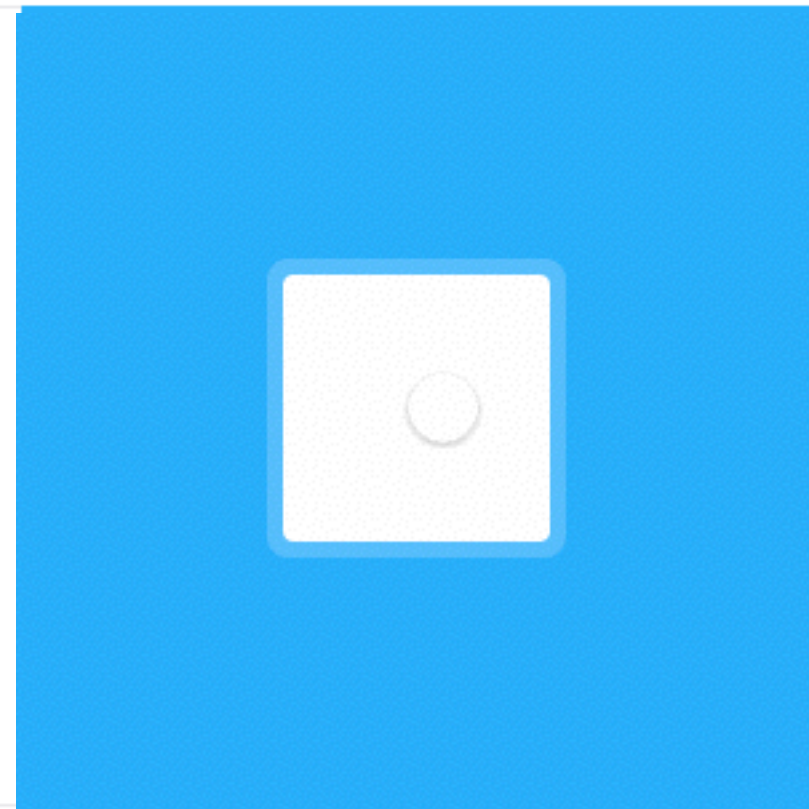
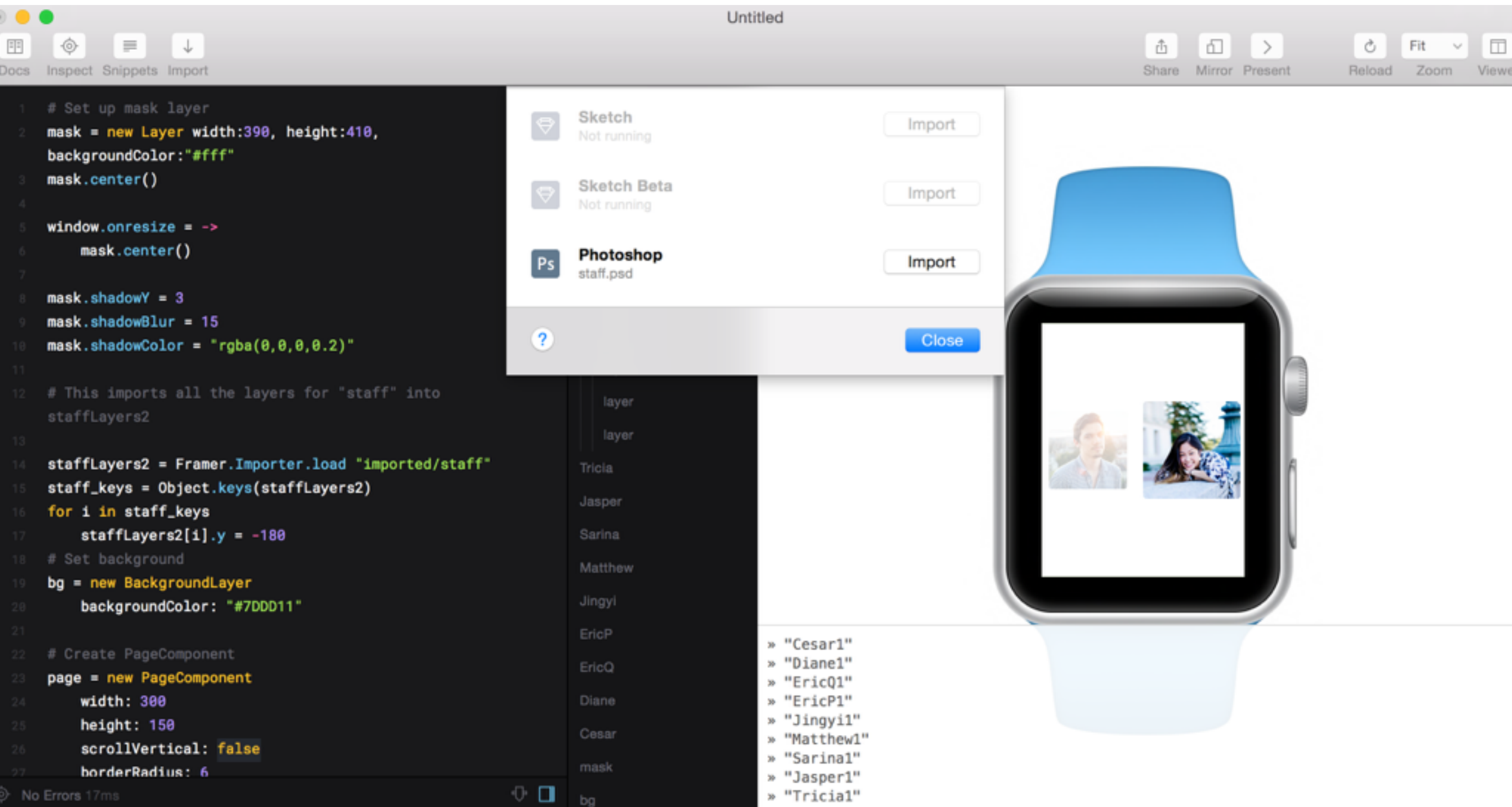# STAFF BROWSER APP

NOTE EACH FRAMER
LAYER IS IN A GROUP

PHOTOSHOP SHORTCUT:
GROUPING

CTRL+G

MacOS Users

KEEP PHOTOSHOP OPEN TO
IMPORT IN FRAMER STUDIO

Window Users

FLATTEN YOUR GROUPS AND
FILE > SCRIPTS > EXPORT LAYERS

CODE WALKTHROUGH

https://bitbucket.org/cs160-staff/section-code
http://bit.ly/1Ln5Tld

EVALUATING INTERFACES

IS THIS A GOOD INTERFACE?

THE MODEL-HUMAN PROCESSOR

"LET'S RUN IT AND TIME IT. IF ITS FAST, ITS GOOD."

Parameter	Mean	Range
Eye movement time	230 ms	70-700 ms
Decay half-life of visual image storage	200 ms	90-1000 ms
Visual Capacity	17 letters	7-17 letters
Decay half-life of auditory storage	1500 ms	90-3500 ms
Auditory Capacity	5 letters	4.4-6.2 letters
Perceptual processor cycle time	100 ms	50-200 ms
Cognitive processor cycle time	70 ms	25-170 ms
Motor processor cycle time	70 ms	30-100 ms
Effective working memory capacity	7 chunks	5-9 chunks
Pure working memory capacity	3 chunks	2.5-4.2 chunks
Decay half-life of working memory	7 sec	5-226 sec
Decay half-life of 1 chunk working memory	73 sec	73-226 sec
Decay half-life of 3 chunks working memory	7 sec	5-34 sec

✓ < 7 chunks

TASK: FINDING YOUR GROUP GSI

HMP

EYE MOVEMENT (230ms) +
PERCEPTUAL PROCESS (100ms) +
COG PROCESS (70ms) +

IMPASSE (∞)   COG PROCESS (70ms) +

MOTOR PROCESS (70ms) +

PHYSICAL PROCESS(100ms) +

Layman's Terms

LOOK AT WATCH
PROCESS RETINA INFO
RECOGNITION: ARE YOU MY GSI?

DO I EVEN KNOW WHAT THEY
LOOK LIKE   NOPE   YES

DECIDE TO SWIPE

SWIPE

BEST-CASE (FIRST ONE): 230 + 100 + 70 + 70 = 470ms
WORST-CASE (LAST ONE): 230 + (100 + 70 + 70 + 70 + 100)(n-1) + (100 + 70 + 70)= 3750ms

MODEL HUMAN PROCESSOR

IN GROUPS, DECIDE

PROS

CONS

MODEL HUMAN PROCESSOR

PROS

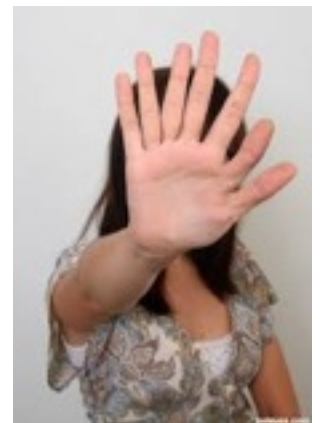IF DONE RIGHT, VERY ACCURATE.

SO CHEAP AND FAST

CONS

IS ANYONE REALLY A MODEL-HUMAN…

BIT TEDIOUS

NOW WHAT? HOW DO YOU IMPROVE?

TIME-CENTRIC. WHAT ABOUT EXPERIENCE?

KEYSTROKE-LEVEL MODEL

"LET'S NOT GO SO LOW LEVEL."

K	200 ms	Key
P	1100 ms	Point
H	400 ms	Home
D	$(900 \cdot n + 160 \cdot l)$ ms	Draw
M	1350 ms	Mentally Prepare

KEYSTROKE-LEVEL MODEL

"LET'S NOT GO SO LOW LEVEL."

K	200 ms	Key
P	1100 ms	Point
H	400 ms	Home
D	$(900*n + 160*l)$ ms	Draw
M	1350 ms	Mentally Prepare
*T	400ms	Tap
*S	900ms	Swipe

* NOT AN ACCURATE CALCULATION

KEYSTROKE-LEVEL MODEL

$U = \{K, T, S\}$

Physical operators (U)

HPTSSSS…S

Add M in front of all physicals not part of a sequence

MHMPMTMSSSS…S

Fully anticipated simplification PMU -> PU

MHMPTMSSSS…S

Evaluate

1350 + 400 + 1350 + 1100 + 400 + 1350 + 900n

K	200 ms	Key
P	1100 ms	Point
H	400 ms	Home
D	$(900*n + 160*l)$ ms	Draw
M	1350 ms	Mentally Prepare
*T	400ms	Tap
*S	900ms	Swipe