Openframeworks
x iPad Game Design (2)

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Topic

- review openframeworks basic architecture
- review basic programming language

- press buttons

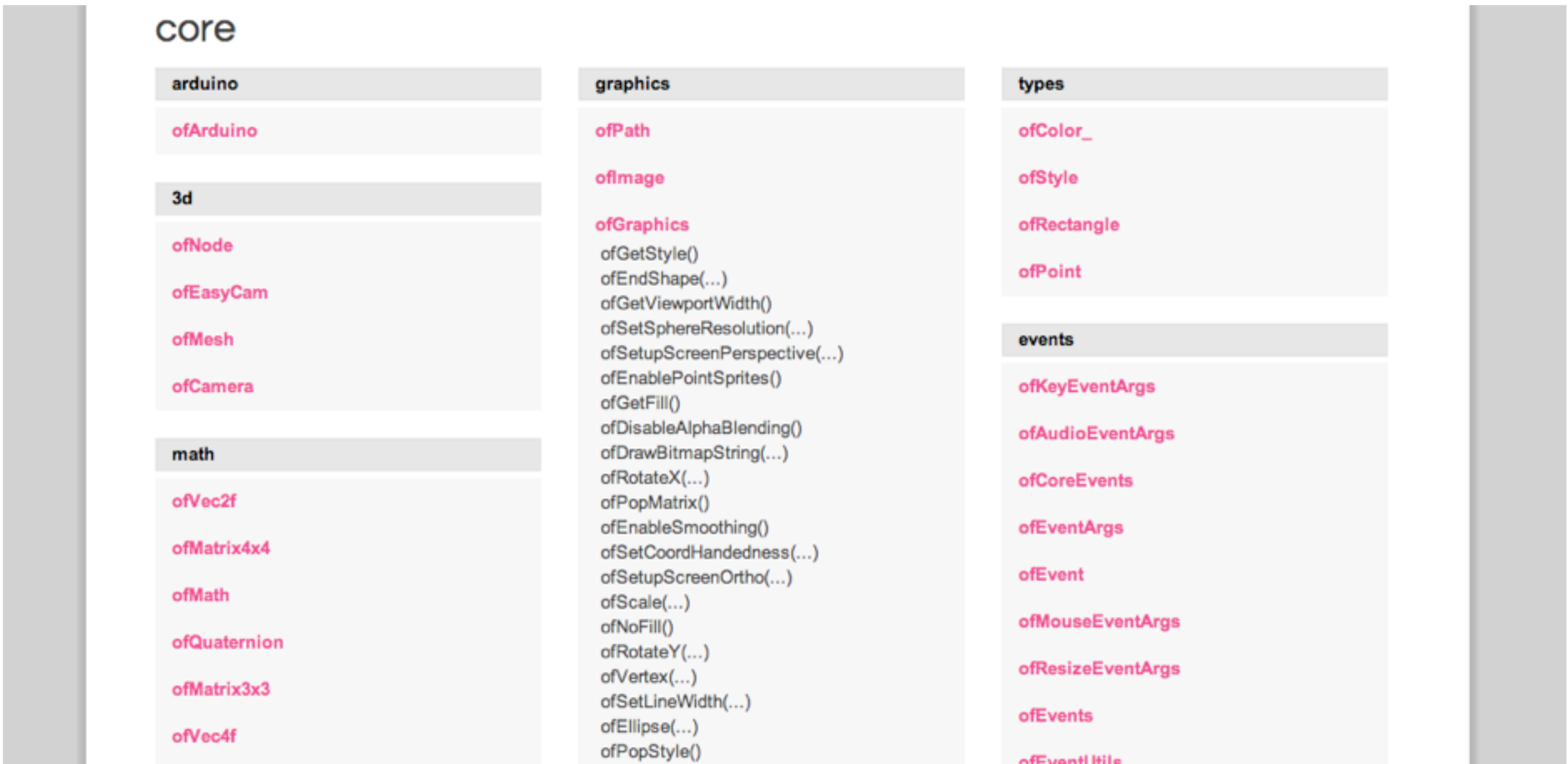
- display current time
  - get current time
  - show text

How to study?

- example code

  graphicsExample, advancedGraphics, soundPlayerExample, ...etc

- online document
  http://www.openframeworks.cc/documentation/



Basic programming language

data type

- int: 1,4, 3 ...etc
- float: 0.24, 0.33, ...etc
- string: “hello world”, “byebye!!”...etc
- bool: true, false
- char: ‘a’, ‘b’, ‘c’, ...etc

array

- int iarr[3]
- float farr[5]
- char carr[2]

if-else

```
int a = 3;
if (a > 0){
    cout<< “YES! a=” << a << endl;
}else{
    cout << “NO! a=” << a <<endl;
}
```

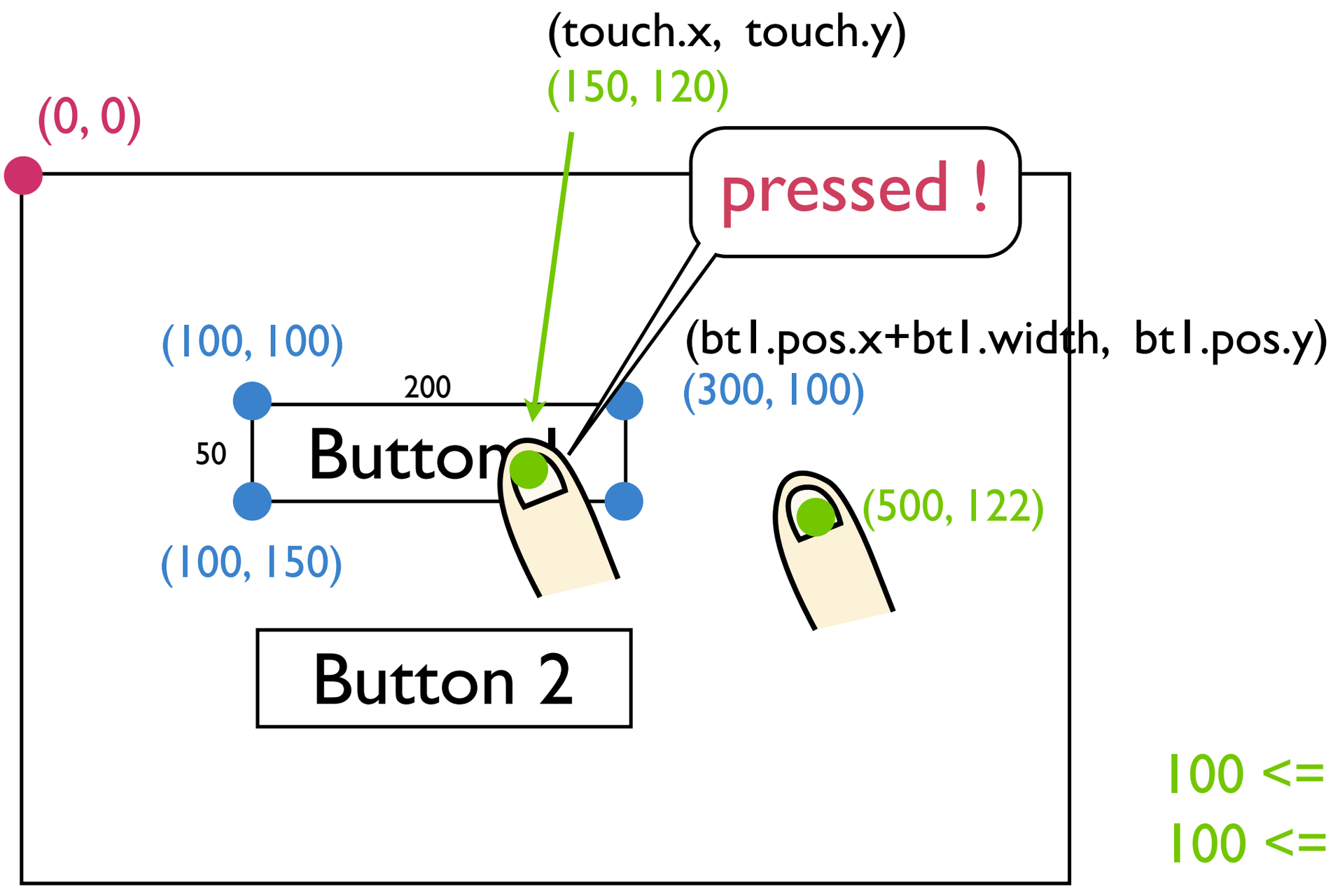
for-loop

```
for(int i=0; i< 5< i++){
     printf(“%d\n”, i );
}
```

function

```
void testFunction(){
    char c[32];
    sprintf(c, “%s, welcome here!”, “Janet”);
    printf(“%s”, c);
}
```

press buttons



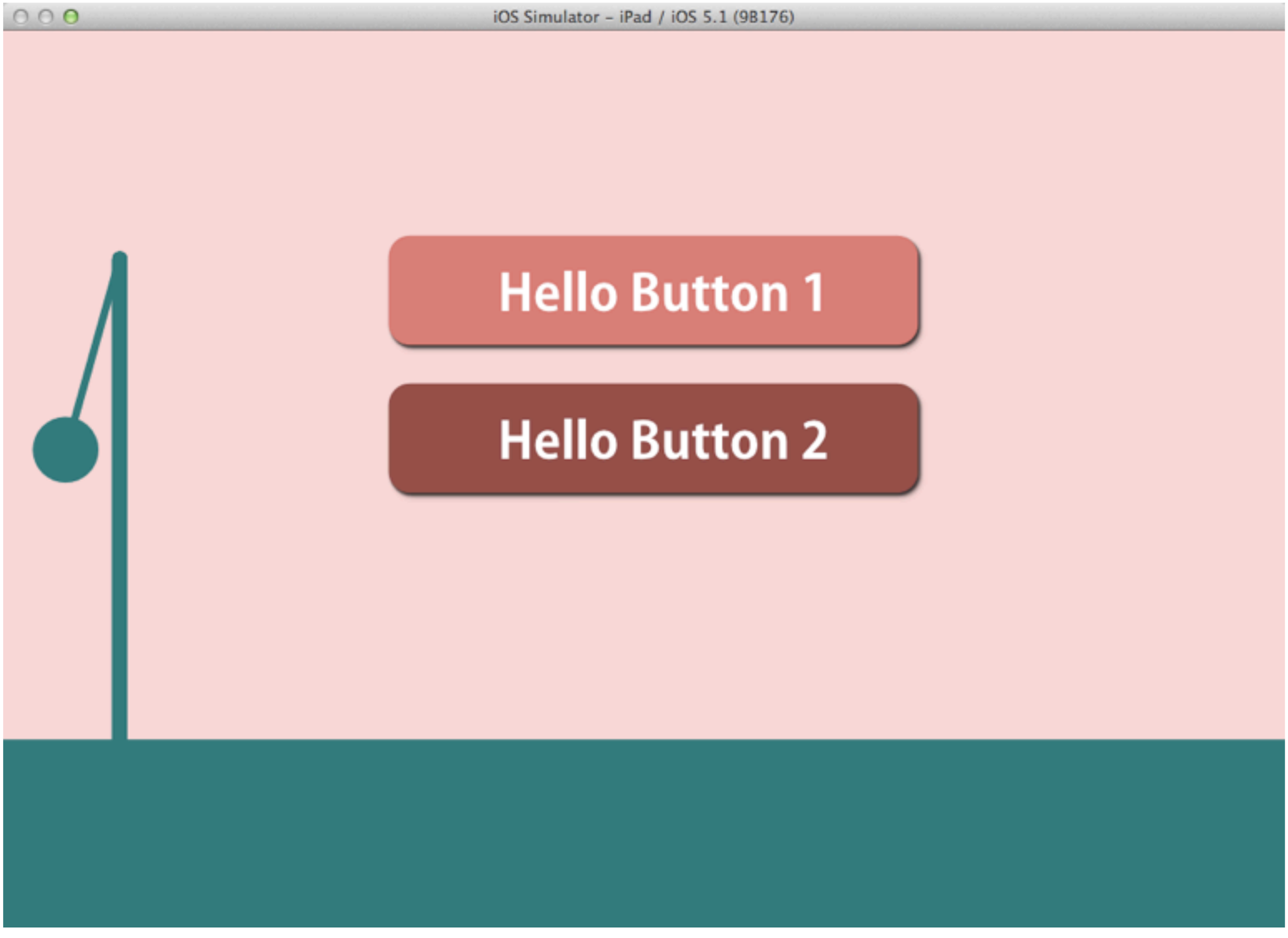
100 <= touch.x <=300
100 <= touch.y <=150

pressed condition

bt1.pos.x <= touch.x <= bt1.pos.x+bt1.width

bt1.pos.y <= touch.y <= bt1.pos.y+bt1.height

press buttons



```
#pragma once

#include "ofMain.h"
#include "ofxiPhone.h"
#include "ofxiPhoneExtras.h"

class testApp : public ofxiPhoneApp {

public:
    void setup();
    void update();
    void draw();
    void exit();

    void touchDown(ofTouchEventArgs &touch);
    void touchMoved(ofTouchEventArgs &touch);
    void touchUp(ofTouchEventArgs &touch);
    void touchDoubleTap(ofTouchEventArgs &touch);
    void touchCancelled(ofTouchEventArgs &touch);

    void lostFocus();
    void gotFocus();
    void gotMemoryWarning();
    void deviceOrientationChanged(int newOrientation);

    ofImage backgroundImg;
    ofImage btImg1[2];
    ofImage btImg2[2];

    bool pressed1;
    bool pressed2;
};
```

testApp.h

```
#include "testApp.h"

void testApp::setup(){
    // register touch events
    ofRegisterTouchEvents(this);

    // initialize the accelerometer
    ofxAccelerometer.setup();

    //iPhoneAlerts will be sent to this.
    ofxiPhoneAlerts.addListener(this);

    //If you want a landscape oreintation
    iPhoneSetOrientation(OFXIPHONE_ORIENTATION_LANDSCAPE_RIGHT);
    ofBackground(0,0,0);

    //load background image
    backgroundImg.loadImage("images/background.png");

    //load button image
    btImg1[0].loadImage("images/bt1.png");
    btImg1[1].loadImage("images/bt1_pressed2.png");
    btImg2[0].loadImage("images/bt2.png");
    btImg2[1].loadImage("images/bt2_pressed2.png");

    pressed1 = false;
    pressed2 = false;
}
```

testApp.m

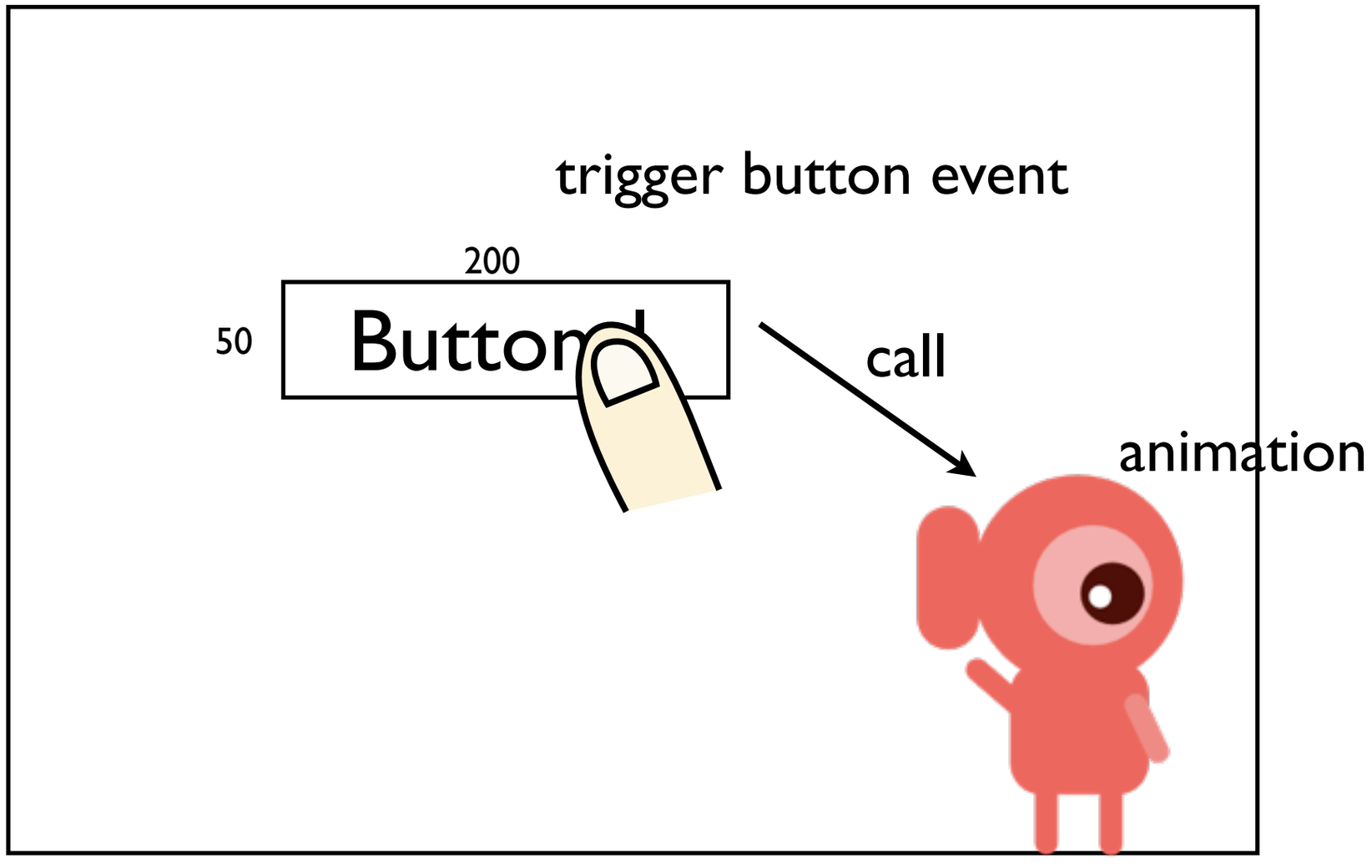
```
void testApp::draw(){
    ofEnableAlphaBlending();
    backgroundImg.draw(0,0);

    //draw button 1
    if (pressed1) {
        btImg1[1].draw(300,200);
    }else {
        btImg1[0].draw(300,200);
    }

    //draw button 2
    if (pressed2) {
        btImg2[1].draw(300,320);
    }else {
        btImg2[0].draw(300,320);
    }
}
```

testApp.m

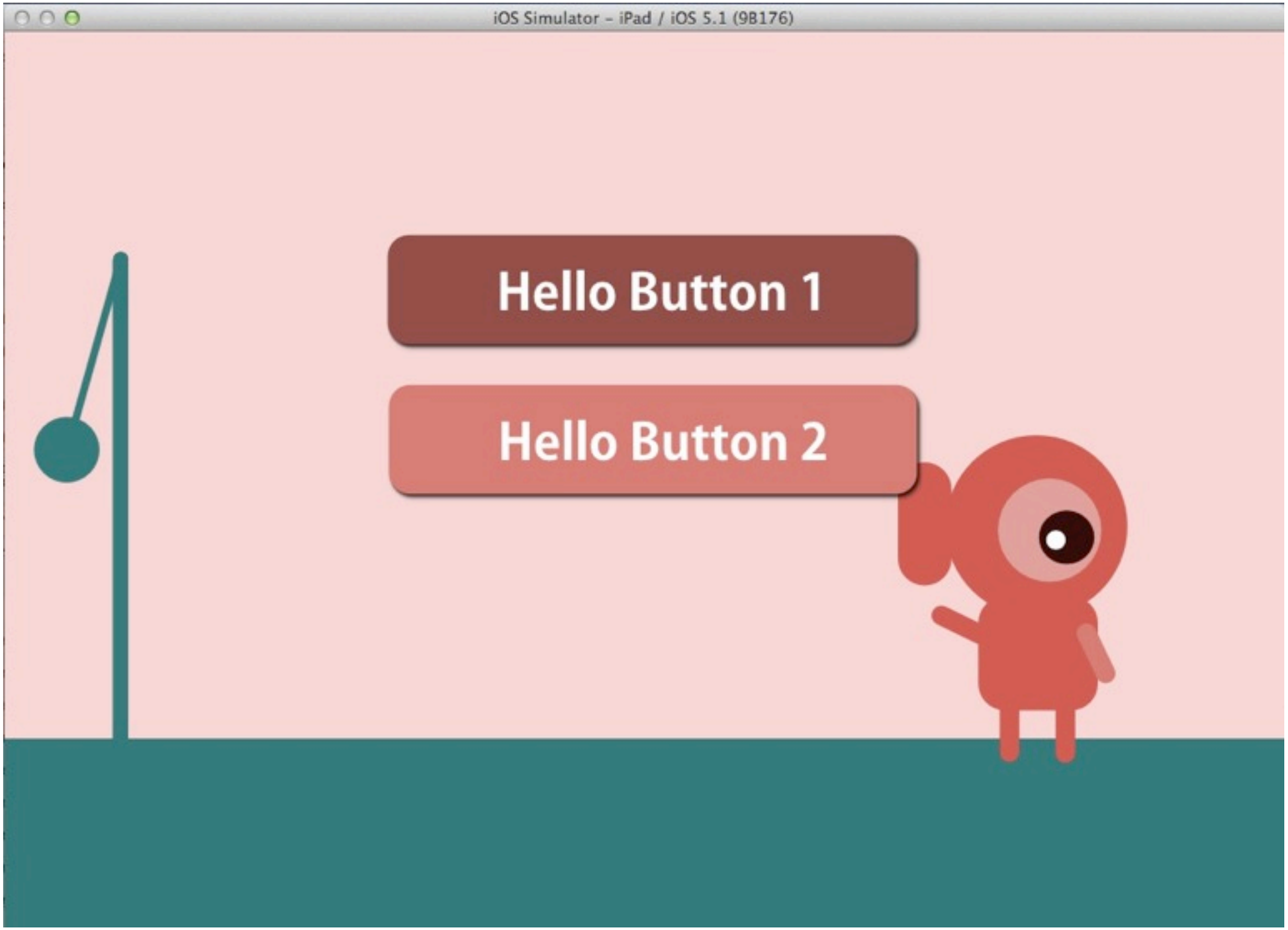
```
void testApp::touchDown(ofTouchEventArgs &touch){
    //check if button 1 is pressed or not
    if ((300 <= int(touch.x)) && (int(touch.x) <= (300+btImg1[0].width))) {
        if ((200 <= int(touch.y)) && (int(touch.y) <= (200+btImg1[0].height))) {
            pressed1 = true;
        }
    }

    //check if button 2 is pressed or not
    if ((300 <= int(touch.x)) && (int(touch.x) <= (300+btImg1[0].width))) {
        if ((320 <= int(touch.y)) && (int(touch.y) <= (320+btImg1[0].height))) {
            pressed2 = true;
        }
    }

}



void testApp::touchUp(ofTouchEventArgs &touch){
    pressed1 = false;
    pressed2 = false;
}
```

testApp.m

press button + animation



press button + animation



```
#pragma once

#include "ofMain.h"
#include "ofxiPhone.h"
#include "ofxiPhoneExtras.h"

#define AINMATIONFRAMENUM 13

class testApp : public ofxiPhoneApp {

public:
    void setup();
    void update();
    void draw();
    void exit();

    void touchDown(ofTouchEventArgs &touch);
    void touchMoved(ofTouchEventArgs &touch);
    void touchUp(ofTouchEventArgs &touch);
    void touchDoubleTap(ofTouchEventArgs &touch);
    void touchCancelled(ofTouchEventArgs &touch);

    void lostFocus();
    void gotFocus();
    void gotMemoryWarning();
    void deviceOrientationChanged(int newOrientation);

    void playAnimation();

    ofImage backgroundImg;
    ofImage animationImg[AINMATIONFRAMENUM];
    ofImage btImg1[2];
    ofImage btImg2[2];

    bool pressed1;
    bool pressed2;

    bool animationPlay;
    int currFrame;
};
```

```
void testApp::setup(){

    ofRegisterTouchEvents(this);
    ofxAccelerometer.setup();
    ofxiPhoneAlerts.addListener(this);
    iPhoneSetOrientation(OFXIPHONE_ORIENTATION_LANDSCAPE_RIGHT);

    ofBackground(0,0,0);

     //load background image
     backgroundImg.loadImage("images/background.png");

     //load button image
     //button 1
     btImg1[0].loadImage("images/bt1.png");
     btImg1[1].loadImage("images/bt1_pressed2.png");

     //button 2
     btImg2[0].loadImage("images/bt2.png");
     btImg2[1].loadImage("images/bt2_pressed2.png");

     ofSetFrameRate(24); // 24fps
     //load animation image
     for (int i = 0; i < AINMATIONFRAMENUM; i++) {
         char char1[32];
         sprintf(char1, "images/creature%d.png", i+1);
         animationImg[i].loadImage(char1);
     }

     pressed1 = false;
     pressed2 = false;

     animationPlay = false;
     currFrame = 0;
}
```

```
void testApp::draw(){
    ofEnableAlphaBlending();
    backgroundImg.draw(0,0);

    //play animation
    playAnimation();

    //draw button 1
    if (pressed1) {
        btImg1[1].draw(300,200);
        animationPlay = true;
    }else {
        btImg1[0].draw(300,200);
    }

    //draw button 2
    if (pressed2) {
        btImg2[1].draw(300,320);
    }else {
        btImg2[0].draw(300,320);
    }
}
```

function playAnimation

```
void testApp::playAnimation(){
    if (animationPlay) {

        if (currFrame < AINMATIONFRAMENUM) {
            animationImg[currFrame].draw(700,350);
        }else {
            animationPlay = false;
            currFrame = 0;
        }
        currFrame++;
    }
}
```

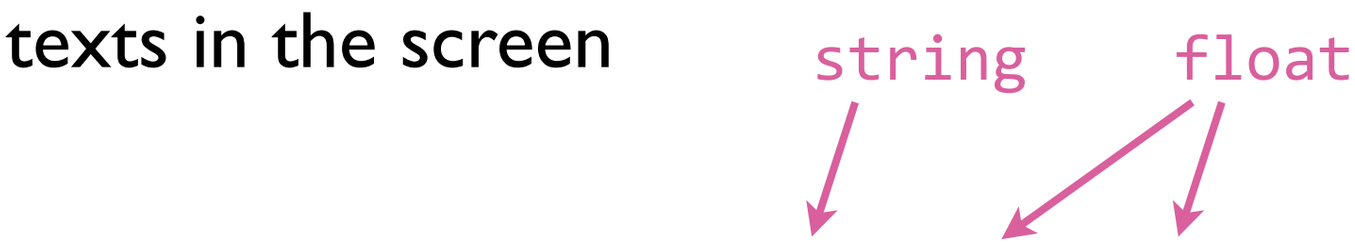
display current time

get current time

It's very easy to get current time in openframeworks

- Hours: ofGetHours();
- Minutes: ofGetMinutes();
- Seconds: ofGetSeconds();

show texts in the screen



```
#include "testApp.h"

int h, m, s; //時、分、秒

void testApp::setup(){
    // register touch events
    ofRegisterTouchEvents(this);

    // initialize the accelerometer
    ofxAccelerometer.setup();

    //iPhoneAlerts will be sent to this.
    ofxiPhoneAlerts.addListener(this);

    //If you want a landscape oreintation
    iPhoneSetOrientation(OFXIPHONE_ORIENTATION_LANDSCAPE_RIGHT);
    ofBackground(0,0,0);
}

void testApp::update(){
    s = ofGetSeconds(); //秒
    m = ofGetMinutes(); //分
    h = ofGetHours(); //時
}

void testApp::draw(){
    char time[32];
    sprintf(time, "%02d : %02d : %02d", h, m, s);

    ofSetColor(255, 255, 255);
    ofDrawBitmapString(time, 20, ofGetHeight()/2);
}
```

Homework

- finish your mockups
- finish buttons and animation in your app
- show your tangible object design