Intro to openFramewoks

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What is openFrameworks?

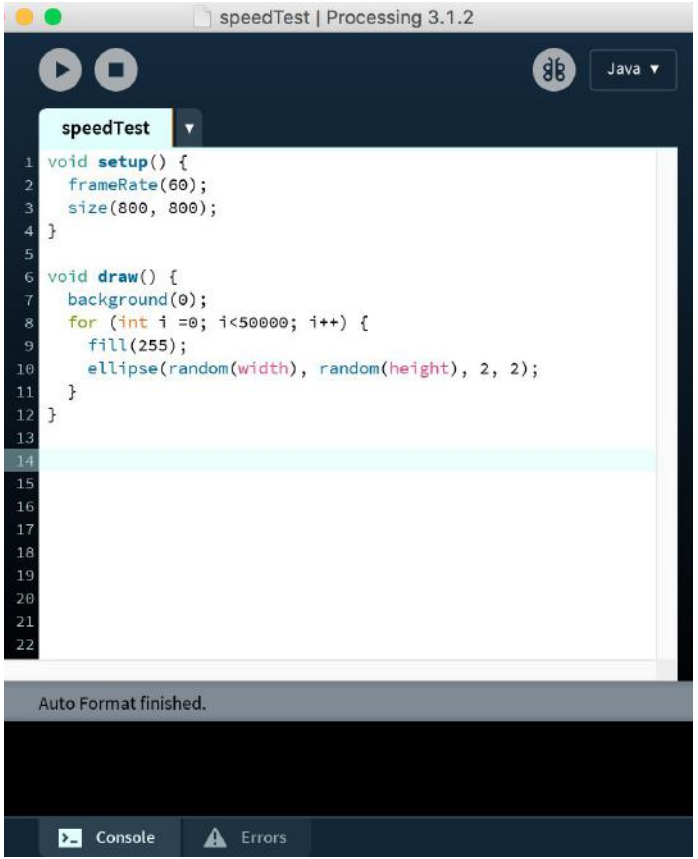
openFrameworks vs. Processing

MISSION

“Rendering 50000 particles”

Processing

1. Own minimal IDE
2. Beginner friendly & Educational purpose
3. Can be published online
4. Build-in memory management *(the reason why it can be slow)*
5. libraries
6. Very wide user base and resources
7. Becomes slow when used heavy-duty



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openFrameworks

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2. C++ based (moderated)
3. Broadest platform support
4. Manage memory by yourself
5. Addons & real C++ libraries
6. Very nice community
7. High performance with 3d graphics
8. FASTERRRRRR!

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openFrameworks

1. Choose a real IDE
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3. Broadest platform support/native application
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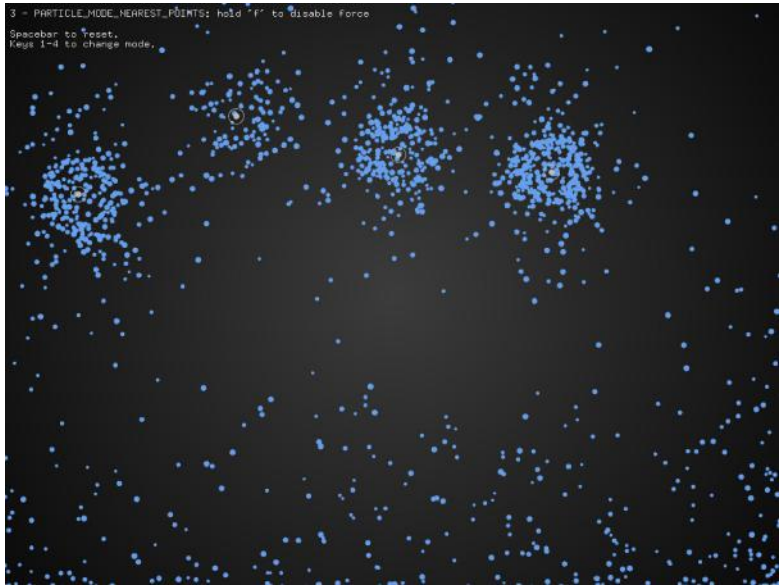
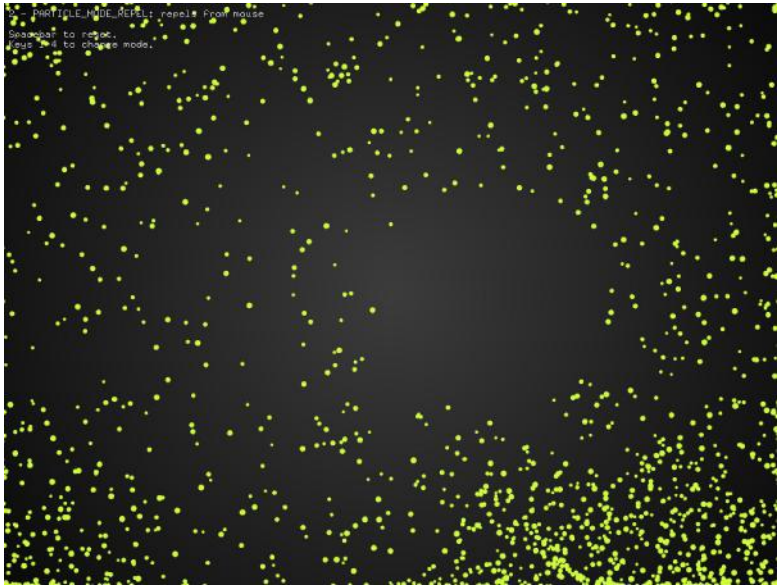
8. FASTERRRRRR!
9. YOU CAN FIND A JOB

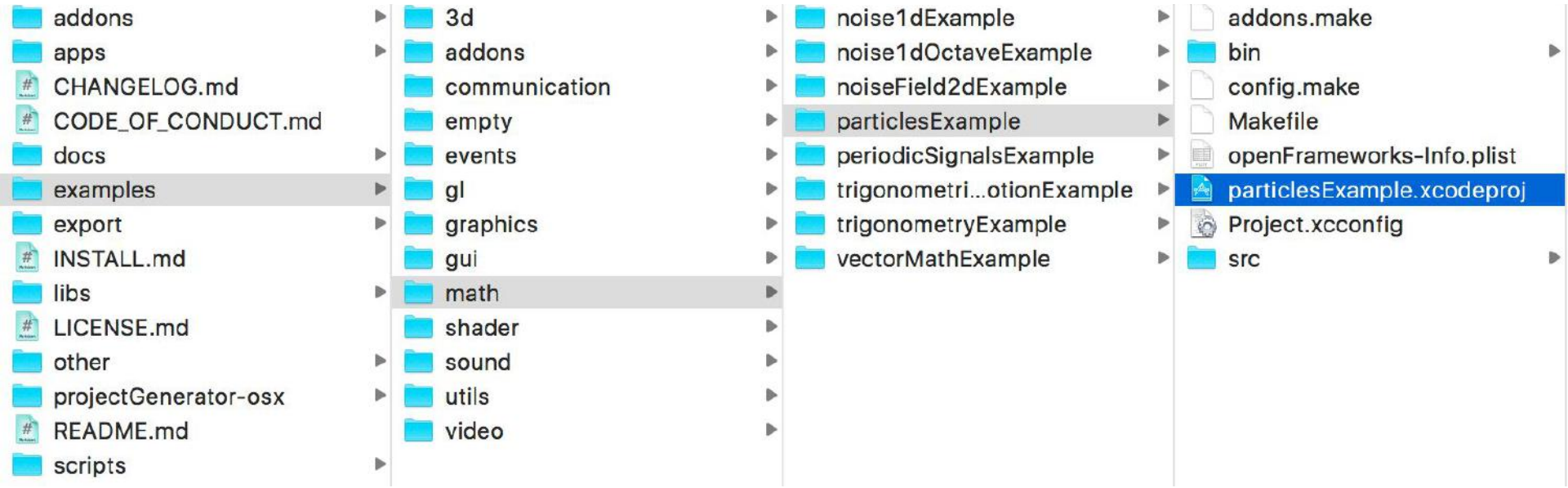
SET IT UP!

http://openframeworks.cc/

Run an example



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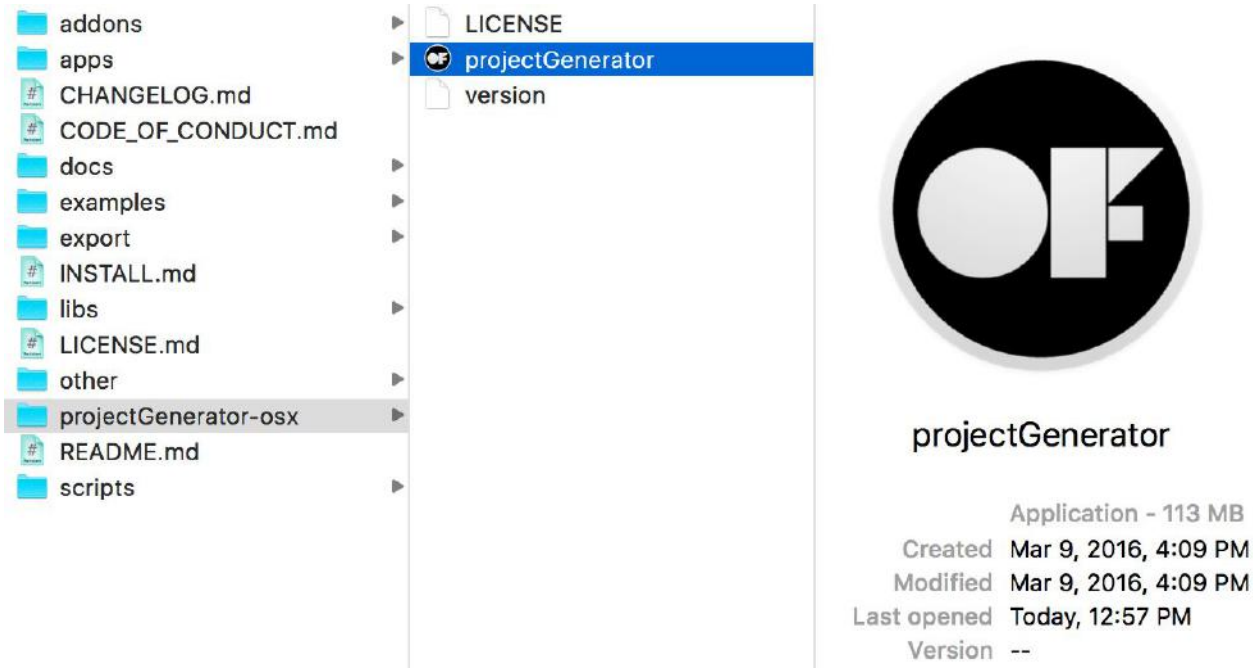
src

create your first OF sketch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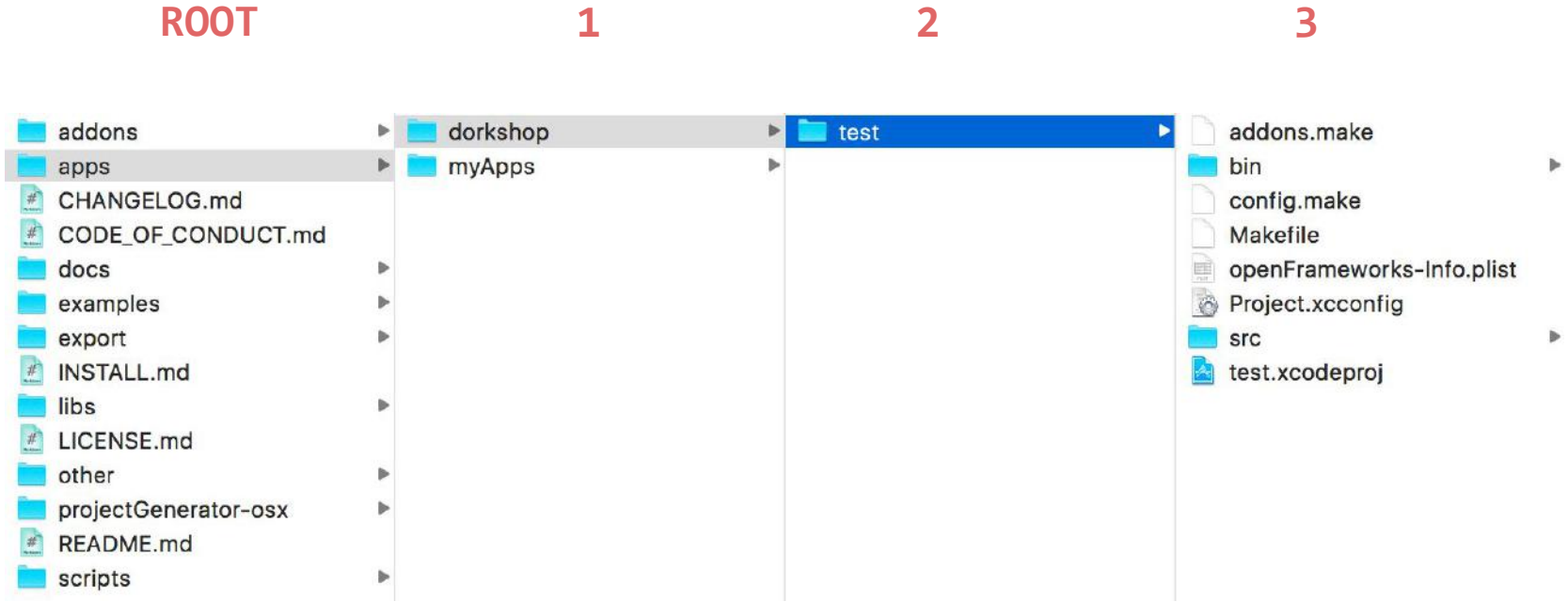
projectGenerator
version
projectGenerator
Application - 113 MB
Created Mar 9, 2016, 4:09 PM
Modified Mar 9, 2016, 4:09 PM
Last opened Today, 12:57 PM
Version --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ofApp.h + ofApp.cpp

ofApp

day9_particle | Particle

```
ArrayList<Particle> particles;
int num = 10;
PVector pos;
float size;
int counter;
Particle[] myParticles = new Particle[num];
```

ofApp.h

ofApp.cpp

```
void setup() {
  size(800, 800);
  particles = new ArrayList<Particle>();
  smooth();
}

void draw() {

  background(255);

  for (int i=0; i<particles.size(); i++) {
    Particle p = particles.get(i);
    p.run();
    p.gravity();
    p.display();

    if (p.y>height) {
      p.bounce();
    }

    if(p.x<0 || p.x>width){
      p.sideBounce();
    }

    if(p.y<0){
      particles.remove(i);
    }
  }
}
```

Header file (.h):

declarations

```
#pragma once

#include "ofMain.h"

class ofApp : public ofBaseApp{

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

        void keyPressed(int key);
        void keyReleased(int key);
        void mouseMoved(int x, int y );
        void mouseDragged(int x, int y, int button);
        void mousePressed(int x, int y, int button);
        void mouseReleased(int x, int y, int button);
        void mouseEntered(int x, int y);
        void mouseExited(int x, int y);
        void windowResized(int w, int h);
        void dragEvent(ofDragInfo dragInfo);
        void gotMessage(ofMessage msg);

    int num;
    float size;
    ofVec3f pos,vel,acc;
    vector<int> myIntegerArrayList;
};
```

CPP file (.cpp):

definitions

```cpp
#include "ofApp.h"

//--------------------------------------------------------------
void ofApp::setup(){
    ofBackground(0);
    ofSetFrameRate(60);
    ofSetBackgroundAuto(false);
    ofSetCircleResolution(60);

}

//--------------------------------------------------------------
void ofApp::update(){

}

//--------------------------------------------------------------
void ofApp::draw(){


    int maxRadius = 60;
    int stepSize = 5;
    int maxDistance = 100;
    int alpha = 3;


    if(ofGetMousePressed(OF_MOUSE_BUTTON_LEFT)){
        for(int radius = maxRadius; radius>0; radius-=stepSize){

            float posX;
            float posY;

            float theta = ofRandom(ofDegToRad(360));
            float r = ofRandom(maxDistance);

            posX = r * cos(theta);
            posY = r * sin(theta);

            //        ofSetColor(255,alpha);

            ofColor aqua(0,220,255,alpha);
            ofColor purple(195, 0, 205, alpha);

            ofColor c = aqua.getLerped(purple, ofRandom(.1,1.));

            ofSetColor(c);

            ofPushMatrix();
            ofTranslate(ofGetMouseX(), ofGetMouseY());
            ofDrawCircle(posX, posY, radius);
            ofPopMatrix();
        }
    }
```