openFrameworks 0.9 Cheat Sheet

Version 0.1
bart@hangaar.net

Default Coordinate System

The coordinate system used is (0,0) for top left, x increasing to right and y increasing downwards. The bottom right point can be found using:

```
ofGetWindowWidth();  // get window width
ofGetWindowHeight(); // get window height
```

Variable Types

int	1, 2, 10, 100, -5, ...
float	0.5, 1.976, 3.14, -3.1, ...
bool	true or false
string	"hello world", ofToString(variable);
ofPoint	2D or 3D point (x,y,z)
ofPolyline	Multiple line segment class

Keyboard & Mouse input

```
ofGetMouseX(); //get x-pos of mouse
ofGetMouseY(); //get y-pos of mouse
if (ofGetMousePressed()) {…}
    //do when mouse pressed;
if (ofGetKeyPressed('c')) {…}
    //do when 'c' pressed;
```

Where to place your code

```
void ofApp::setup()  { // DO ONLY ONCE;     }
void ofApp::update() { // NON-DRAWING CODE; }
void ofApp::draw()   { // DRAWING CODE;     }
```

Framerate

```
ofSetFrameRate(60);//limits framerate to 60 FPS
ofSetVerticalSync(true); //sync with screen
ofSetWindowTitle(ofToString(ofGetFrameRate()));
```

ofImage

```
ofImage image = ofImage("image.jpg"); //load
image.draw(x, y); //draw image at x,y
image.draw(x, y, width, height); //scale
```

Basic Shapes

```
ofDrawLine(x1, y1, x2, y2);
ofDrawCircle(x, y, radius);
ofDrawRectangle(x, y, width, height);
ofDrawTriangle(x1, y1, x2, y2, x3, y3);
ofDrawEllipse(x, y, width, height);
```

Text

```
ofSetWindowTitle("Your app name");
ofDrawBitmapString("yo!", x, y);
ofDrawBitmapStringHighlight("yo!", x, y);
ofToString(variable); // converts to string
ofLog() << "text";    // prints to console;
```

Loops

Repeat the same code multiple times by incrementing a variable

```
for (int i = 0; i < 100; i += 1) {
      //code to execute 100 times
      ofDrawCircle(x,y, 100 - i);
}
```

Colors in RGBA space (red-green-blue-alpha)

A channel is a number between 0 (off) and 255 (on)
Alpha means transparency, 255 being opaque (default)

```
ofColor color = ofColor(r, g, b);
ofSetColor(color);
ofSetColor(r, g, b);
ofSetColor(ofColor::black);
```

Randomness & Noise

```
ofRandom(-10, 10); //random nr between 0 & 10
ofRandomWidth();   //random nr in screen width
ofRandomHeight();  //random nr in screen height
ofNoise(float x);  //1D noise between 0 & 1
ofNoise(float x, float y);   //2D noise [0 & 1]
ofNoise(ofGetElapsedTimef());//noise on time
ofSignedNoise(float x, ...); //noise [-1 & 1]
```

Vectors: collection of objects

```
vector<float> nums; //create vector of floats
nums.push_back(10.5); //add a float to vector
float value = nums[0]; //element at position 0
nums.erase(nums.begin()); //erase first element
int size = nums.size();  //number of elements
nums.clear();            //clear all elements
```

Background

Set background color in setup():

```
ofSetBackgroundColor(ofColor(r, g, b));
```

Disable background in setup():

```
ofSetBackgroundAuto(false);
```

Conditional structures

Do something only in certain conditions:

```
if (value > limit) {
    // code if value is higher then limit
} else {
    // code if the above was false
}
```

Increasing quality in setup()

Tricks to increase visual quality at the cost of cpu usage

```
ofEnableAlphaBlending();   //enable transparancy
ofEnableAntiAliasing();    //enable anti-aliasing
ofEnableSmoothing();       //enable line smooth
ofSetCircleResolution(100);//make nicer circles
```

Declaring Variables

```
int number;  //declares variable "number"
number = 1;  //sets value 1 to number
number += 6; //adds 6 to number (matching 7)
```

Setting sketch resolution

In "main.cpp" source file:

```
ofSetupOpenGL(1024, 768, OF_WINDOW);
ofSetupOpenGL(1920, 1080, OF_FULLSCREEN);
```

Saving images

```
ofImage image;
image.grabScreen(0, 0, width, height);
image.saveImage("file.jpg"); //save to disk
```

Complete tutorials at https://github.com/Kj1/OF_COURCE_ICON and http://openframeworks.cc/ofBook/chapters/foreword.html