Write Your "Angry Bird" Game on Tizen for Fun and Profit

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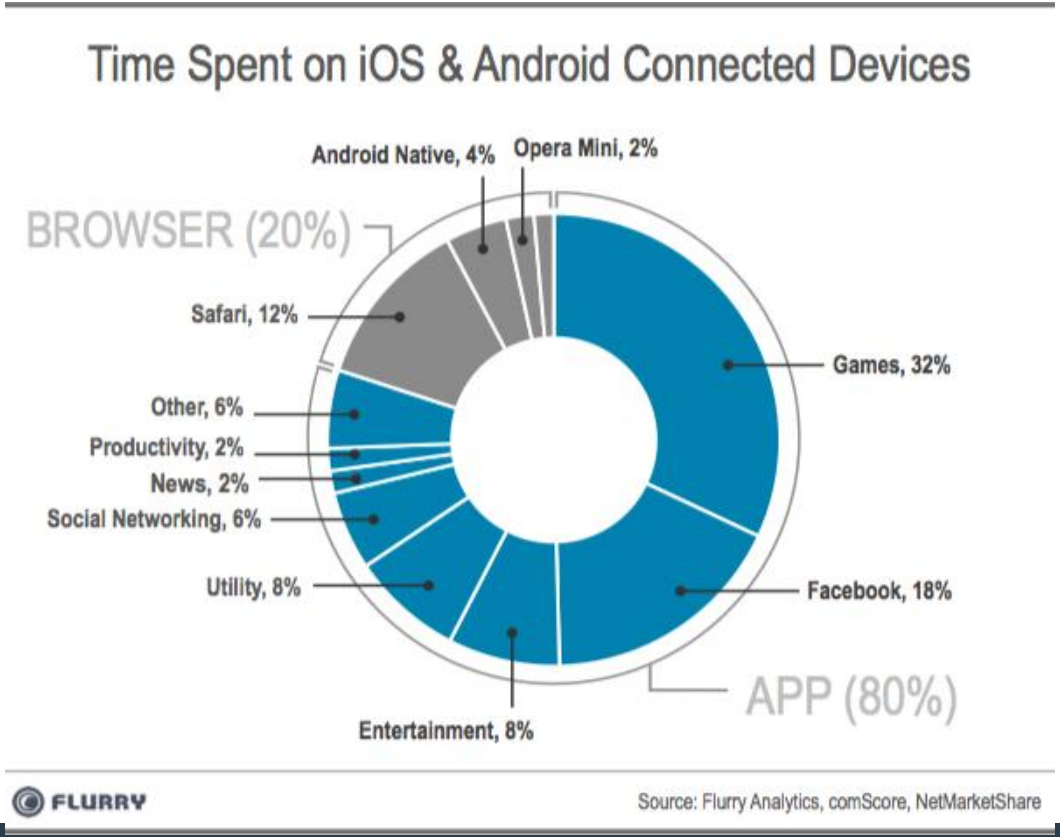
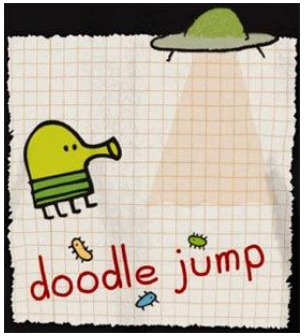
Why?

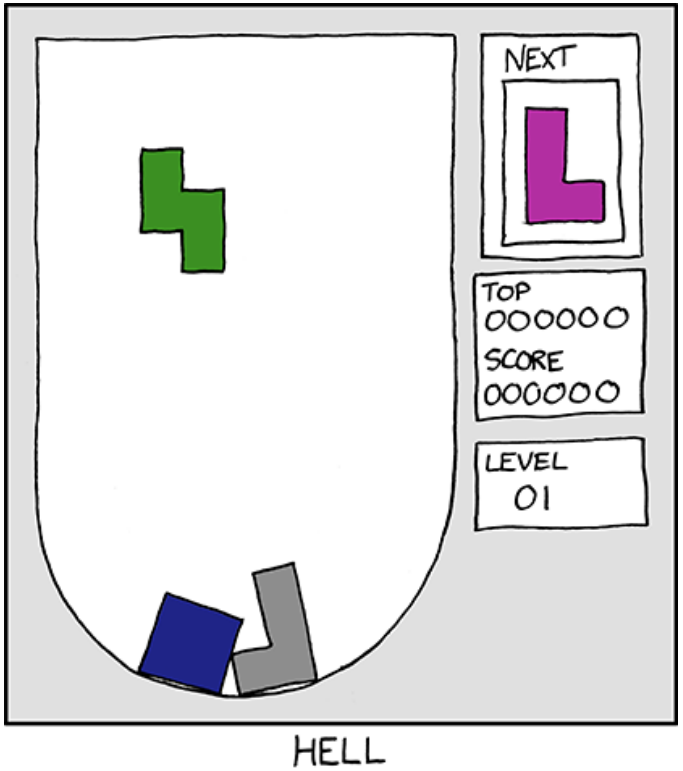
The market is big!



Famous games apps



- **Playing games is fun.**
- **Developing a game is more fun.**



How?

Native app vs Web app

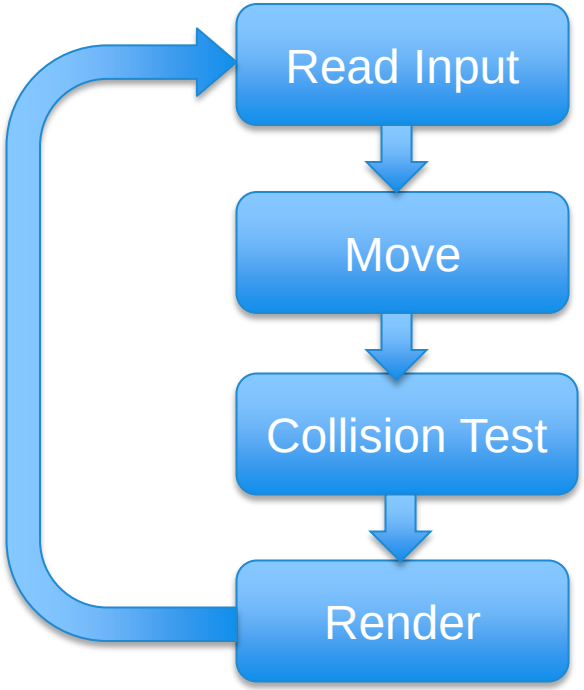
- Tizen now DOES support the native application development.
- Web is the future and it’s cross platform by its nature.
- So a web game app(HTML5) in this talk.

So how to develop a web game app?

If you’re brave enough…

- Write it by yourself from scratch
- Javascript (CoffeeScript, TypeScript etc)
- Canvas(SVG)/WebGL
- WebAudio

Basic Game Loop



Use a Game Engine

- There are many choices, and I choose…

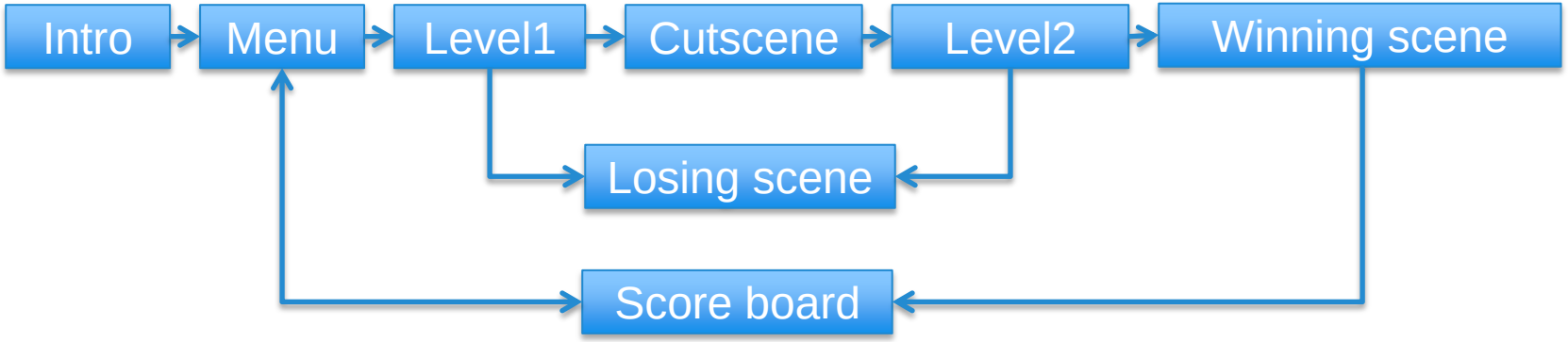
Use a Game Engine

- **cocos2d-html5**

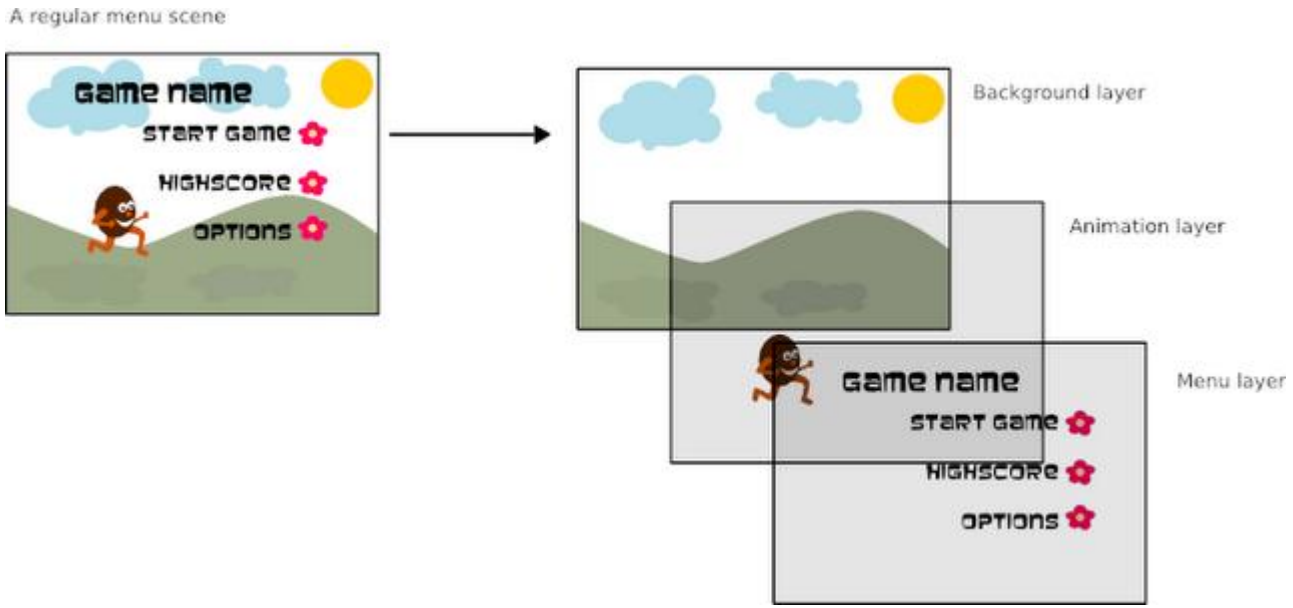
A bit history about cocos2d

- Cocos2d
- Cocos2d for iphone
- Cocos2d-x
- Cocos2d-html5

Basic Workflow



Basic Concepts



Some samples of code

```
var GameLayer = cc.Layer.extend({
      init:function() {
            this._super();

            var sprite = cc.Sprite.create(s_name);
            sprite.setPosition(cc.p(100, 100));
            this.addChild(sprite);
      }
})

var MainScene = cc.Scene.extend({
      onEnter:function () {
            this._super();

            var layer = new GameLayer();    // create a CCLayer
            this.addChild(layer);
            layer.init();
      }
})
```

2D Physics Engine – Box2D

- Developed in C++ at first by Erin Catto
- Then have lots of language ports.
- We would use javascript version.

Basic Concepts in Box2D

- “World” – manages the whole physics simulation.
- “Body” – primary element in Box2D world.
- “Shape” – all the collision geometry attached to a body.
- “Fixture” – attach a shape to a body, sets density, friction and restitution.
- “Joint” – connection between two bodies.

Unit

- **Box2D uses KMS unit system.**

- **Kilograms**
- **Meters (not pixels)**
- **Seconds**

Let’s see some code:

```
// create the world
world = new b2World(new b2Vec2(0, -10),    // gravity vector
                    true);                 // allowing sleeping bodies


// create FixtureDef
var fixDef = new b2FixtureDef;
fixDef.density = 1.0;
fixDef.friction = 0.5;
fixDef.restitution = 0.2;

// create a ground body
var bodyDef = new b2BodyDef;

bodyDef.type = b2Body.b2_staticBody;
fixDef.shape = new b2PolygonShape;
fixDef.shape.SetAsBox(20, 2);              // size (half width/height as the argument)
bodyDef.position.Set(10, -1.8);
world.CreateBody(bodyDef).CreateFixture(fixDef);
```

Create a dynamic box

```
var bodyDef = new b2BodyDef();
bodyDef.type = b2Body.b2_dynamicBody;                    // specify the dynamic body here!
bodyDef.position.Set(p.x / PTM_RATIO, p.y / PTM_RATIO);
bodyDef.userData = sprite;                               // link Box2D to our sprite
var body = world.CreateBody(bodyDef);

var dynamicBox = new b2PolygonShape();
dynamicBox.SetAsBox(0.5, 0.5);    //1m box

// Define the dynamic body fixture.
var fixtureDef = new b2FixtureDef();
fixtureDef.shape = dynamicBox;
fixtureDef.density = 1.0;
fixtureDef.friction = 0.3;
body.CreateFixture(fixtureDef);
```

Draw the objects from Box2D

```
update:function (dt) {
      var velocityIterations = 8;
      var positionIterations = 1;

      // Instruct the world to perform a single step of simulation. It is
      // generally best to keep the time step and iterations fixed.
      this.world.Step(dt, velocityIterations, positionIterations);

      //Iterate over the bodies in the physics world
      for (var b = this.world.GetBodyList(); b; b = b.GetNext()) {
          if (b.GetUserData() != null) {
              var myActor = b.GetUserData();
              myActor.setPosition(cc.p(b.GetPosition().x * PTM_RATIO, b.GetPosition().y * PTM_RATIO));
              myActor.setRotation(-1 * cc.RADIANS_TO_DEGREES(b.GetAngle()));
          }
      }
}
```

Classic Box2D Demo

To make it more like Angry Bird, we need:

- A place to shoot the bird
- Some blocks, wood, house
- The monsters

My “Angry Bird” Demo

More…

- Sound effects
- Shiny graphics (I need an artist!)

Profits Part

- Sell it on Tizen app store
- Add some ads
- In App Purpose

References:

- https://github.com/cocos2d/cocos2d-html5
- http://box2d-js.sourceforge.net/
- http://blog.flurry.com/bid/95723/Flurry-Five-Year-Report-It-s-an-App-World-The-Just-Web-Lives-in-It
- http://xkcd.com/724/
- http://www.cocos2d-iphone.org/wiki/doku.php/prog_guide:basic_concepts

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