

Code & Play



Hello



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Our goals



Coder un jeu web



Découvrir Phaser



Se faire plaisir

Progress

1. **Présentation Phaser**
2. **Présentation du code/Git**
3. **Concepts puis réalisation du jeu
"Step by step"**
4. **Temps d'expérimentation et de fun**

The game to build

ARKANOID



Phaser



Phaser

Framework de jeu 2D en HTML5/JS pour le web mobile et desktop

Exploite WebGL et Canvas

(se base sur PIXI.JS pour le rendu d'affichage)

Accent mis sur les performances web mobiles

Features

- **Sprites / Animation**
- **Particules**
- **Moteurs physique (3 par défaut, possibilité d'en ajouter)**
- **Camera**
- **Tilemaps (décors en tuiles, comme sur les 1ers Zelda)**
- **Sons (musiques / effets sonores)**
- **Etc....**

Code
Git



TUTORIAL

```
git clone https://github.  
com/alvinberthelot/phaser-example-arkanoid
```

```
cd phaser-example-arkanoid
```

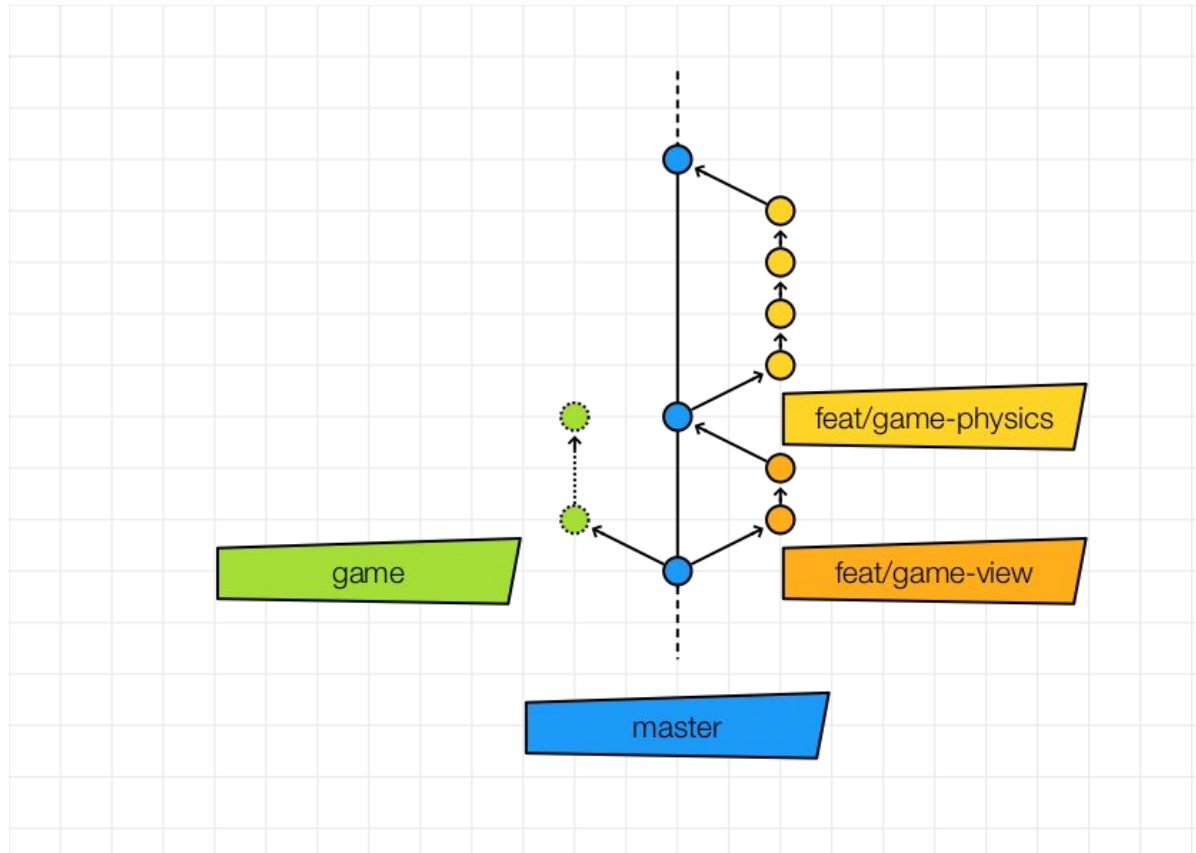
```
npm install
```

```
gulp
```

```
localhost:3000
```

TUTORIAL

git checkout game



Press
start



Phaser init

```
var Phaser = require('phaser');
var SCALE = 3;
var game = new Phaser.Game(
  120 * SCALE,
  60 * SCALE,
  Phaser.AUTO,
  'phaser-example-arkanoid',
  {
    preload: _preload,
    create: _create,
    update: _update
  },
  false,
  false
);
```

Loading assets

```
function _preload() {  
    game.load.image('ball', 'game/assets/ball.png');  
}
```

Add sprite

```
function _create() {  
    var ball = game.add.sprite(x, y, 'ball');  
}
```

Change game

```
function _update() {  
  if(ball.x > ...) {  
    ...  
  }  
}
```


UNLOCK LEVEL 1

- 1. Add background colour to the game**
- 2. Show ball in the game**

PASSWORD LEVEL 1

```
git checkout feat/game-view
```

Add life to your sprite

```
function _update() {  
    ball.x += 10;  
}
```

Add physics

```
function _create() {  
    ...  
    game.physics.enable(ball, Phaser.Physics.ARCADE);  
}
```

Velocity

```
function _create() {  
    ...  
    var angle = 0;  
    ball.body.velocity.setTo(  
        Math.cos(angle) * ballSpeed,  
        Math.sin(angle) * ballSpeed  
    );  
}
```

Collide

```
function _create() {  
  ...  
  ball.body.collideWorldBounds = true;  
}
```

Keep dynamic

```
function _create() {  
    ...  
    ball.body.bounce.set(1);  
}
```

UNLOCK LEVEL 2

- 1. Move the ball in the old school way**
- 2. With physics the ball can't exit**
- 3. Use velocity instead of the old school way and add bounce**

PASSWORD LEVEL 2

```
git checkout feat/game-physics
```

Add controls

```
function _create() {
    ...
    cursor = game.input.keyboard.createCursorKeys();
}

function _update() {
    ...
    bar.body.velocity.x = 0;
    if (cursor.left.isDown) {
        bar.body.velocity.x = - barSpeed * SCALE;
    } else if (cursor.right.isDown) {
        bar.body.velocity.x = barSpeed * SCALE;
    }
}
```

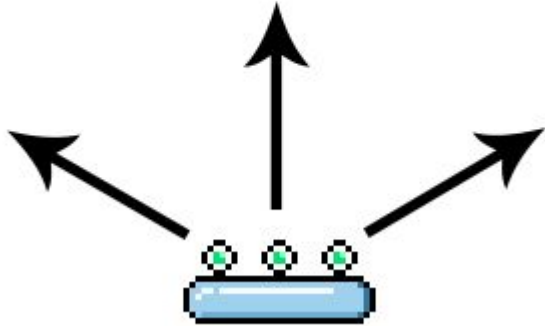
Collide bar / ball

```
function _create() {  
    ...  
    bar.body.immovable = true;  
}  
  
function _update() {  
    ...  
    game.physics.arcade.collide(bar, ball, null, null, this);  
}
```

Action when collide

```
function _update() {  
    ...  
    game.physics.arcade.collide(bar, ball, null, _reflect,  
this);  
  
}  
  
function _reflect(bar, ball) {  
    ...  
}
```

Action when collide



```
function _reflect(bar, ball) {
  if (ball.y > (bar.y + 5)) {
    return true;
  } else {
    var rate = (1 - (ball.x + ball.width * 0.5 -
bar.x) / bar.width);
    if(rate < 0.1) rate = 0.1;
    if(rate > 0.9) rate = 0.9;
    var angle = - Math.PI*rate;
    ball.body.velocity.setTo(
      Math.cos(angle) * ballSpeed,
      Math.sin(angle) * ballSpeed
    );
    return false;
  }
}
```

UNLOCK LEVEL 3

- 1. Add a bar and move it with the keyboard**
- 2. Add physics between ball and bar**
- 3. Calculate new angle when ball touch bar**

PASSWORD LEVEL 3

```
git checkout feat/game-keyboard
```

Create a brick

```
function _create() {  
    ...  
    var brick = game.add.sprite(x, y, 'brick');  
    brick.scale.set(SCALE);  
    game.physics.enable(brick, Phaser.Physics.ARCADE);  
    brick.body.immovable = true;  
}
```


Collide ball / brick

```
function _update() {  
    ...  
    game.physics.arcade.collide(ball, brick, null, null, this);  
}
```

Group of brick

```
function _createBricks() {
  var bricks = game.add.group();
  var widthBrick = game.cache.getImage('brick').width;
  var heightBrick = game.cache.getImage('brick').height;
  for (var i = 0; i < 10; i++) {
    for (var j = 0; j < 6; j++) {
      var brick = _createOneBrick(
        widthBrick * SCALE * i,
        heightBrick * SCALE * j,
        'brick');
      bricks.add(brick);
    }
  }
  return bricks;
}
```

Kill a brick

```
function _update() {  
    ...  
    game.physics.arcade.collide(  
        ball, bricks,  
        null, _breakBrick, this);  
}  
  
function _breakBrick(ball, brick) {  
    brick.kill();  
    return true;  
}
```

UNLOCK LEVEL 4

- 1. Create a brick**
- 2. Create a group of bricks**
- 3. Kill a brick when the ball touch it**

PASSWORD LEVEL 4

```
git checkout feat/game-bricks
```

Pause

```
function _create() {  
    ...  
    game.paused = true;  
  
    spaceKey =  
    game.input.keyboard.addKey(Phaser.Keyboard.SPACEBAR);  
  
    spaceKey.onDown.add(function() {  
        game.paused = !game.paused;  
    }, this);  
}
```

UNLOCK LEVEL 5

- 1.** Init bar, ball and bricks with game dimensions
- 2.** Game paused by default
- 3.** Toggle pause with spacebar

PASSWORD LEVEL 5

```
git checkout feat/game-paused
```


Show text

```
var message;
var style = {
  font: '32px Arial',
  fill: '#ffffff'
};

message = game.add.text(
  game.width * 0.5,
  game.height * 0.5,
  'Ready ?',
  style);
message.anchor.set(0.5);

message.text = 'Bye';
```

Prepare WebFont

// The Google WebFont Loader will look for this object, so create it before loading the script.

```
WebFontConfig = {
  active: function() {
    game.time.events.add(
      Phaser.Timer.SECOND,
      _createMessage,
      this);
  },
  google: {
    families: ['Pacifico', 'Cookie']
  }
};
```

Use WebFont

```
function _preload() {
    ...
    // Load the Google WebFont Loader script
    game.load.script(
        'webfont',
        '//ajax.googleapis.com/ajax/libs/webfont/1.4.7/webfont.js');
}

var style = {
    font: '32px Cookie',
    fill: '#ffffff'
};
```

UNLOCK LEVEL 6

- 1. Show text when game paused**
- 2. Load web font**
- 3. Show text when win or lose**

PASSWORD LEVEL 6

```
git checkout feat/game-text
```

Class Brick

```
var Brick = function(game, x, y, image) {
  Phaser.Sprite.call(this, game, x, y, 'brick');
  this.scale.set(SCALE);
  this.game.physics.enable(this, Phaser.Physics.ARCADE);
  this.body.immovable = true;
};
Brick.prototype = Object.create(Phaser.Sprite.prototype);
Brick.prototype.constructor = Brick;

var brick = new Brick(...);
```

Handle events

```
Brick.prototype = Object.create(Phaser.Sprite.prototype);
Brick.prototype.constructor = Brick;

Brick.prototype.destruct = function() {
    this.events.onKilled.addOnce(this._onKillHandler, this);
    this.kill();
};

Brick.prototype._onKillHandler = function() {
    ...
};
```

Particles

```
Brick.prototype._onKillHandler = function() {
  var emitter = this.game.add.emitter(0, 0, 100);
  emitter.makeParticles('brick-dust');
  emitter.x = this.x + this.width * 0.5;
  emitter.y = this.y + this.height * 0.5;
  emitter.minParticleSpeed.setTo(-50 * SCALE, -50 * SCALE);
  emitter.maxParticleSpeed.setTo(50 * SCALE, 50 * SCALE);
  emitter.minParticleScale = 1 * SCALE;
  emitter.maxParticleScale = 1.5 * SCALE;
  emitter.start(true, 300, null, 10);

  this.game.time.events.add(2000, function() {
    emitter.destroy();
  });
};
```


UNLOCK LEVEL 7

- 1. Create specific class for brick**
- 2. Destroy bricks with particles**

PASSWORD LEVEL 7

```
git checkout feat/game-particles
```

Gamepad

```
function _create() {
    ...
    game.input.gamepad.start();
    gamepad1 = game.input.gamepad.pad1;
}
function _update() {
    ...
    var mainAxis =
    gamepad1.axis(Phaser.Gamepad.XBOX360_STICK_LEFT_X);
    if (gamepad1.isDown(Phaser.Gamepad.XBOX360_DPAD_LEFT)
    || mainAxis < -0.1) {
        bar.body.velocity.x = - barSpeed * SCALE;
    }
    ...
}
```

Audio

```
function _preload() {  
    ...  
    // Load sounds  
    game.load.audio('sound', 'game/assets/sounds/sound1.ogg');  
}  
function _create() {  
    ...  
    sound = game.add.audio('sound');  
}  
function _update() {  
    ...  
    sound.play();  
}
```

BONUS LEVEL



Your rules

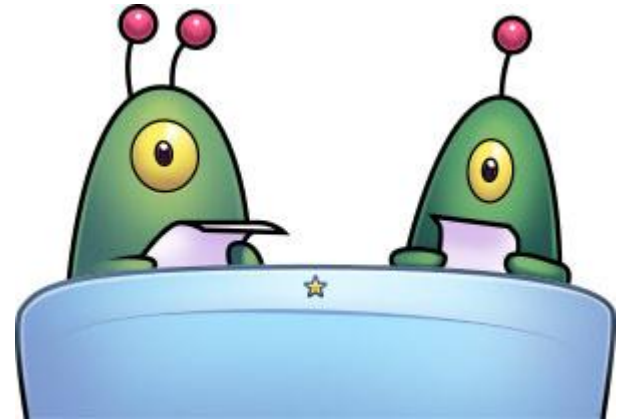


Add sounds



Try gamepad

Questions



Thank
you

