



# Construindo Jogos com Flash e Actionscript3 + Oboé

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# Agenda

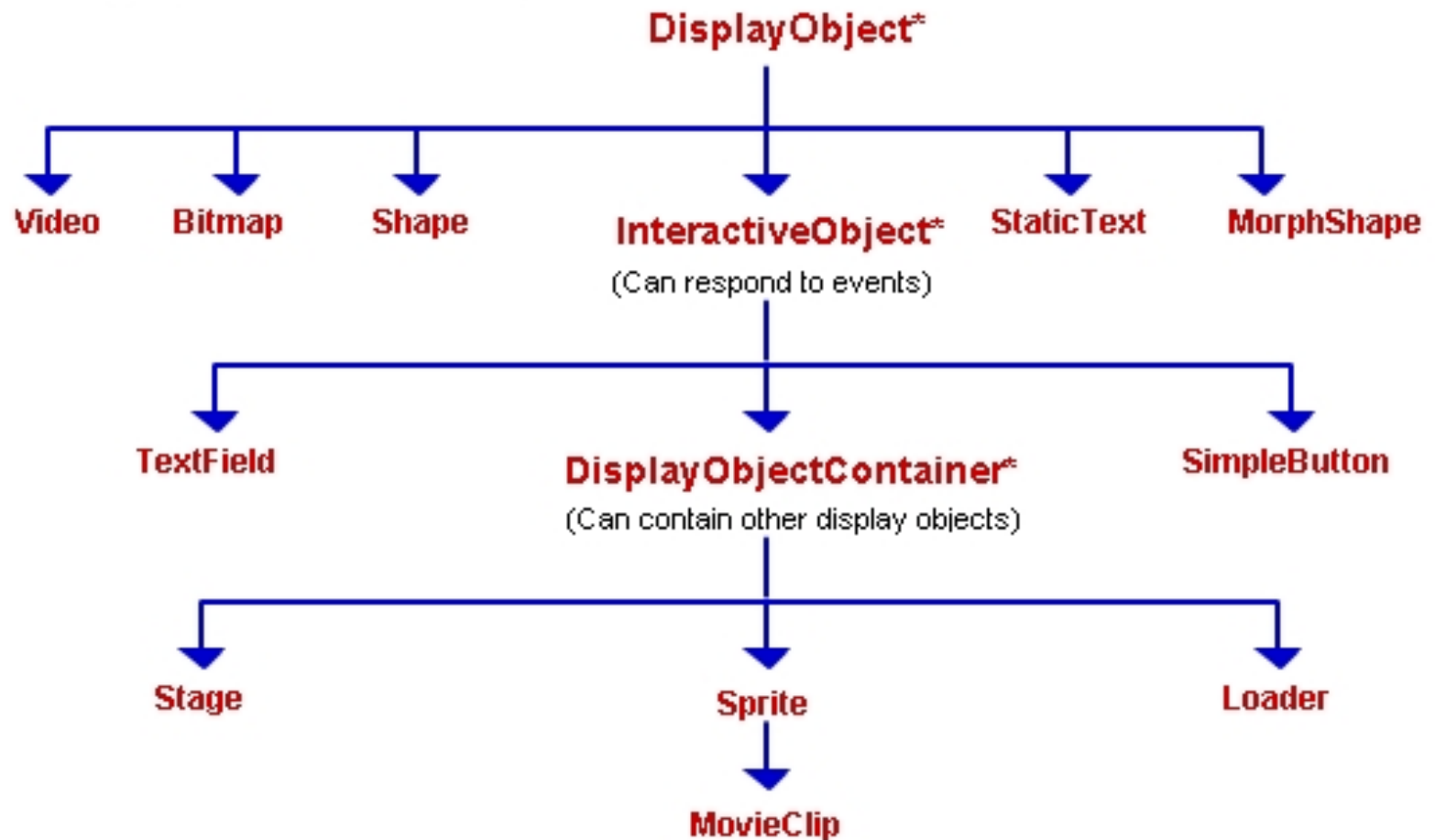
- Detalhes da linguagem
- Classes Principais
- Ferramentas
- Construindo um jogo

# Detalhes da linguagem

- Muito parecido com java.
  - Tem garbage collector, tem maquina virtual, é Orientada a Objetos, A melhor IDE é baseada no eclipse ☺...
- Com algumas diferenças basicamente de sintaxe:
  - Declaração de variáveis
  - Declaração de funções
  - Alguns operadores === !==
  - Mais detalhes: <http://www.adobe.com/devnet/actionscript/learning.html>

# Visual Classes

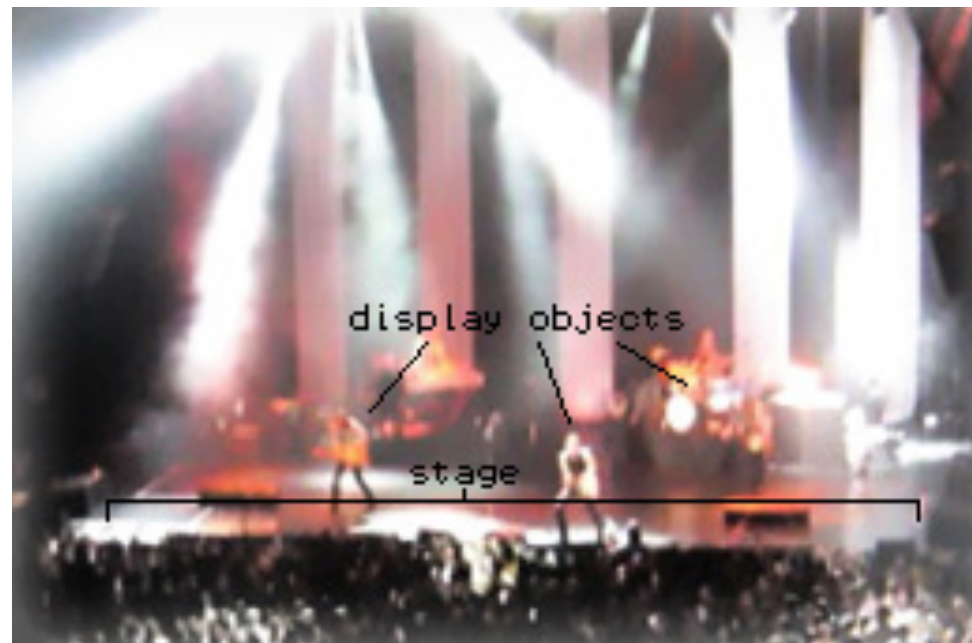
## Core Display Classes Hierarchy:



(\* Pseudo-abstract classes -- cannot be instantiated)

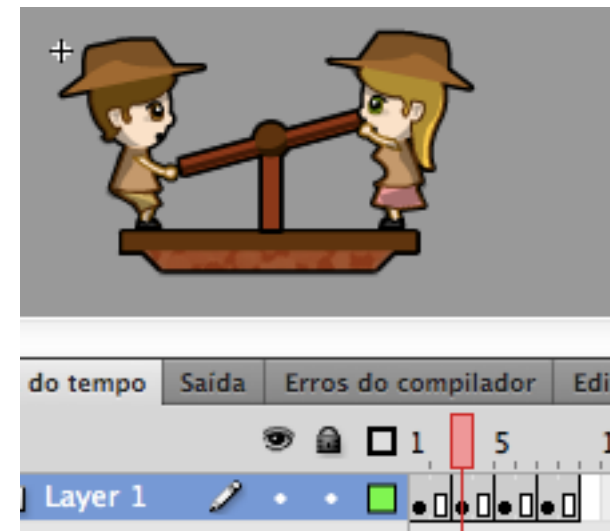
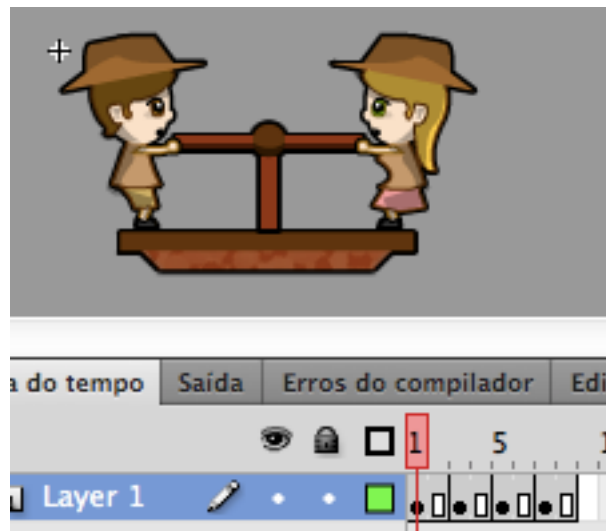
# DisplayObject e Stage

- Stage é a área principal de desenho no flash onde os displayObjects são inseridos.



# Sprite e MovieClip

- O Sprite representa um container de displayObjects
- MovieClip herda as funcionalidades de Sprite adicionando as funções de timeline
- MovieClips são bastante usados para construção de animações



# Ferramentas



FL

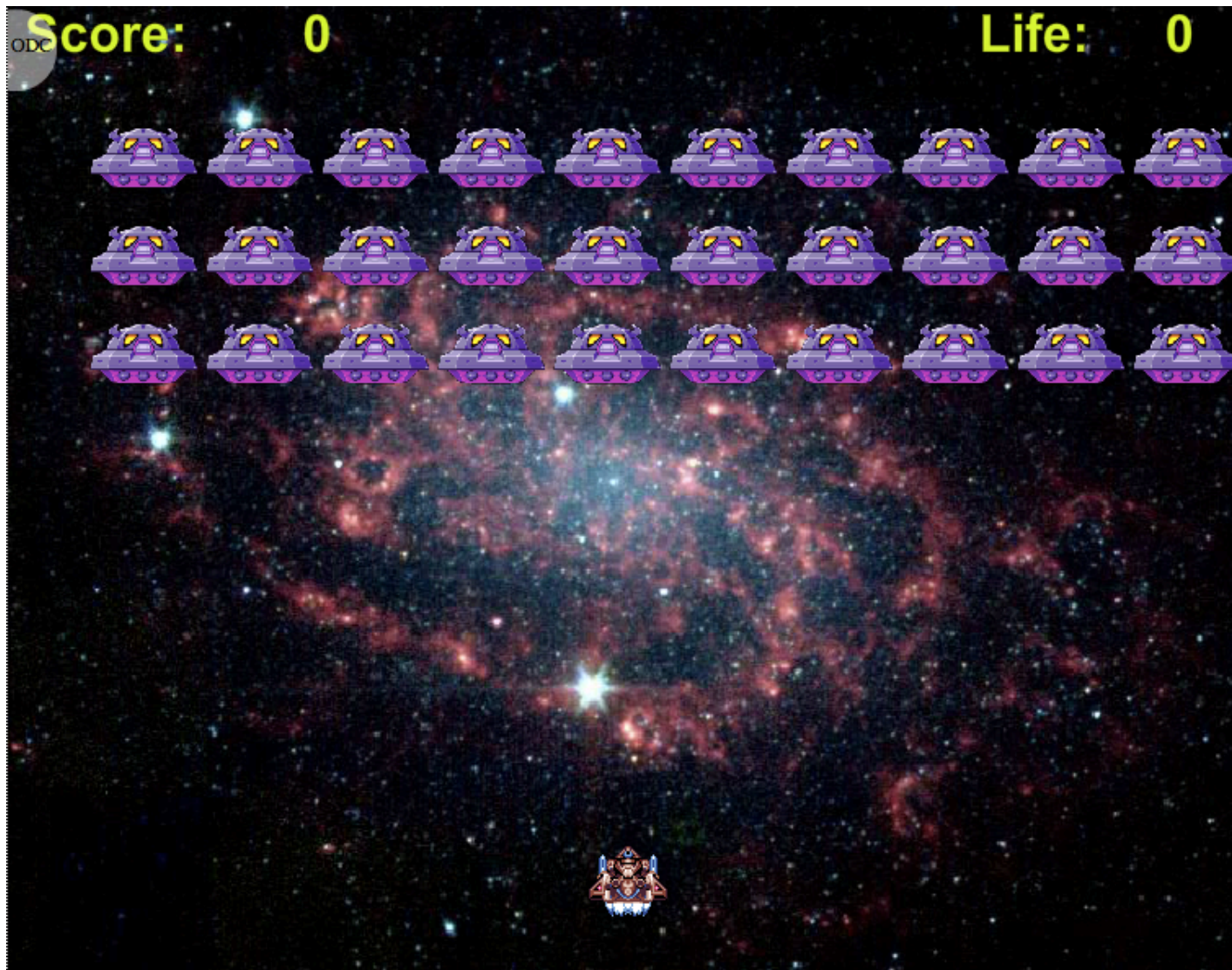
The logo consists of the letters 'FL' in a bold, orange, sans-serif font. The letters are centered on a dark red square background. The square has a 3D effect with a lighter orange top edge and a dark red bottom edge. The logo is positioned on the left side of the image, partially overlapping a vertical beige bar with a circular pattern.

FB

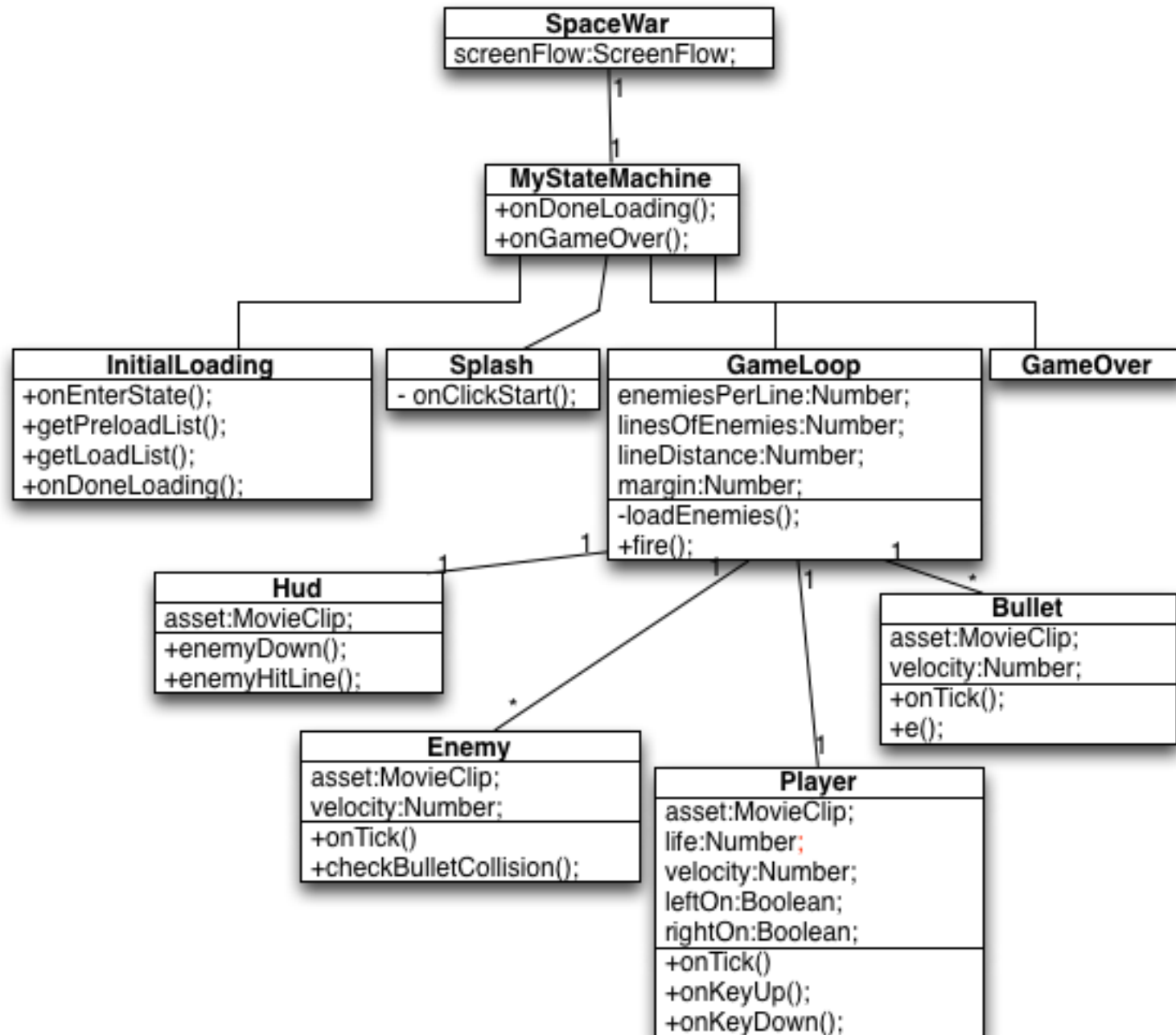
The logo consists of the letters 'FB' in a bold, white, sans-serif font. The letters are centered on a dark gray square background. The square has a 3D effect with a lighter gray top edge and a dark gray bottom edge. The logo is positioned on the right side of the image.



# O Jogo

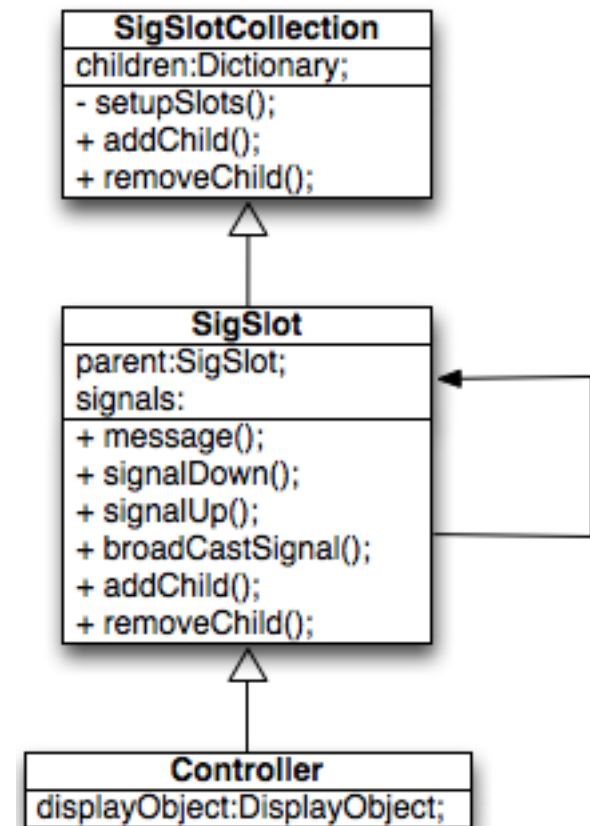






# Signals and Slots

- Padrão que Consiste no lançamento de eventos (signals) que são recebidos por controladores (slots)
- Base para a framework Oboé:  
<https://code.google.com/p/o-boe-flash-game-framework/>





# Signals and Slots

- **SignalUp**
  - Sinal mandado para pai e irmãos
- **SignalDown**
  - Sinal mandado para filhos
- **broadcastSignal**
  - Todos que tiverem um slot para aquele sinal irá receber.
    - Ex: onTick(time:Number)
- **Pipe**
  - Forma de propagar um signalUp para o avô.

# Signals and Slots

- Enemy informa que foi atingido:

```
this.signalUp("enemyDown");
```

- Hud recebe o sinal e muda o valor do score:

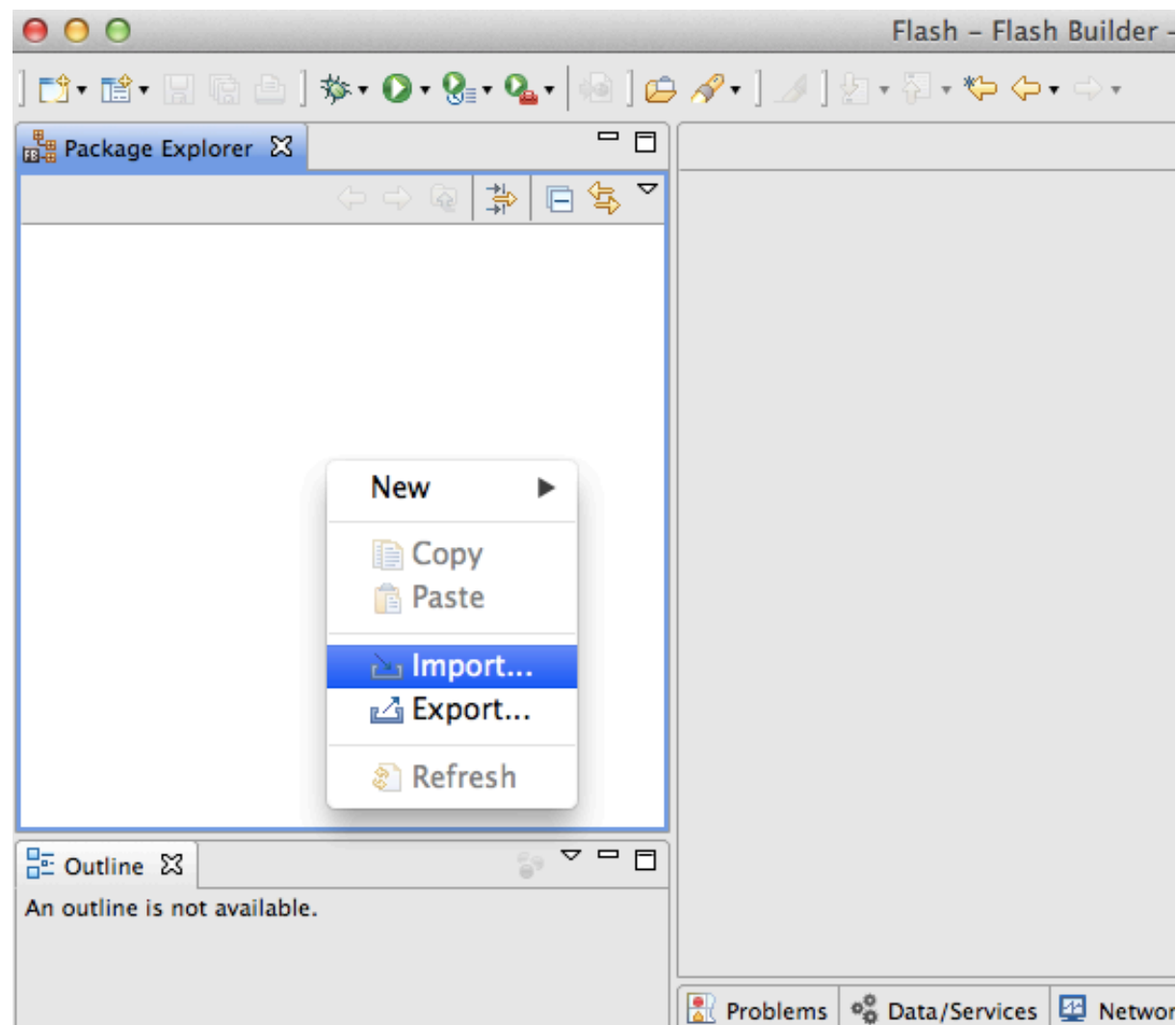
```
[slot] public function enemyDown():void  
{  
    Oboe.flags.score+= 100;  
    this.asset.lblScore.text = Oboe.flags.score;  
}
```



# Space War

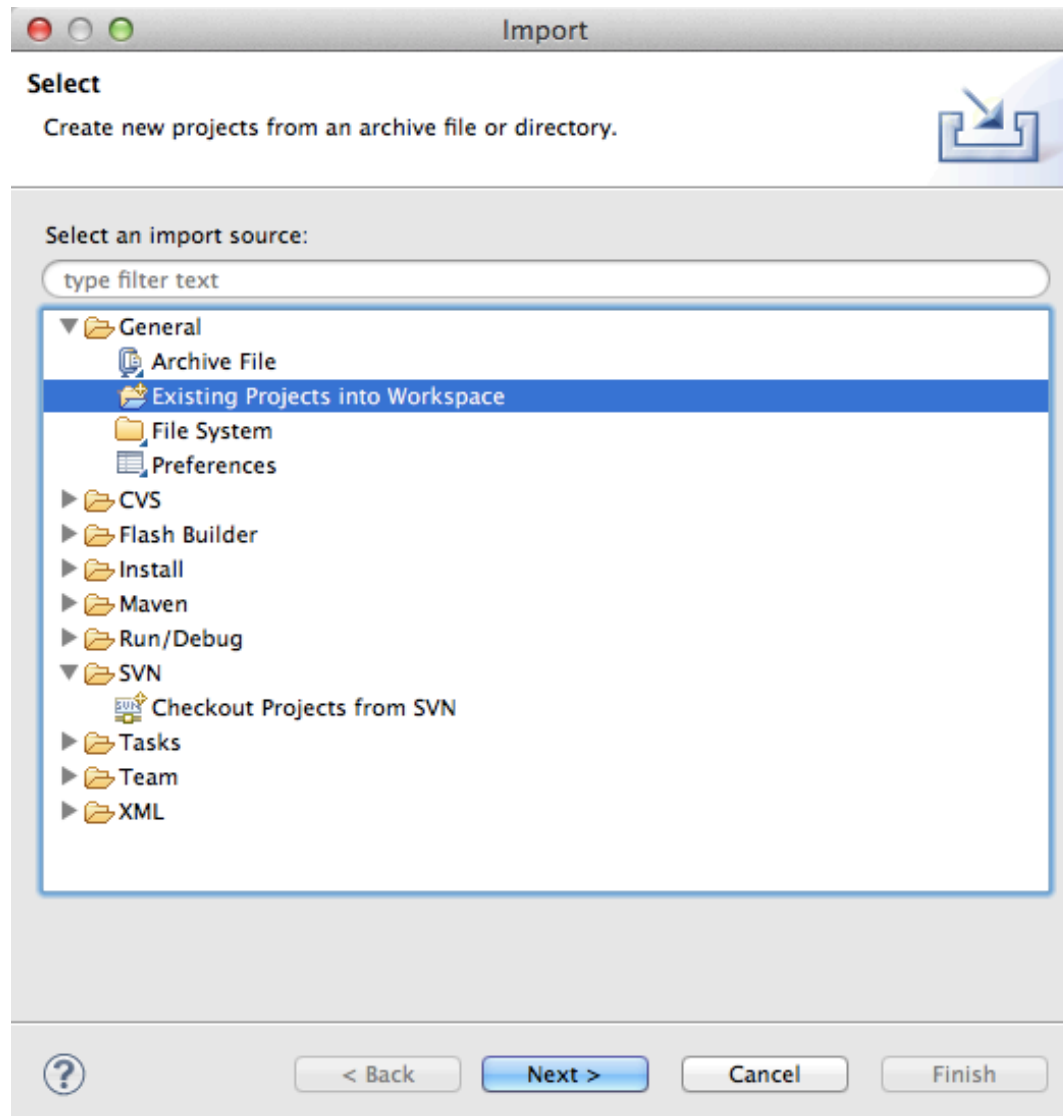
Criando um jogo com a Oboé

# Adicionando Oboe

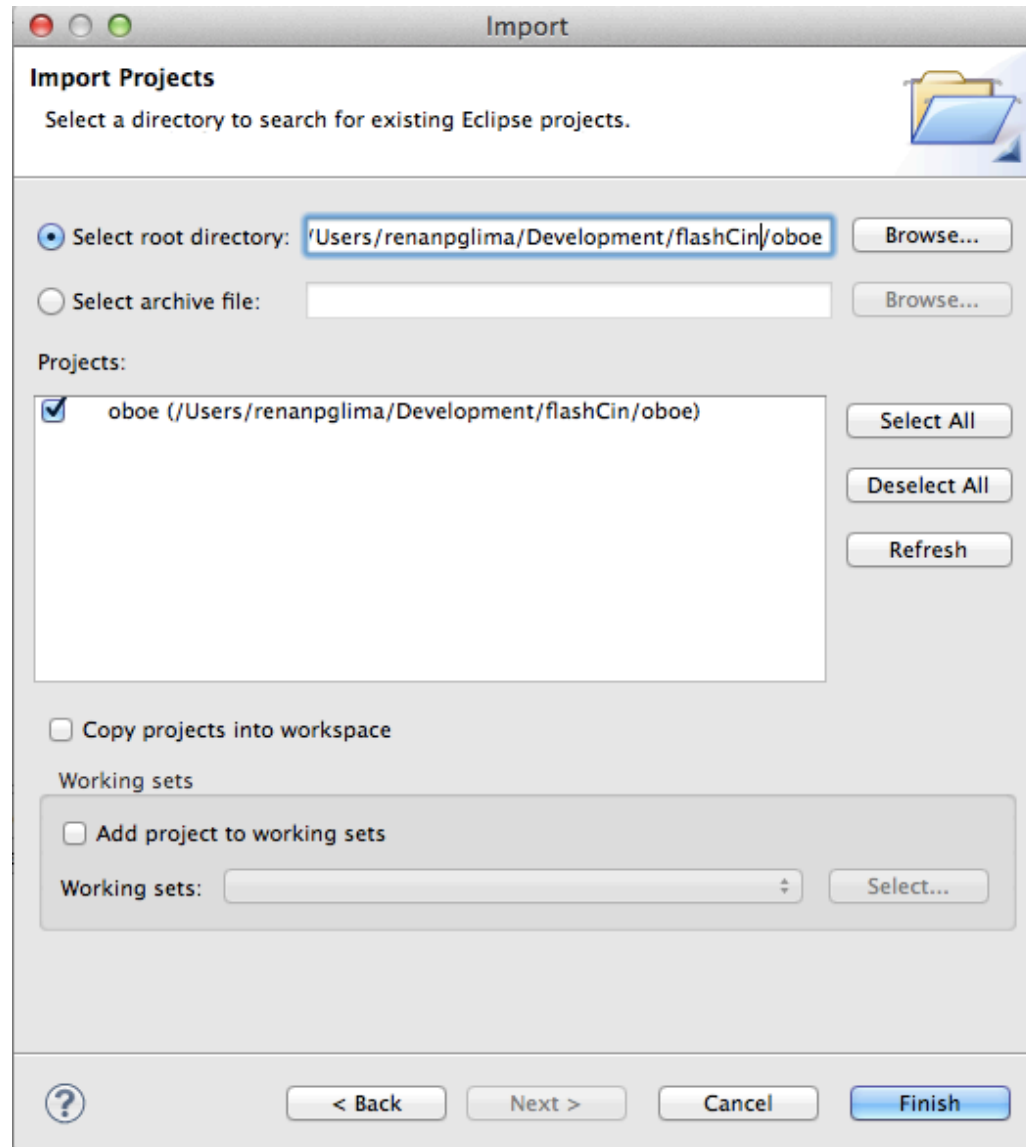




# Adicionando Oboe



# Adicionando Oboe

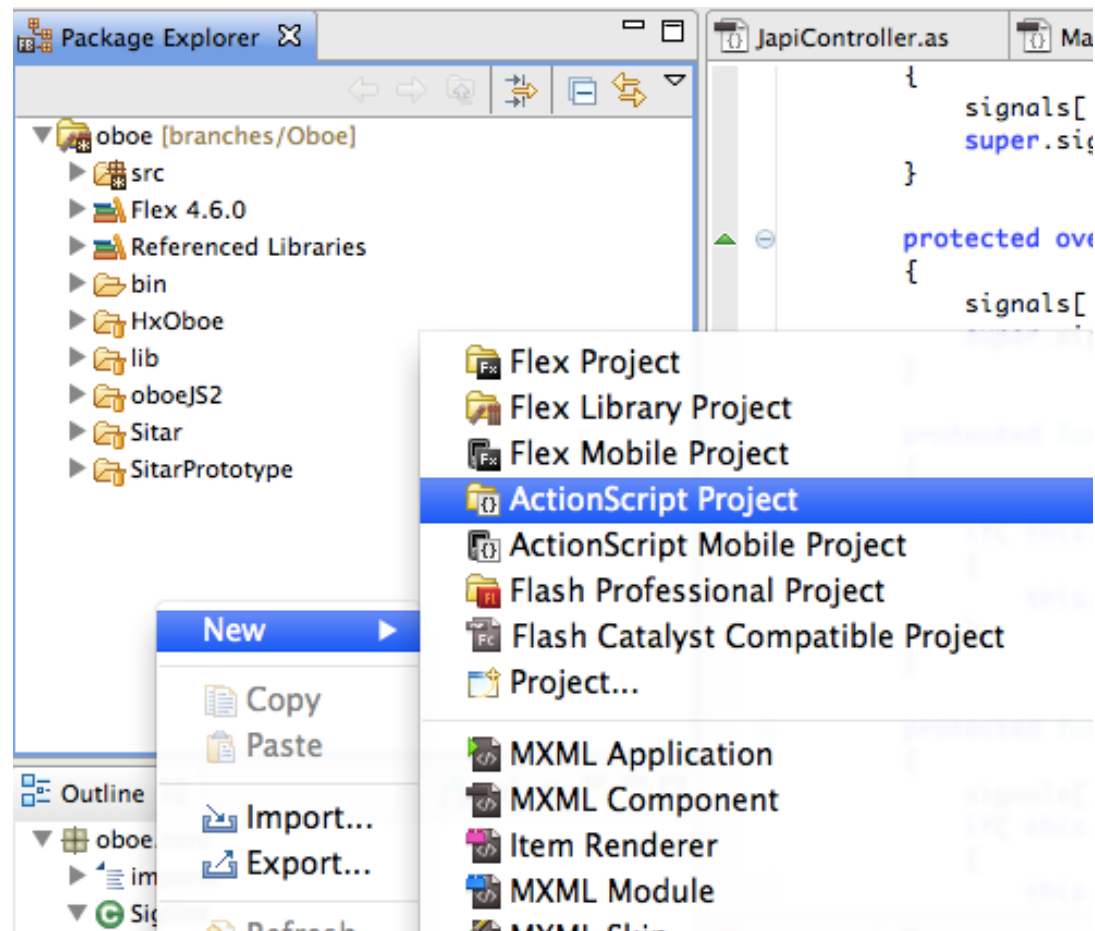




# Explorando Classes Importantes

- Oboe.as
  - Classe principal de inicialização da Engine
- StateMachine.as
  - Classe responsável pela máquina de estados do jogo.
  - Apenas uma maquina de estados ativa é permitida na Oboe
- Files.as
  - Classe responsável pelo carregamento dos recursos do jogo

# Criando Projeto do Jogo



# Criando Projeto do Jogo

The screenshot shows the 'New ActionScript Project' dialog box. The title bar reads 'New ActionScript Project'. Below the title bar, the text 'Create an ActionScript project.' is followed by 'Specify the location of the files in the new project.' and a folder icon with a code brace. The dialog has two tabs: 'Project Location' (selected) and 'Build Paths'. Under 'Project Location', the 'Project name' field contains 'SpaceWar'. The 'Project location' section has a checked 'Use default location' option and a 'Folder' field with the path '/Users/renanpglima/Development/flashCin/SpaceWar' and a 'Browse...' button. The 'Application type' section has two radio buttons: 'Web (runs in Adobe Flash Player)' (selected) and 'Desktop (runs in Adobe AIR)'. The 'Flex SDK version' section has two radio buttons: 'Use default SDK (currently "Flex 4.6.0")' (selected) and 'Use a specific SDK:' with a dropdown menu showing 'Flex 4.6.0'. A link 'Configure Flex SDKs...' is next to the first radio button. At the bottom, there is a help icon, and buttons for '< Back', 'Next >', 'Cancel', and 'Finish'.

New ActionScript Project

Create an ActionScript project.  
Specify the location of the files in the new project.

**Project Location** Build Paths

Project name: SpaceWar

Project location

☒ Use default location

Folder: /Users/renanpglima/Development/flashCin/SpaceWar Browse...

Application type

☒ Web (runs in Adobe Flash Player)

☐ Desktop (runs in Adobe AIR)

Flex SDK version

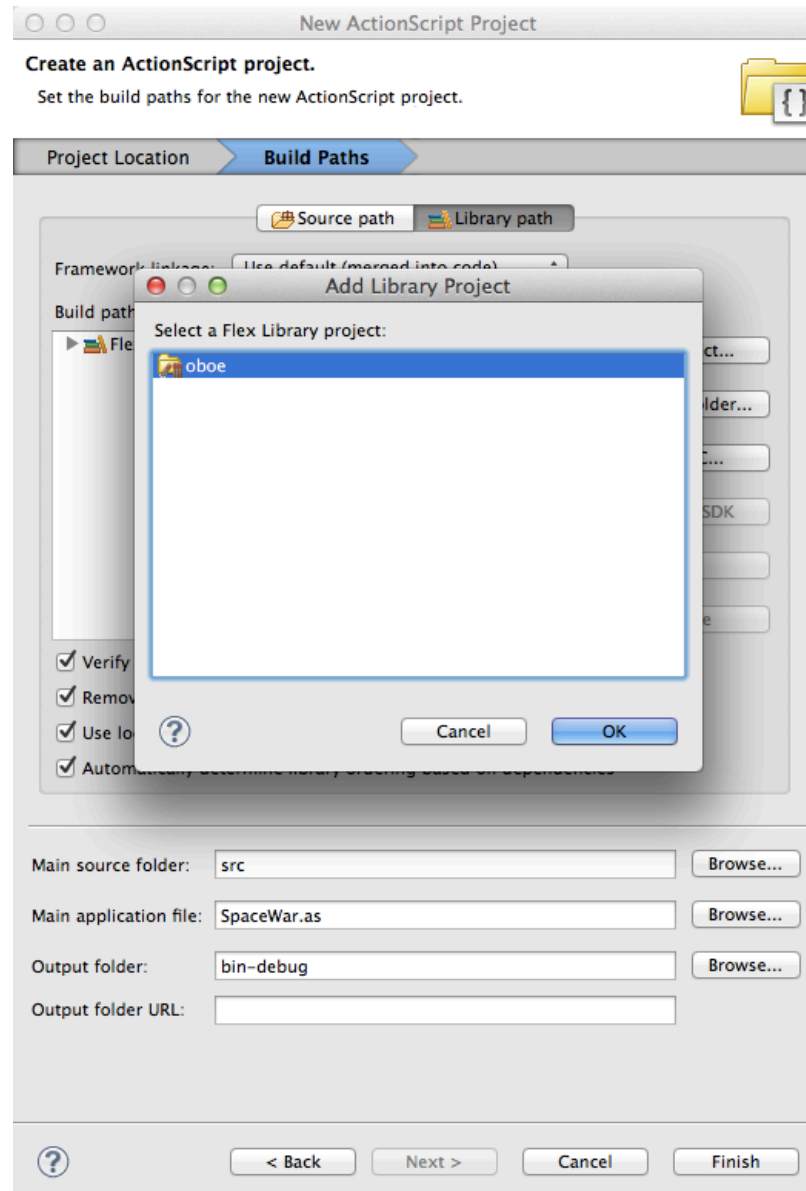
☒ Use default SDK (currently "Flex 4.6.0") [Configure Flex SDKs...](#)

☐ Use a specific SDK: Flex 4.6.0

Flex 4.6.0 requires Adobe Flash Player 11.1

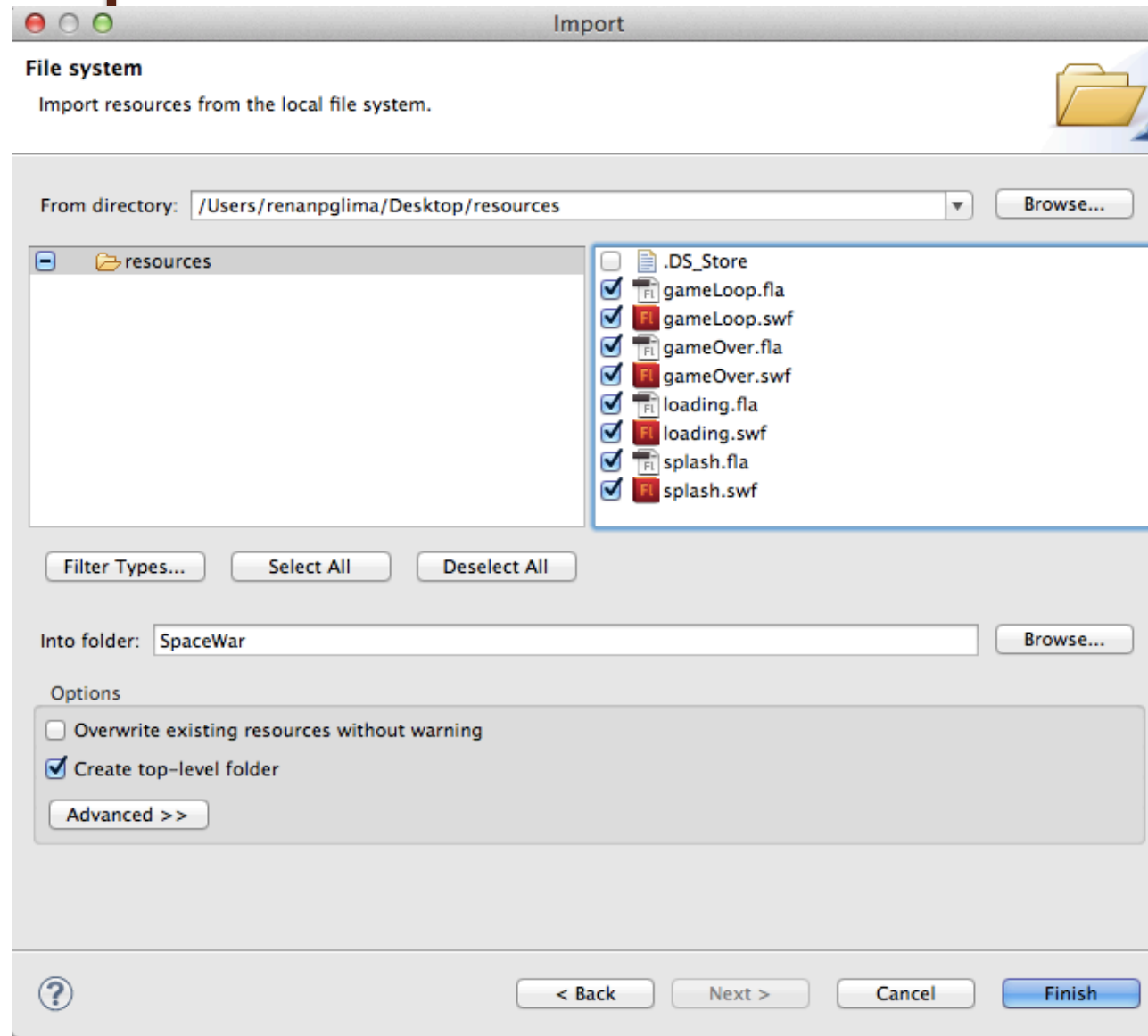
? < Back Next > Cancel Finish

# Adicionando Oboe ao projeto

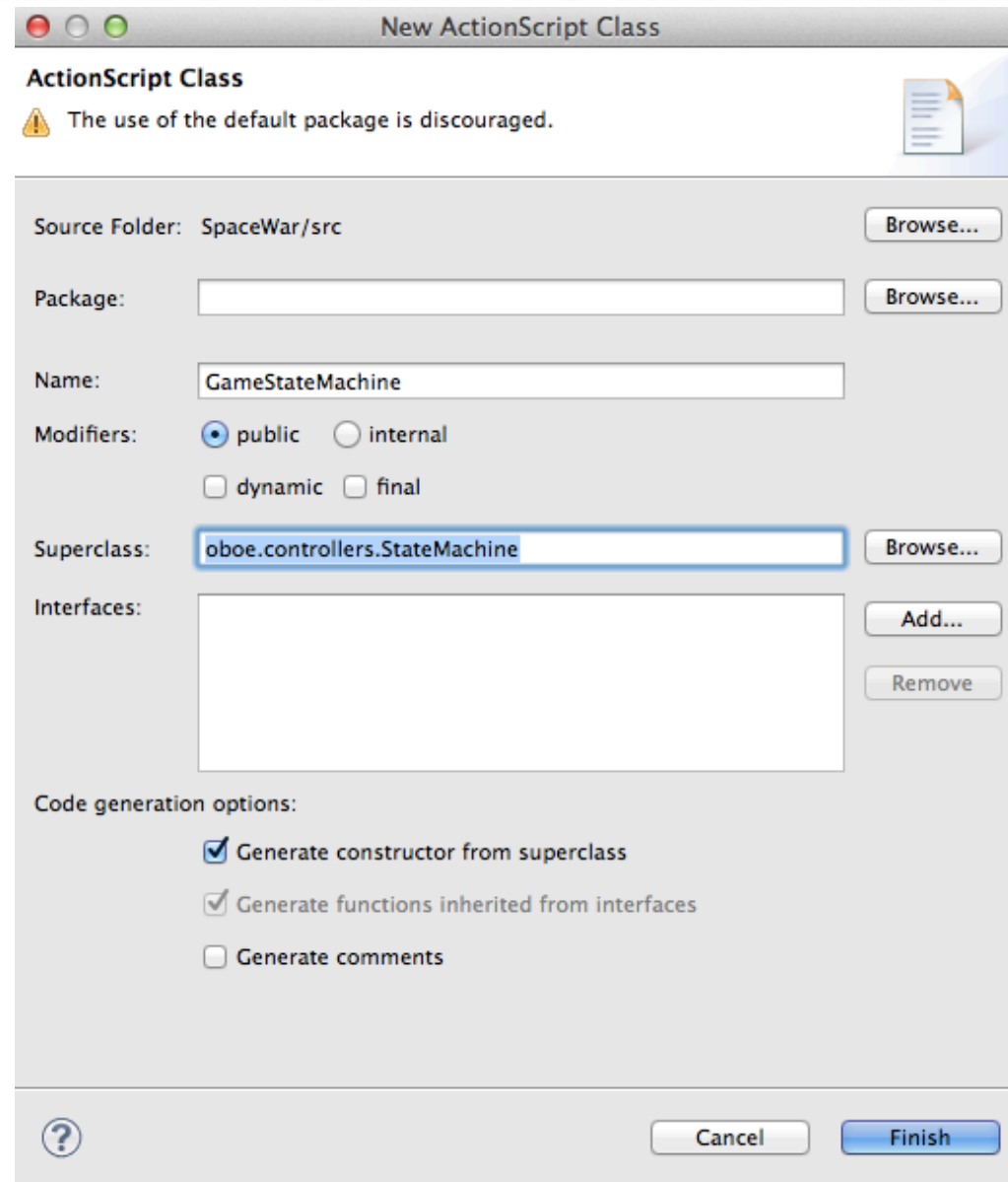




# Importando recursos




# Criando GameStateMachine



**New ActionScript Class**

**ActionScript Class**

 The use of the default package is discouraged.

Source Folder: SpaceWar/src Browse...

Package:  Browse...

Name: GameStateMachine

Modifiers: ☒ public ☐ internal  
☐ dynamic ☐ final

Superclass: oboe.controllers.StateMachine Browse...

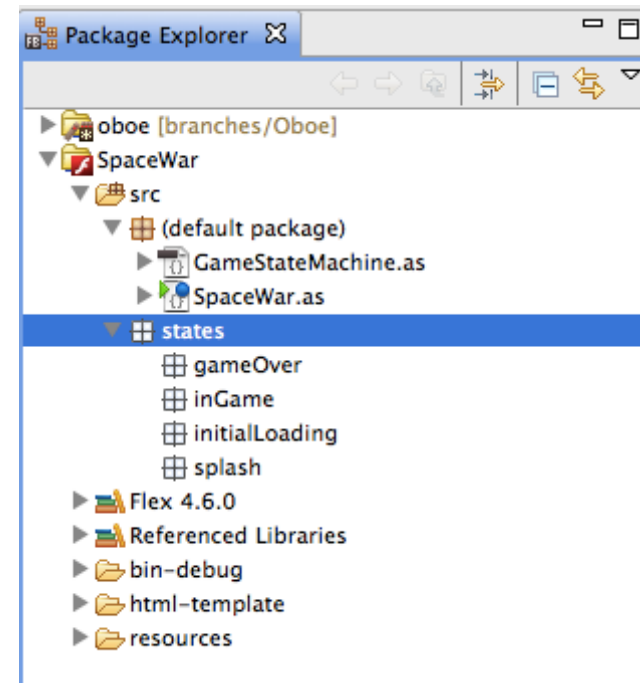
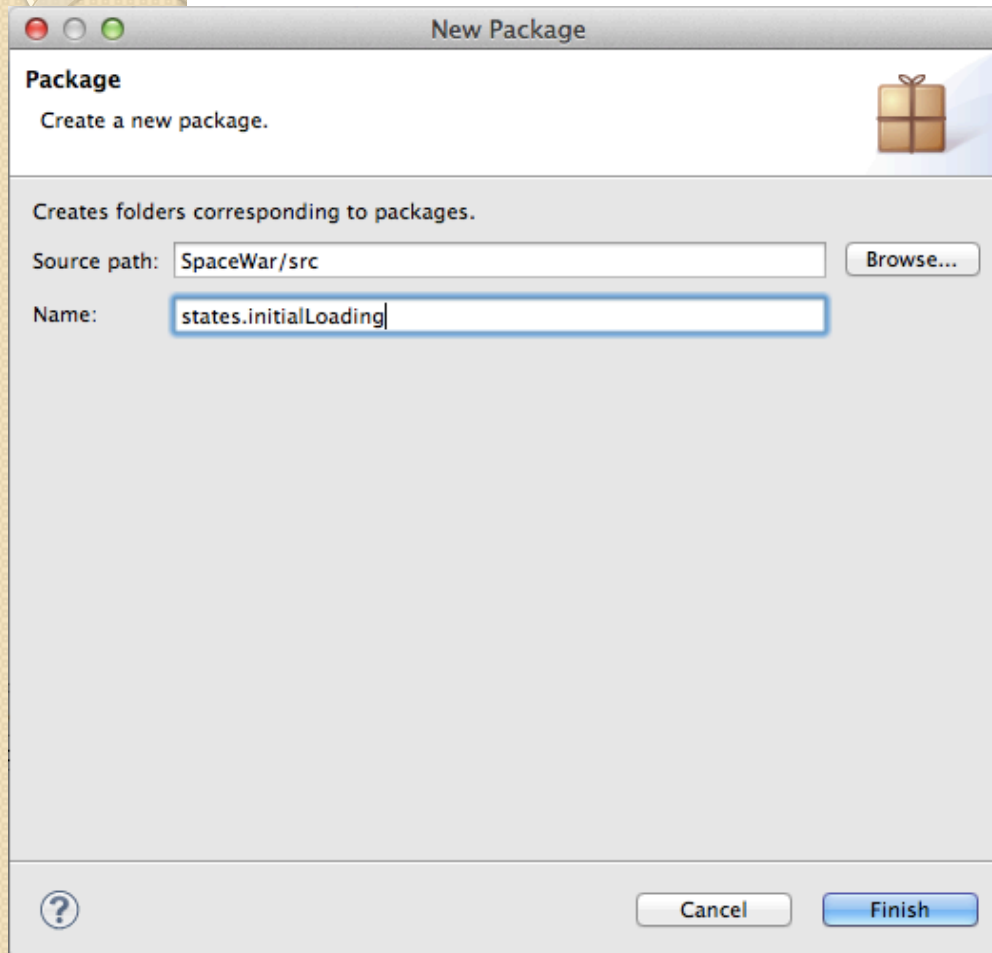
Interfaces:  Add...  
Remove

Code generation options:

- ☒ Generate constructor from superclass
- ☒ Generate functions inherited from interfaces
- ☐ Generate comments

? Cancel Finish

# Criando Pacotes dos Estados



# Inicializando Oboe e StateMachine

```
SpaceWar.as
package
{
    import flash.display.Sprite;

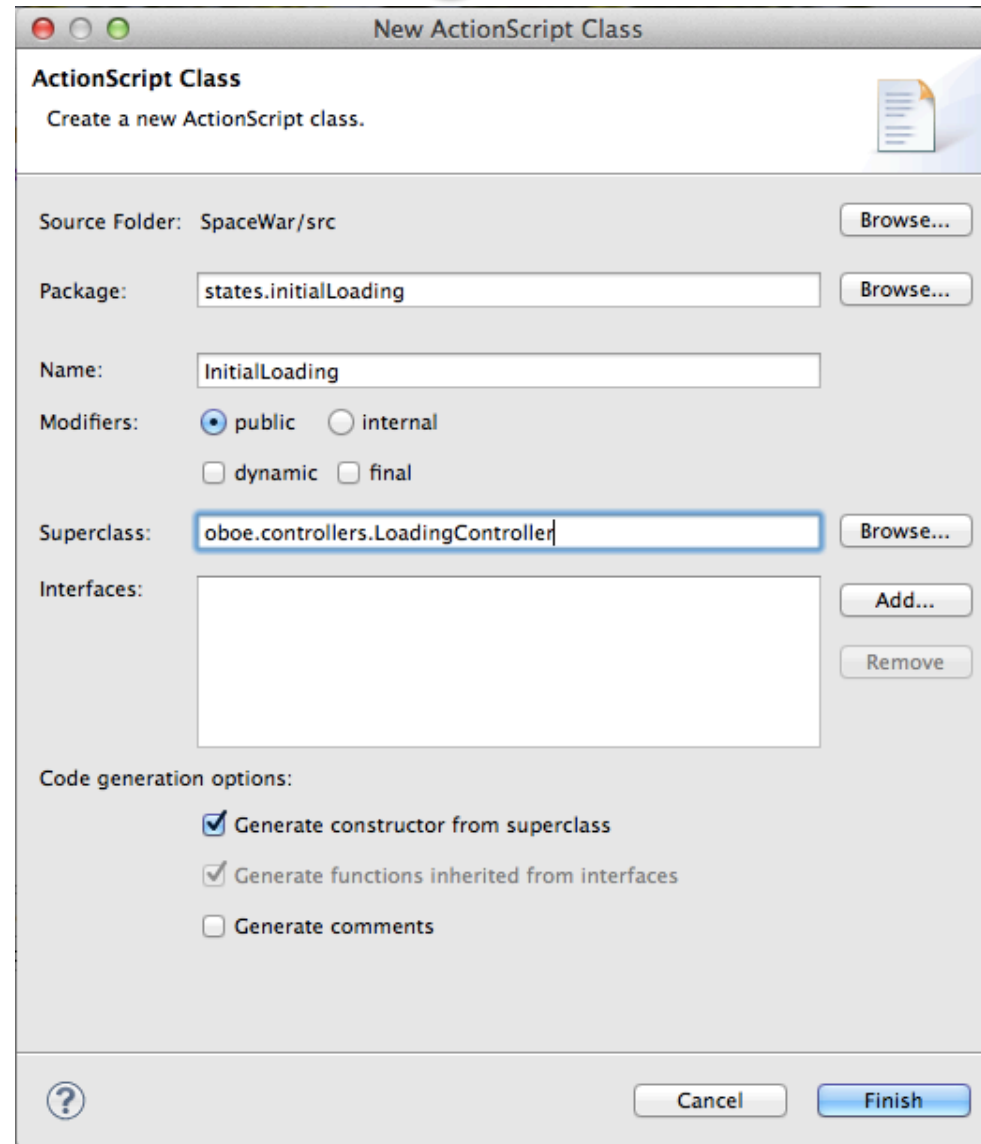
    import oboe.core.Oboe;

    [SWF(width="760", height="600", frameRate="24", backgroundColor="#FFFFFF")]
    public class SpaceWar extends Sprite
    {
        private var stateMachine:GameStateMachine;

        public function SpaceWar()
        {
            Oboe.initOboe(
                {
                    DEBUG : true ,
                    RESOURCES : "../resources/"
                }
            );

            this.stateMachine = new GameStateMachine( this );
        }
    }
}
```

# InitialLoading State



**New ActionScript Class**

**ActionScript Class**  
Create a new ActionScript class.

Source Folder: SpaceWar/src Browse...

Package: states.initialLoading Browse...

Name: InitialLoading

Modifiers: ☒ public ☐ internal  
☐ dynamic ☐ final

Superclass: oboe.controllers.LoadingController Browse...

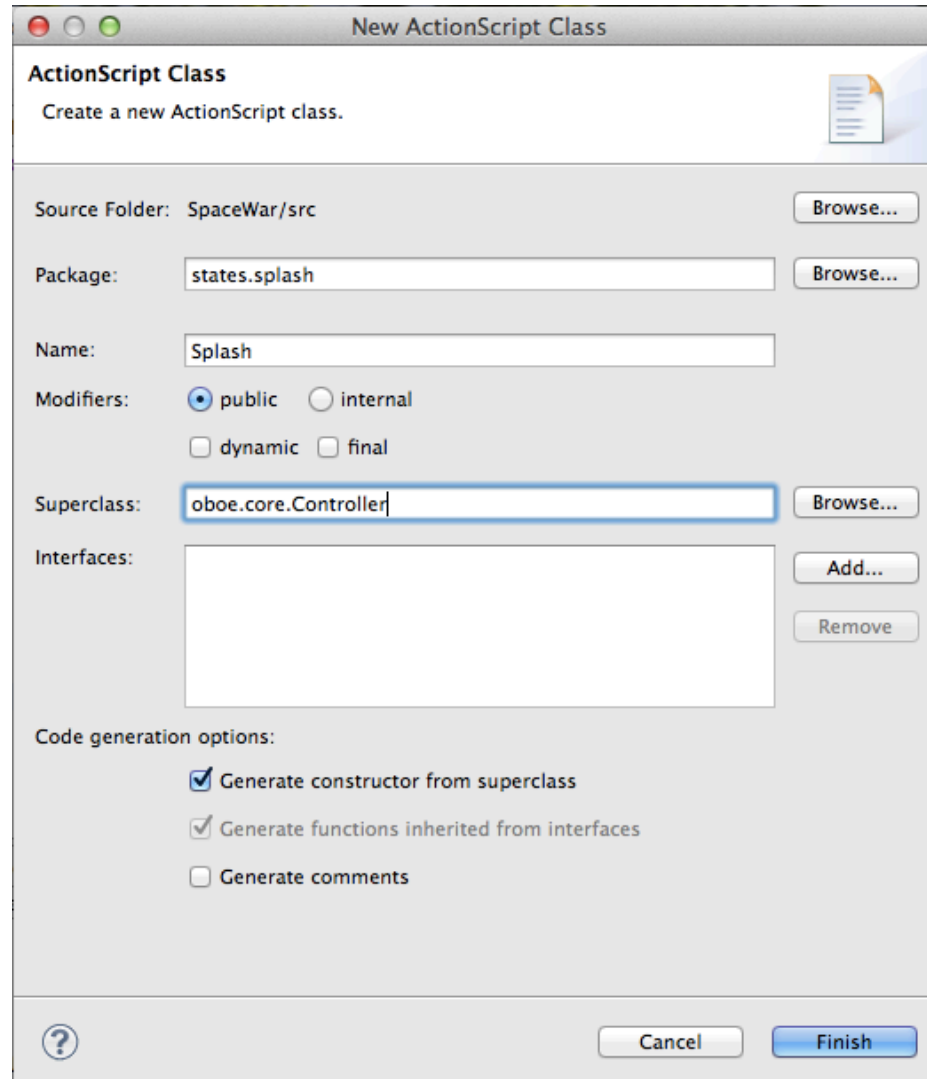
Interfaces: Add...  
Remove

Code generation options:

- ☒ Generate constructor from superclass
- ☒ Generate functions inherited from interfaces
- ☐ Generate comments

? Cancel Finish

# Splash State



**New ActionScript Class**

Create a new ActionScript class.

Source Folder: SpaceWar/src Browse...

Package: states.splash Browse...

Name: Splash

Modifiers: ☒ public ☐ internal  
☐ dynamic ☐ final

Superclass: oboe.core.Controller Browse...

Interfaces: Add...  
Remove

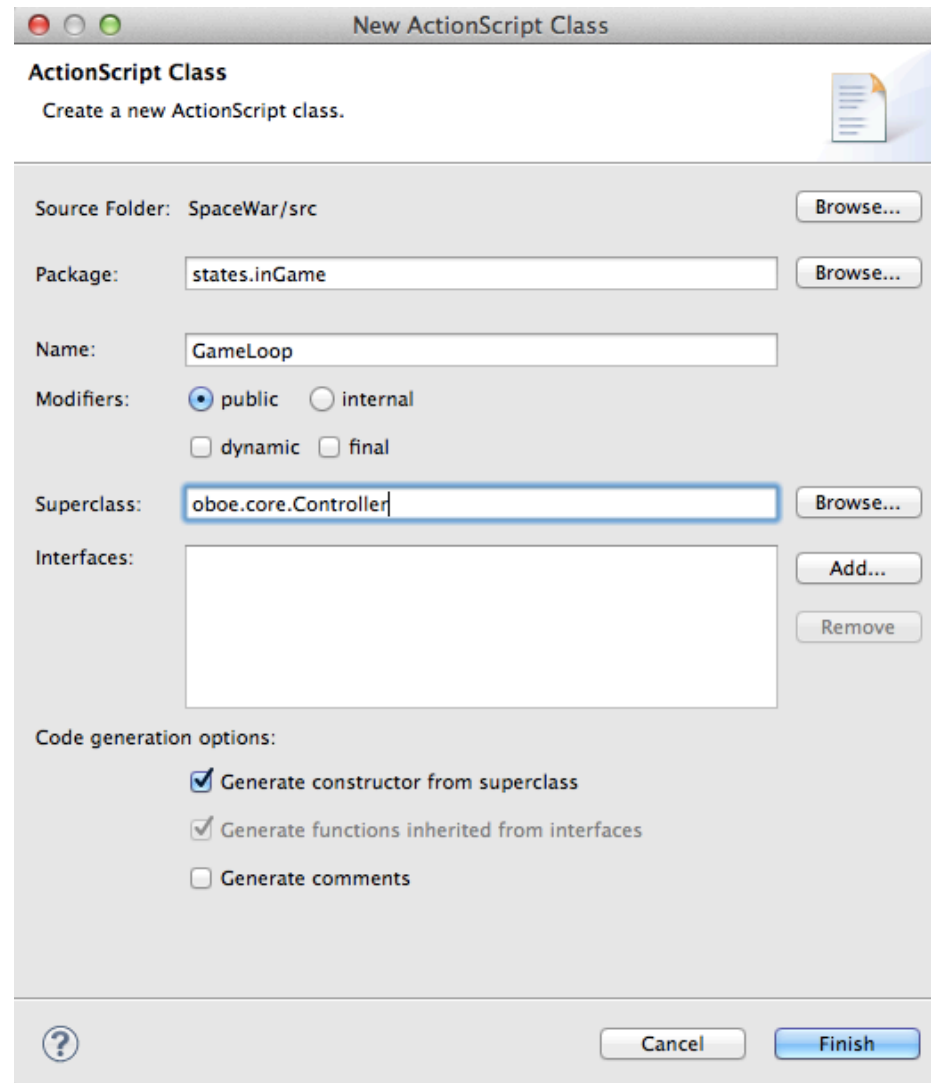
Code generation options:

- ☒ Generate constructor from superclass
- ☒ Generate functions inherited from interfaces
- ☐ Generate comments

? Cancel Finish



# GameLoop State



**New ActionScript Class**

Create a new ActionScript class.

Source Folder: SpaceWar/src Browse...

Package: states.inGame Browse...

Name: GameLoop

Modifiers: ☒ public ☐ internal  
☐ dynamic ☐ final

Superclass: oboe.core.Controller Browse...

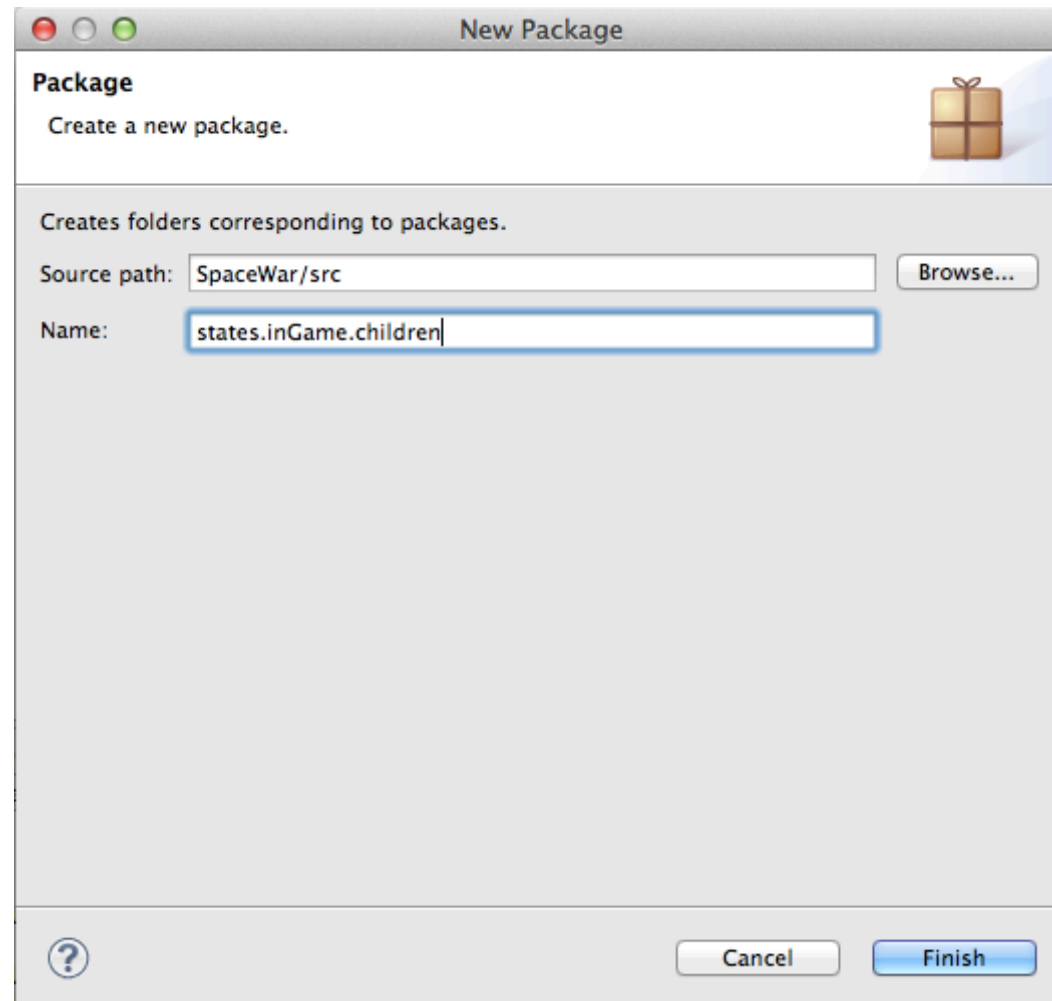
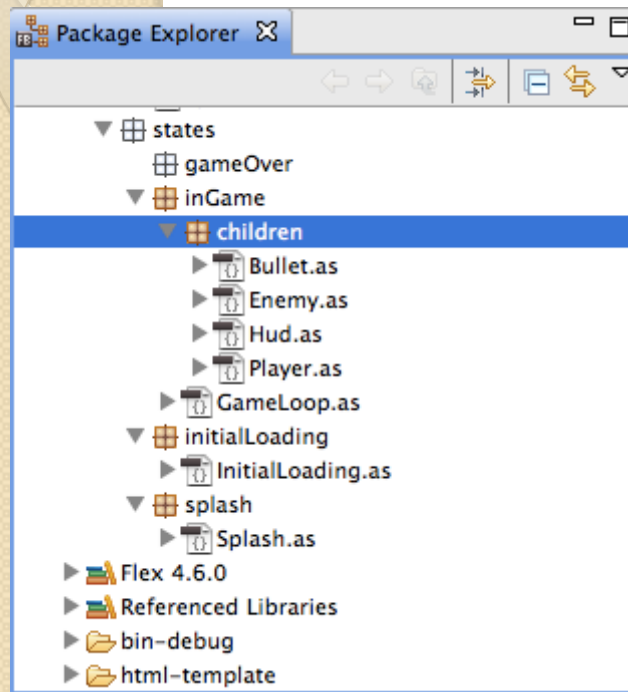
Interfaces: Add...  
Remove

Code generation options:

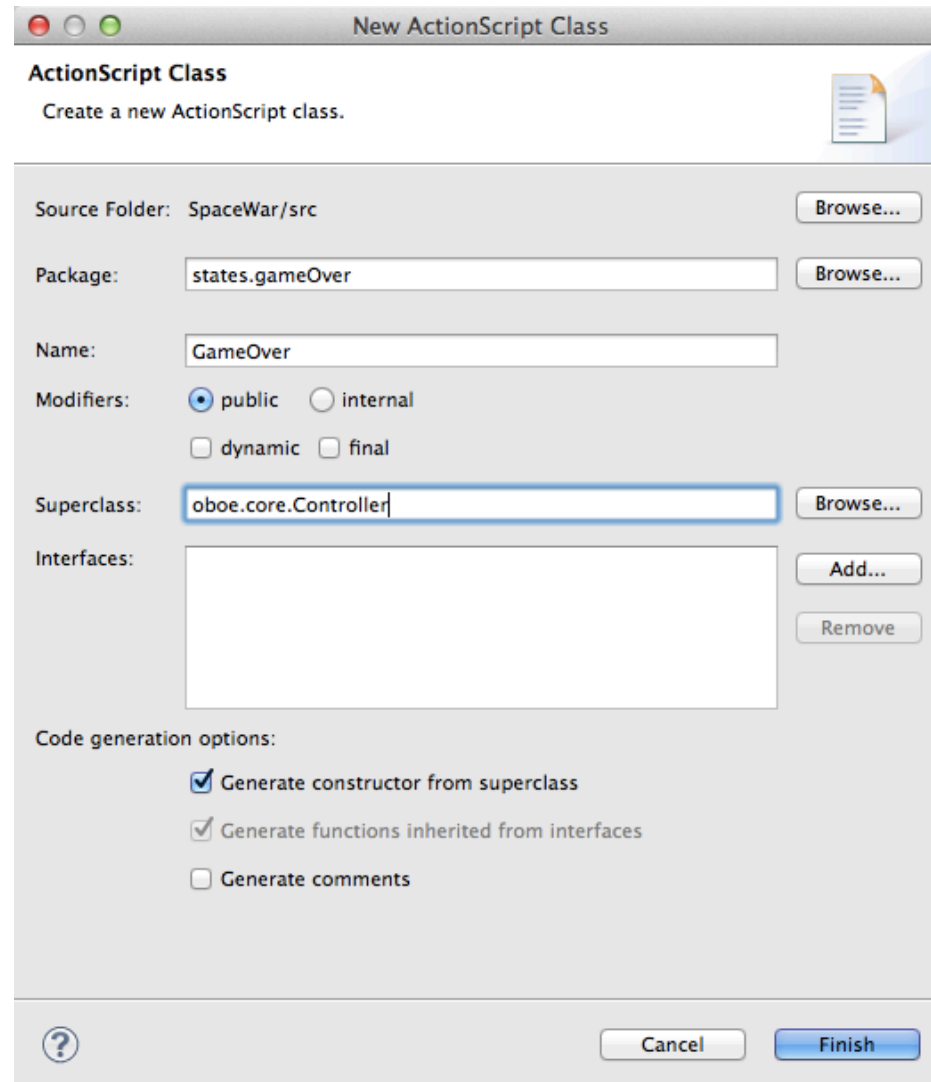
- ☒ Generate constructor from superclass
- ☒ Generate functions inherited from interfaces
- ☐ Generate comments

? Cancel Finish

# GameLoop children



# GameOver State



**New ActionScript Class**

Create a new ActionScript class.

Source Folder: SpaceWar/src Browse...

Package: states.gameOver Browse...

Name: GameOver

Modifiers: ☒ public ☐ internal  
☐ dynamic ☐ final

Superclass: oboe.core.Controller Browse...

Interfaces: Add...  
Remove

Code generation options:

- ☒ Generate constructor from superclass
- ☒ Generate functions inherited from interfaces
- ☐ Generate comments

? Cancel Finish



# Atividade Proposta

1. Tornar o Inimigo mais inteligente.
  1. Inimigo Atirando na direção do Jogador
  2. Inimigo se desviando das balas do jogador
2. Inserir Inimigo Mestre.
  1. Ao destruir todos os inimigos, criar um novo tipo que precisa receber mais tiros antes de morrer e que cria inimigos simples de tempos em tempos.



# Referências

- [http://help.adobe.com/en\\_US/FlashPlatform/reference/actionscript/3/index.html](http://help.adobe.com/en_US/FlashPlatform/reference/actionscript/3/index.html)
- [http://en.wikipedia.org/wiki/Signals\\_and\\_slots](http://en.wikipedia.org/wiki/Signals_and_slots)
- Oboe: [www.cin.ufpe.br/~rpgl/Oboe](http://www.cin.ufpe.br/~rpgl/Oboe)
- Jogo Completo: [www.cin.ufpe.br/~rpgl/SpaceWar](http://www.cin.ufpe.br/~rpgl/SpaceWar)



# Obrigado!

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