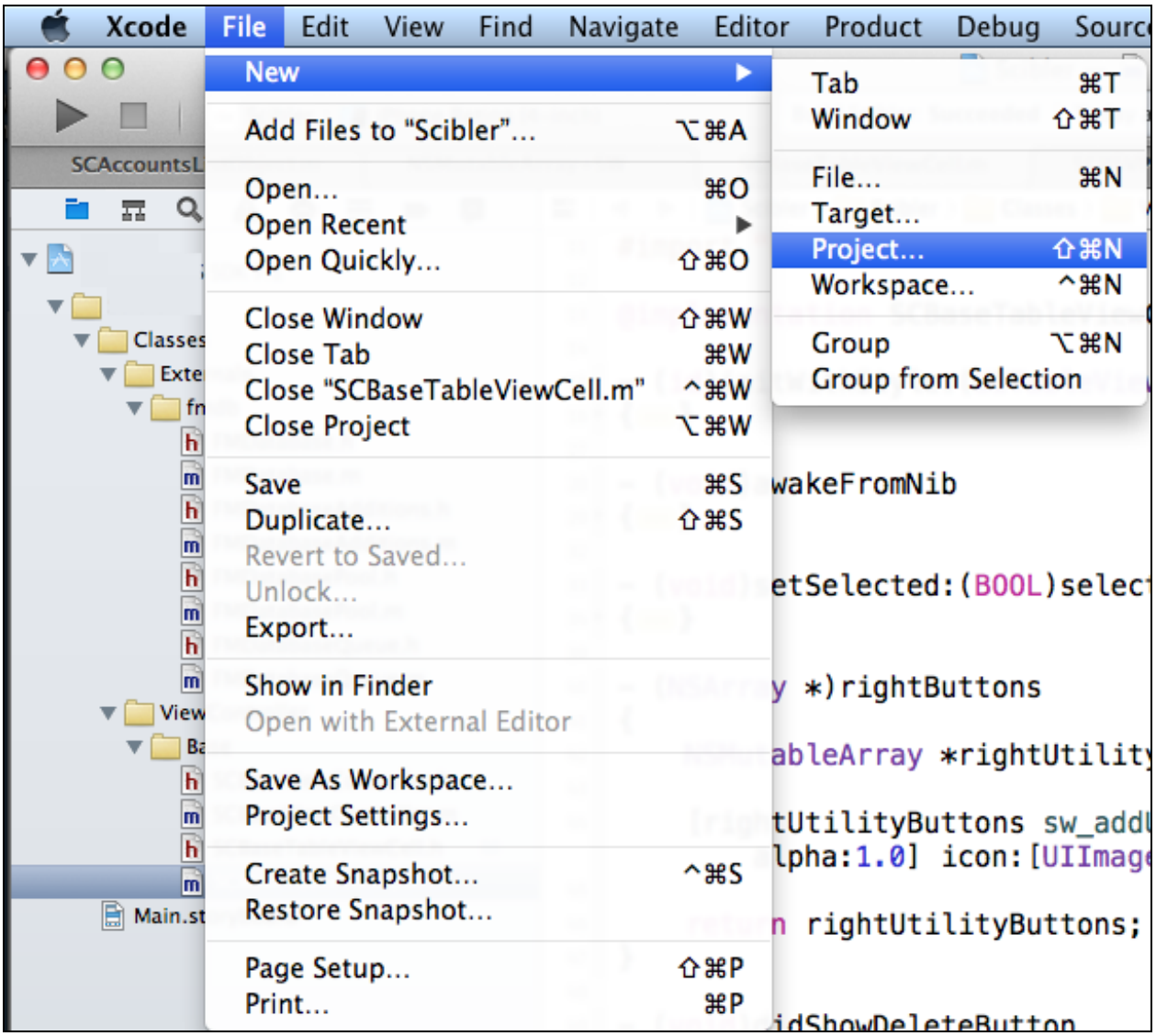
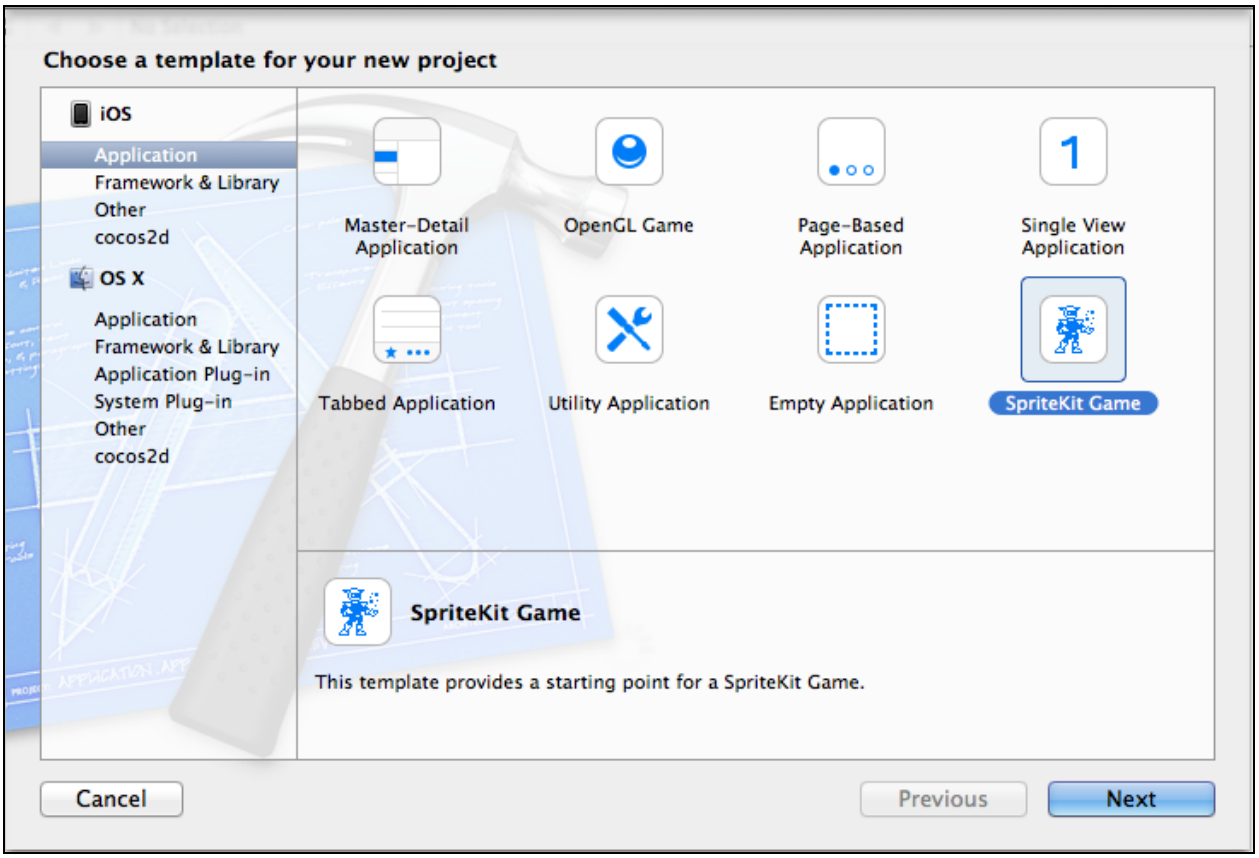
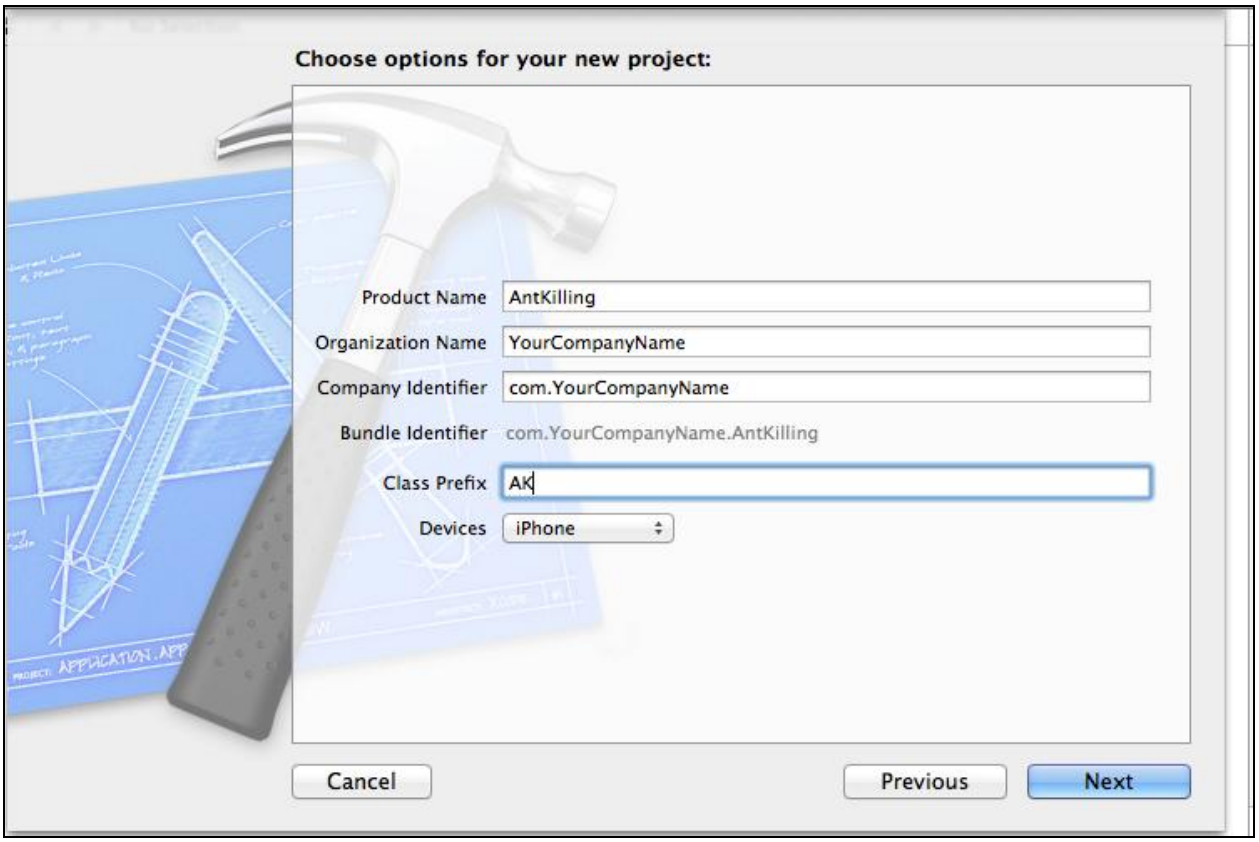
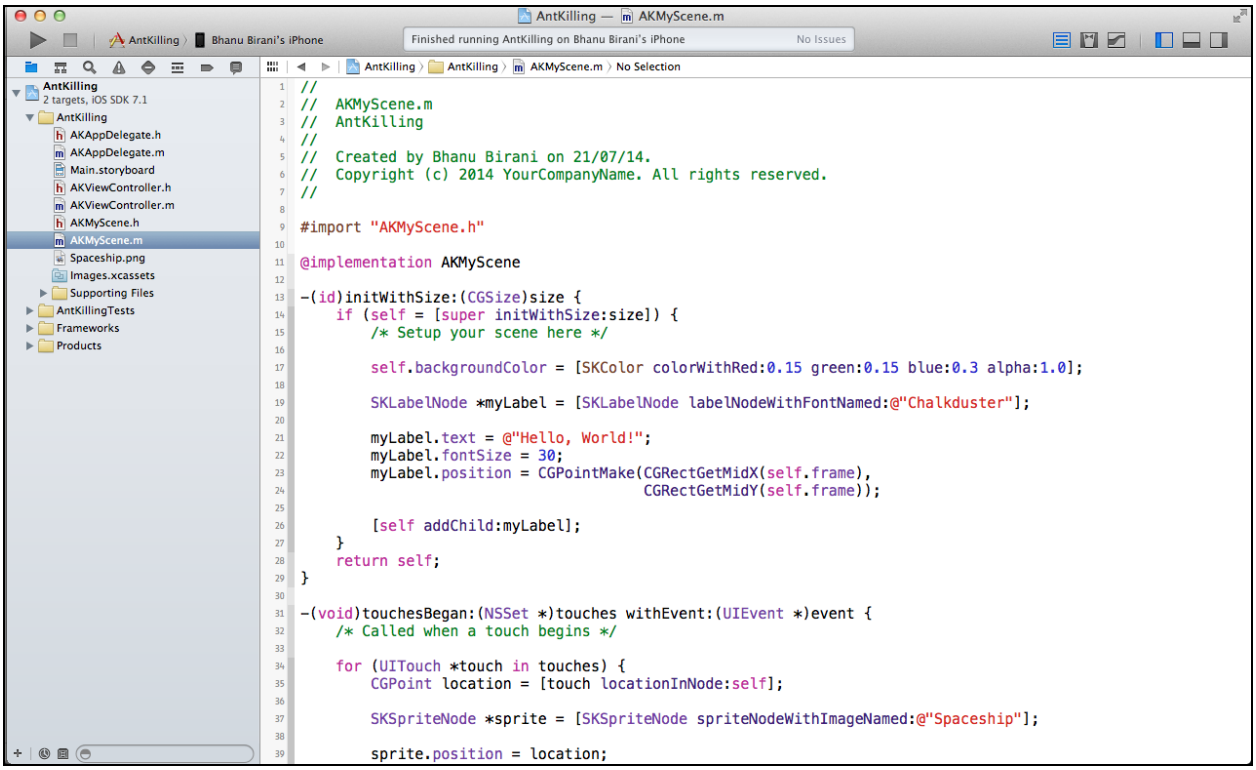
Chapter 1

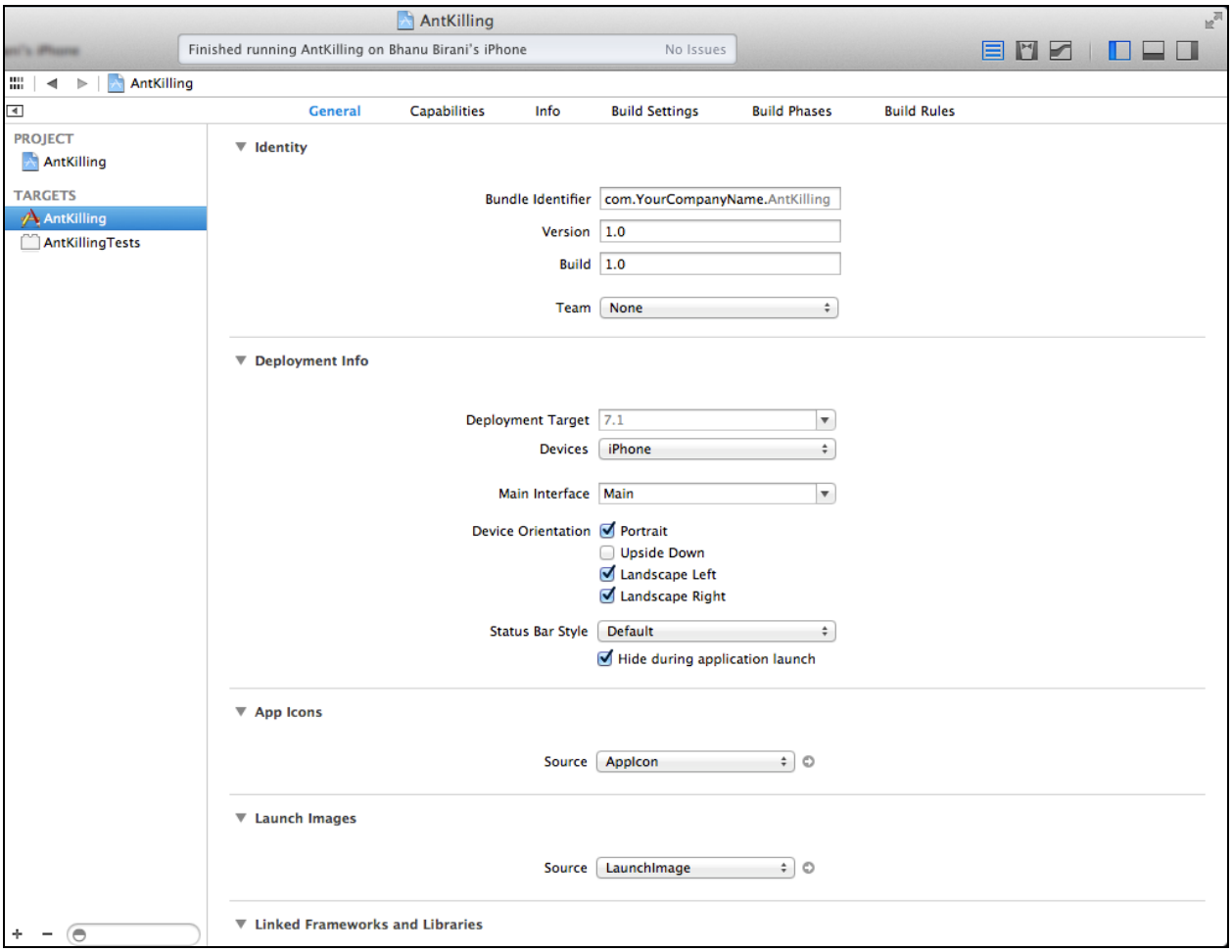

Xcode
File
Edit
View
Find
Navigate
Editor
Product
Debug
New
Add Files to "Scibler"...
Open...
Open Recent
Open Quickly...
Close Window
Close Tab
Close "SCBaseTableViewCell.m"
Close Project
Save
Duplicate...
Revert to Saved...
Unlock...
Export...
Show in Finder
Open with External Editor
Save As Workspace...
Project Settings...
Create Snapshot...
Restore Snapshot...
Page Setup...
Print...
Tab
Window
File...
Target...
Project...
Workspace...
Group
Group from Selection
wakeFromNib
etSelected:(BOOL)selec
y *)rightButtons
ableArray *rightUtility
tUtilityButtons sw_addU
lpha:1.0] icon:[UIImage
n rightUtilityButtons;

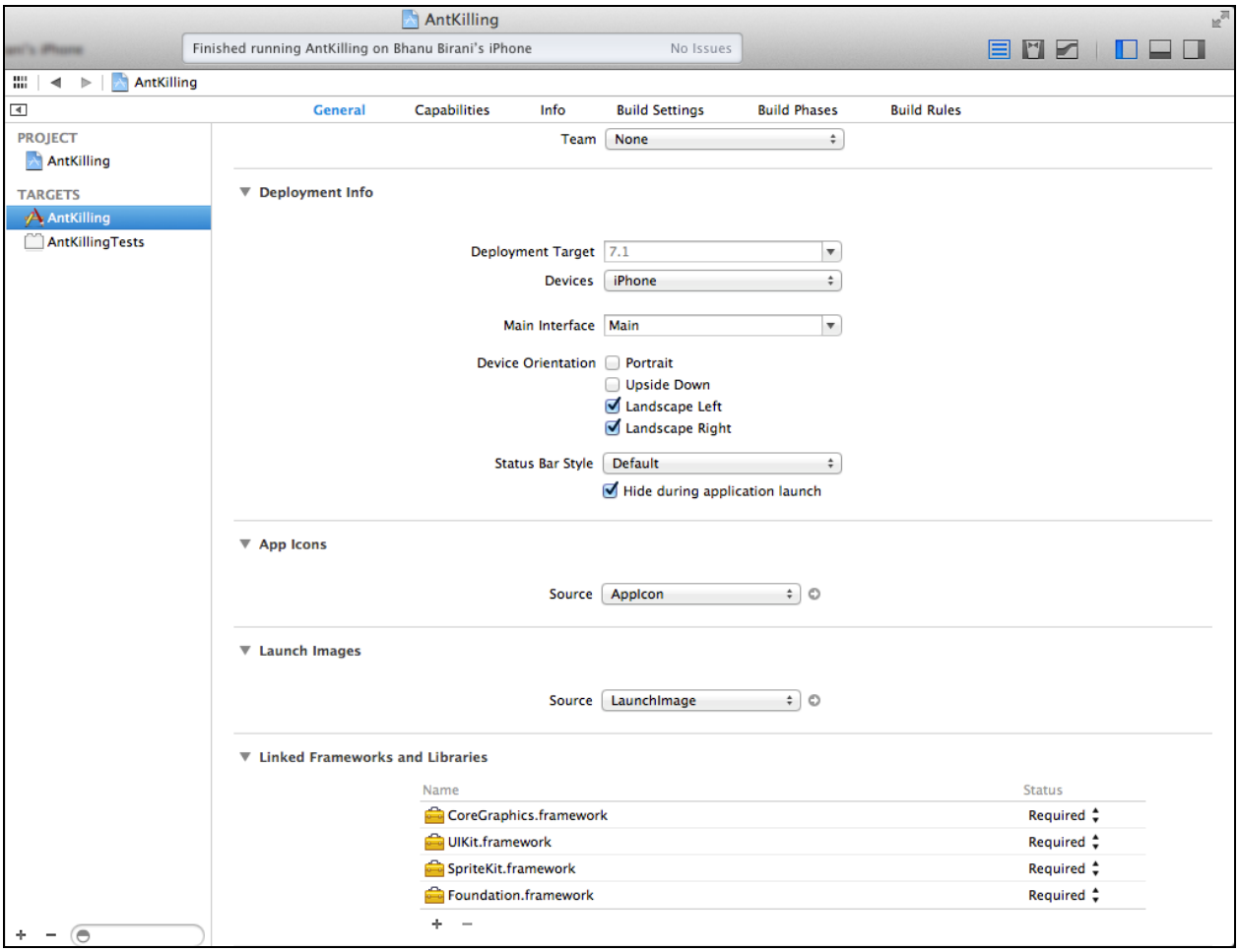

Choose a template for your new project
iOS
Application
Framework & Library
Other
cocos2d
OS X
Application
Framework & Library
Application Plug-in
System Plug-in
Other
cocos2d
Master-Detail Application
OpenGL Game
Page-Based Application
Single View Application
Tabbed Application
Utility Application
Empty Application
SpriteKit Game
SpriteKit Game
This template provides a starting point for a SpriteKit Game.
Cancel
Previous
Next


Choose options for your new project:
Product Name
AntKilling
Organization Name
YourCompanyName
Company Identifier
com.YourCompanyName
Bundle Identifier
com.YourCompanyName.AntKilling
Class Prefix
AK
Devices
iPhone
Cancel
Previous
Next

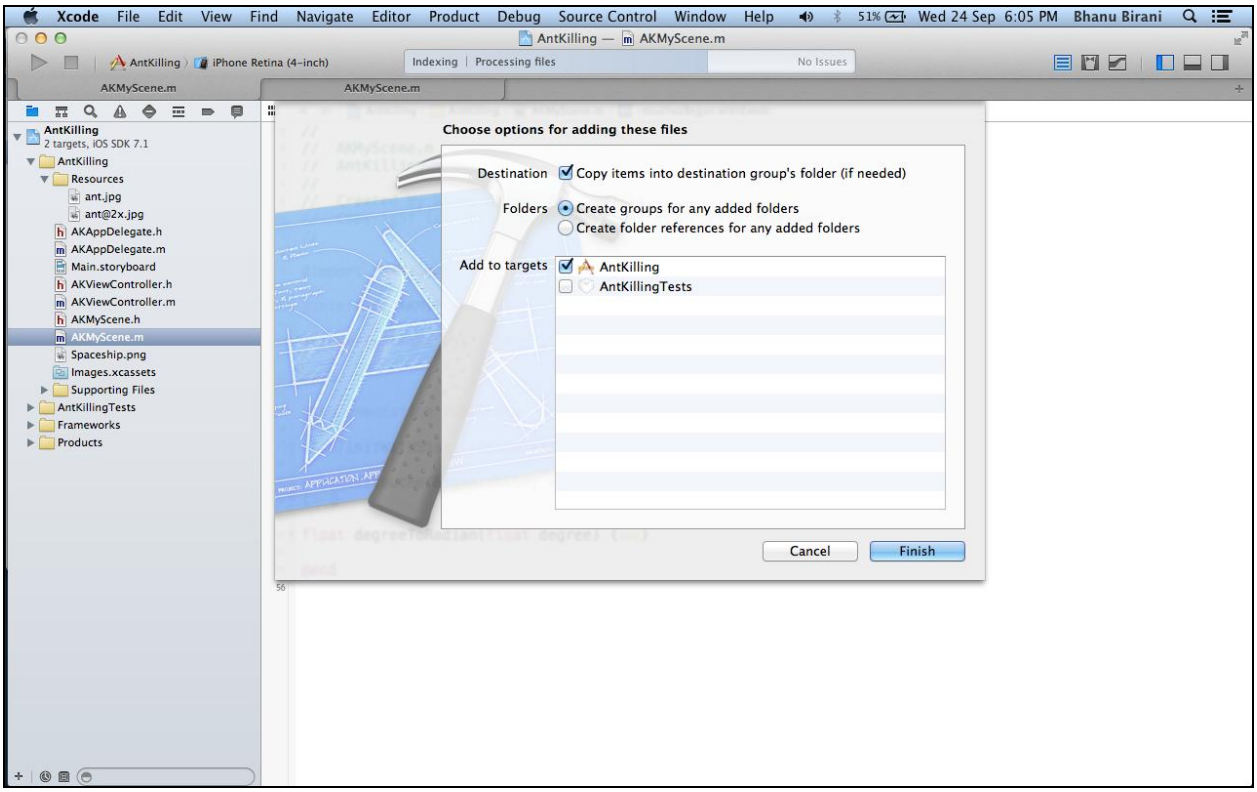

TATA DOC...
12:02 am
68%
Hello, World!
1 node 60.0 fps


AntKilling — AKMyScene.m
AntKilling
Bhanu Birani's iPhone
Finished running AntKilling on Bhanu Birani's iPhone
No Issues
AntKilling
AntKilling
AKMyScene.m
No Selection
AntKilling
2 targets, iOS SDK 7.1
AntKilling
AKAppDelegate.h
AKAppDelegate.m
Main.storyboard
AKViewController.h
AKViewController.m
AKMyScene.h
AKMyScene.m
Spaceship.png
Images.xcassets
Supporting Files
AntKillingTests
Frameworks
Products
//
// AKMyScene.m
// AntKilling
//
// Created by Bhanu Birani on 21/07/14.
// Copyright (c) 2014 YourCompanyName. All rights reserved.
//
#import "AKMyScene.h"
@implementation AKMyScene
-(id)initWithSize:(CGSize)size {
if (self = [super initWithSize:size]) {
/* Setup your scene here */
self.backgroundColor = [SKColor colorWithRed:0.15 green:0.15 blue:0.3 alpha:1.0];
SKLabelNode *myLabel = [SKLabelNode labelNodeWithFontNamed:@"Chalkduster"];
myLabel.text = @"Hello, World!";
myLabel.fontSize = 30;
myLabel.position = CGPointMake(CGRectGetMidX(self.frame),
CGRectGetMidY(self.frame));
[self addChild:myLabel];
}
return self;
}
-(void)touchesBegan:(NSSet *)touches withEvent:(UIEvent *)event {
/* Called when a touch begins */
for (UITouch *touch in touches) {
CGPoint location = [touch locationInNode:self];
SKSpriteNode *sprite = [SKSpriteNode spriteNodeWithImageNamed:@"Spaceship"];
sprite.position = location;

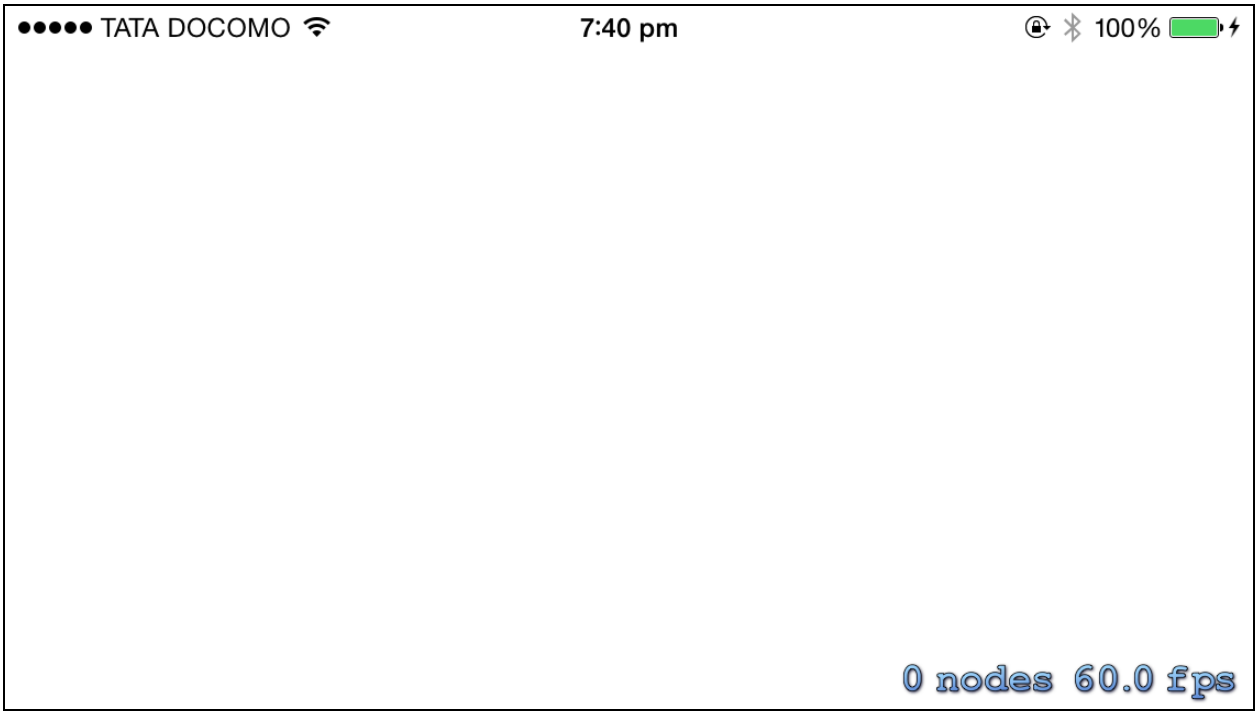

AntKilling
Finished running AntKilling on Bhanu Birani's iPhone
No Issues
AntKilling
General
Capabilities
Info
Build Settings
Build Phases
Build Rules
PROJECT
AntKilling
TARGETS
AntKilling
AntKillingTests
Identity
Bundle Identifier
com.YourCompanyName.AntKilling
Version
1.0
Build
1.0
Team
None
Deployment Info
Deployment Target
7.1
Devices
iPhone
Main Interface
Main
Device Orientation
Portrait
Upside Down
Landscape Left
Landscape Right
Status Bar Style
Default
Hide during application launch
App Icons
Source
AppIcon
Launch Images
Source
LaunchImage
Linked Frameworks and Libraries


AntKilling
Finished running AntKilling on Bhanu Birani's iPhone
No Issues
AntKilling
General
Capabilities
Info
Build Settings
Build Phases
Build Rules
PROJECT
AntKilling
TARGETS
AntKilling
AntKillingTests
Team
None
Deployment Info
Deployment Target
7.1
Devices
iPhone
Main Interface
Main
Device Orientation
Portrait
Upside Down
Landscape Left
Landscape Right
Status Bar Style
Default
Hide during application launch
App Icons
Source
AppIcon
Launch Images
Source
LaunchImage
Linked Frameworks and Libraries
Name
Status
CoreGraphics.framework
Required
UIKit.framework
Required
SpriteKit.framework
Required
Foundation.framework
Required


TATA DOCOMO
8:16 am
58%
Hello, World!
1 node 60.0 fps


Xcode File Edit View Find Navigate Editor Product Debug Source Control Window Help 51% Wed 24 Sep 6:05 PM Bhanu Birani
AntKilling — AKMyScene.m
AntKilling iPhone Retina (4-inch)
Indexing | Processing files
No Issues
AKMyScene.m
AKMyScene.m
AntKilling
2 targets, iOS SDK 7.1
AntKilling
Resources
ant.jpg
ant@2x.jpg
AKAppDelegate.h
AKAppDelegate.m
Main.storyboard
AKViewController.h
AKViewController.m
AKMyScene.h
AKMyScene.m
Spaceship.png
Images.xcassets
Supporting Files
AntKillingTests
Frameworks
Products
Choose options for adding these files
Destination
Copy items into destination group's folder (if needed)
Folders
Create groups for any added folders
Create folder references for any added folders
Add to targets
AntKilling
AntKillingTests
Cancel
Finish

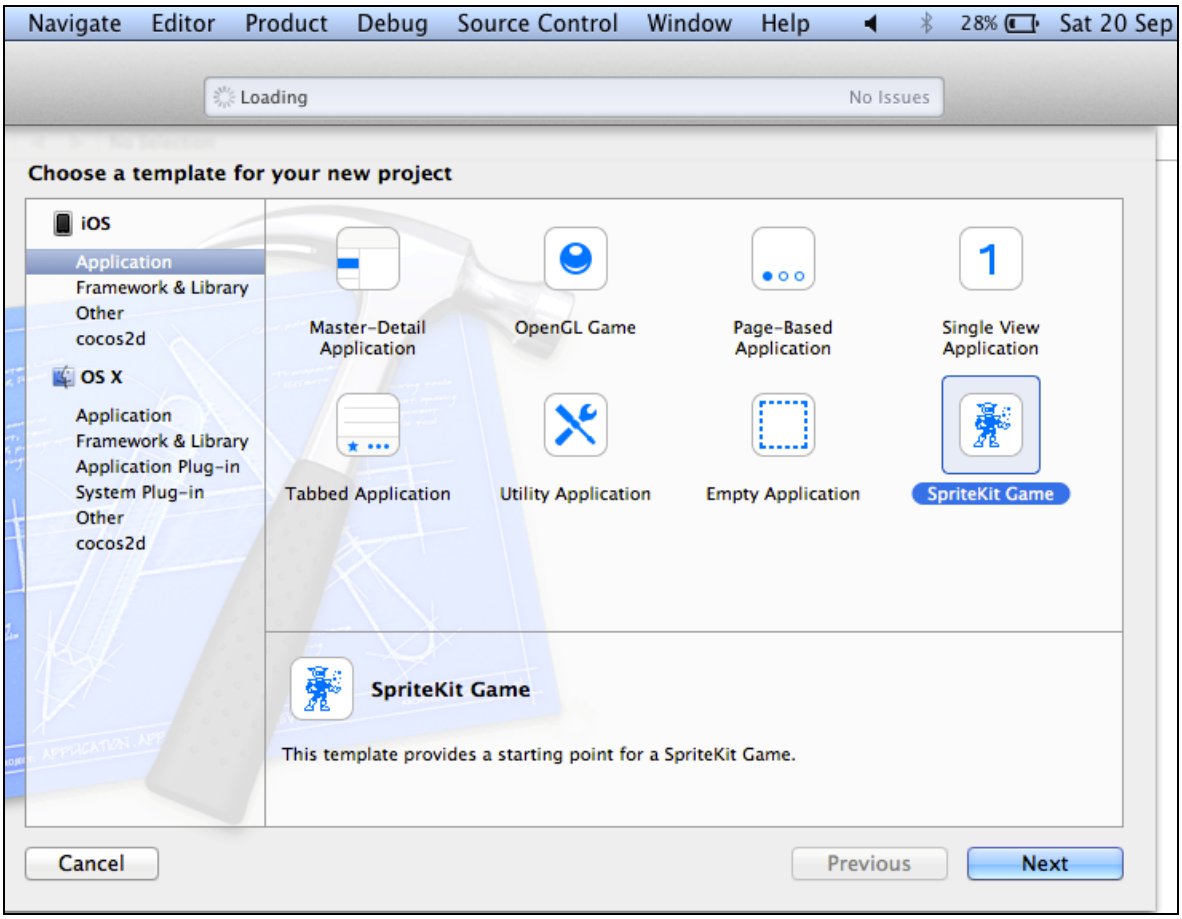
```objc
//
//  AKMyScene.m
//  AntKilling
//
//  Created by Bhanu Birani on 21/07/14.
//  Copyright (c) 2014 YourCompanyName. All rights reserved.
//

#import "AKMyScene.h"

@interface AKMyScene ()

@property (nonatomic) SKSpriteNode *ant;

@end

@implementation AKMyScene

-(id)initWithSize:(CGSize)size {
    if (self = [super initWithSize:size]) {
        /* Setup your scene here */

        NSLog(@"Size: %@", NSStringFromCGSize(size));

        self.backgroundColor = [SKColor colorWithRed:1.0 green:1.0 blue:1.0 alpha:1.0];

        self.ant = [SKSpriteNode spriteNodeWithImageNamed:@"ant.jpg"];
        self.ant.position = CGPointMake(self.size.width/2, self.size.height/2);
        [self addChild:self.ant];

    }
    return self;
}

@end
```

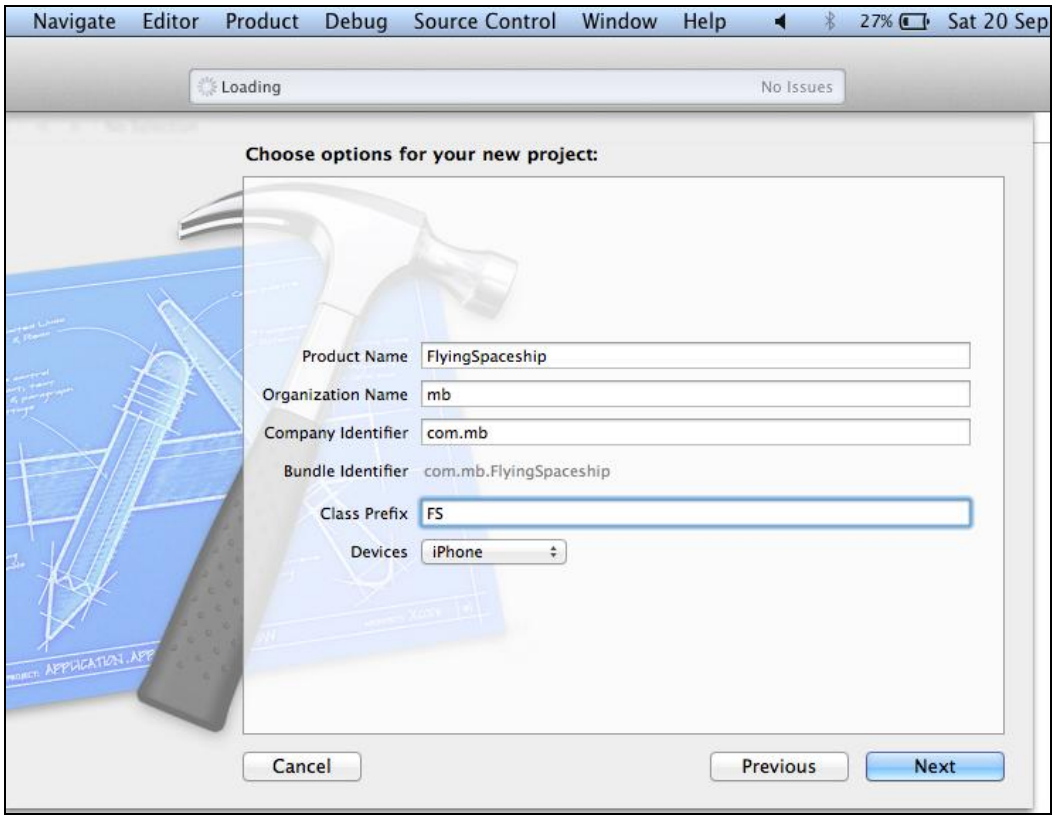


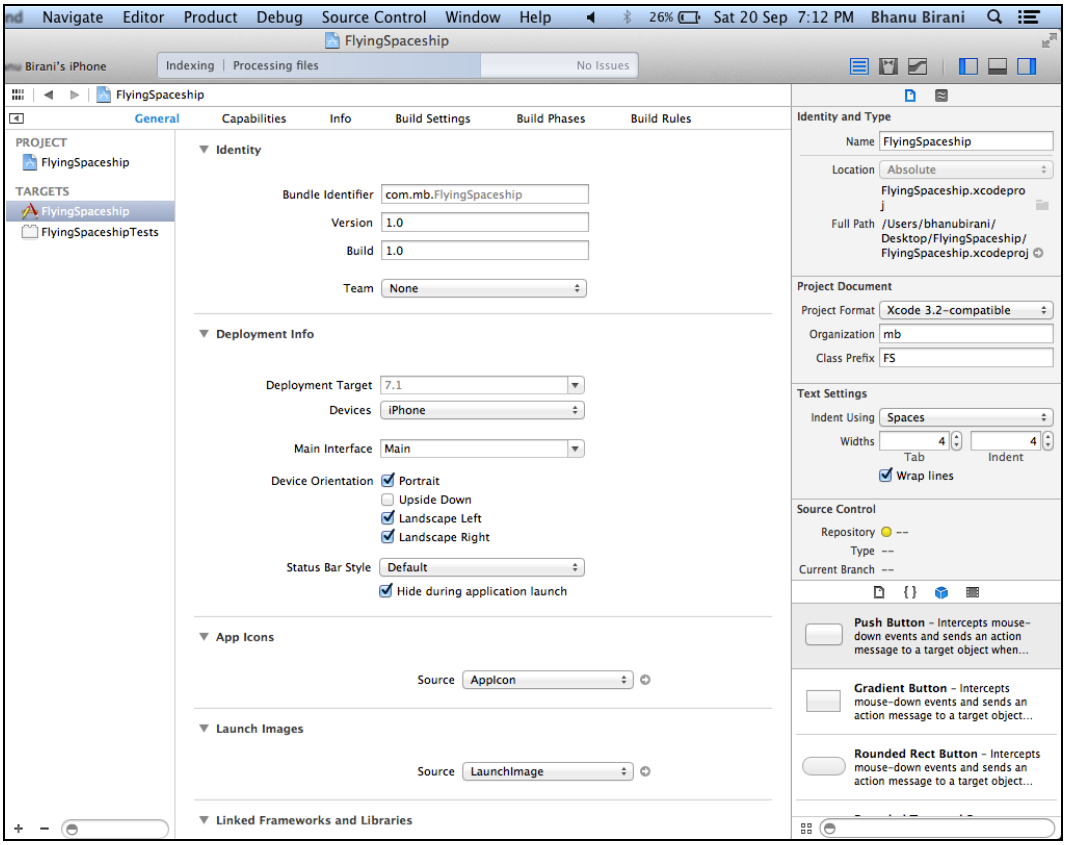
Key	Type	Value
▼ Information Property List	Dictionary	(16 items)
Localization native development r…	String	en
Bundle display name	String	${PRODUCT_NAME}
Executable file	String	${EXECUTABLE_NAME}
Bundle identifier	String	com.YourCompanyName.${PRODUCT_NAME:rfc1034identifier}
InfoDictionary version	String	6.0
Bundle name	String	${PRODUCT_NAME}
Bundle OS Type code	String	APPL
Bundle versions string, short	String	1.0
Bundle creator OS Type code	String	????
Bundle version	String	1.0
Application requires iPhone envir…	Boolean	YES
Main storyboard file base name	String	Main
▶ Required device capabilities	Array	(1 item)
Status bar is initially hidden	Boolean	YES
View controller-based status…	Boolean	NO
▶ Supported interface orientations	Array	(2 items)

1 node 60.0 fps

Chapter 2

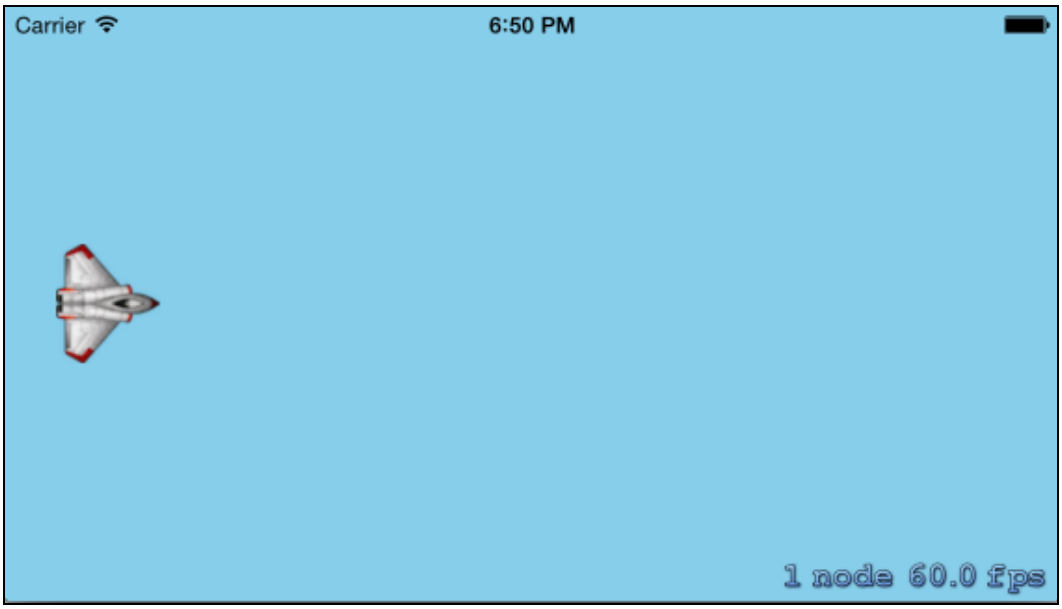

Navigate Editor Product Debug Source Control Window Help 28% Sat 20 Sep
Loading
No Issues
Choose a template for your new project
iOS
Application
Framework & Library
Other
cocos2d
OS X
Application
Framework & Library
Application Plug-in
System Plug-in
Other
cocos2d
Master-Detail Application
OpenGL Game
Page-Based Application
Single View Application
Tabbed Application
Utility Application
Empty Application
SpriteKit Game
SpriteKit Game
This template provides a starting point for a SpriteKit Game.
Cancel
Previous
Next

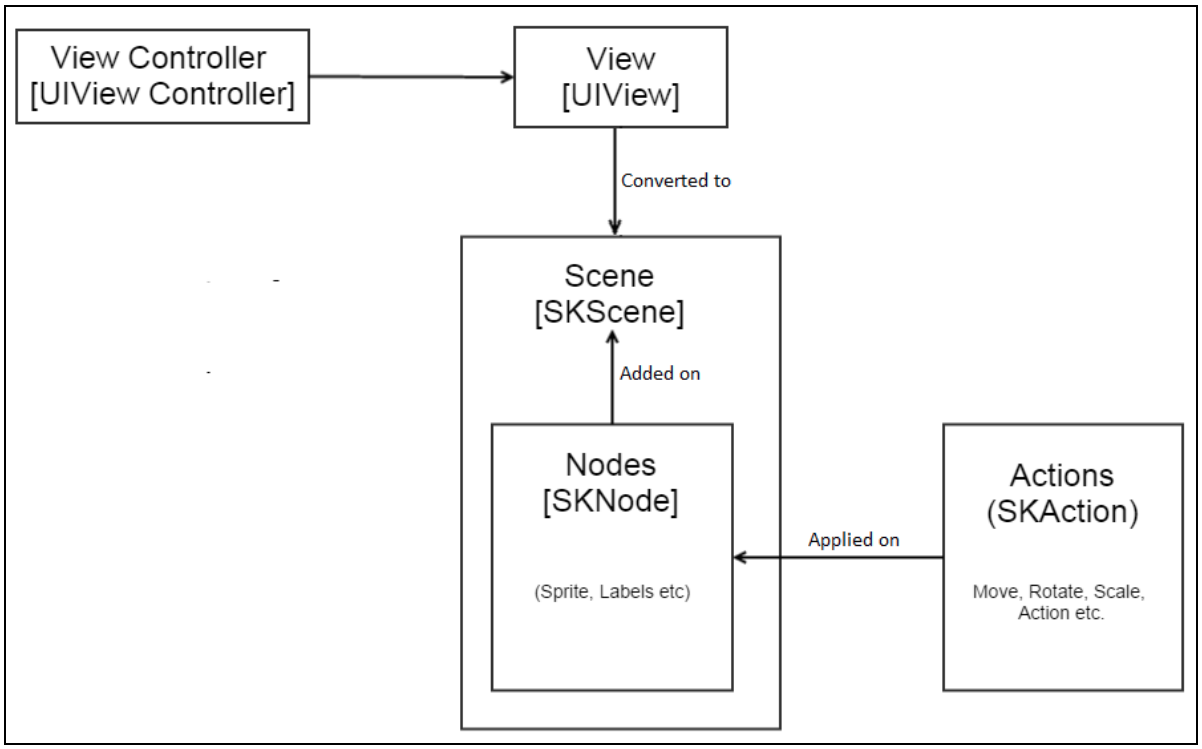

Navigate Editor Product Debug Source Control Window Help 27% Sat 20 Sep
Loading
No Issues
Choose options for your new project:
Product Name FlyingSpaceship
Organization Name mb
Company Identifier com.mb
Bundle Identifier com.mb.FlyingSpaceship
Class Prefix FS
Devices iPhone
Cancel
Previous
Next

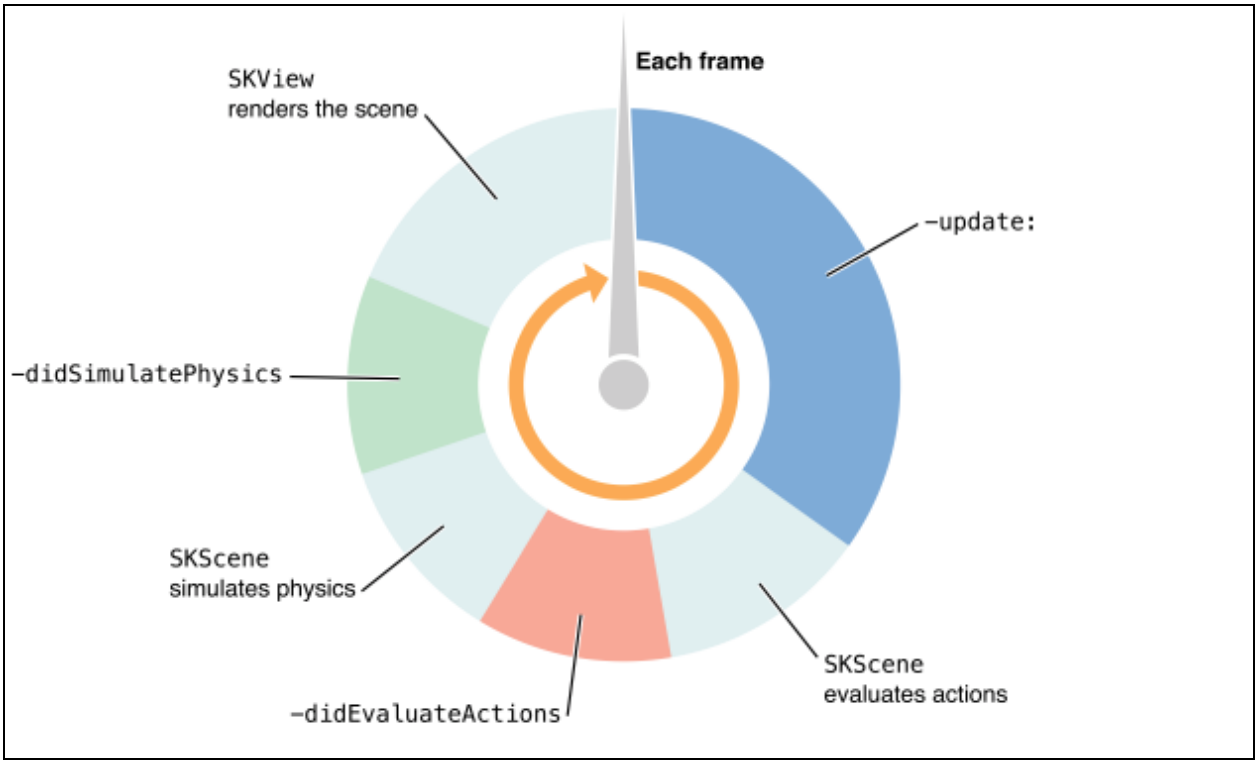

Navigate Editor Product Debug Source Control Window Help 26% Sat 20 Sep 7:12 PM Bhanu Birani
FlyingSpaceship
Birani's iPhone
Indexing | Processing files
No Issues
General Capabilities Info Build Settings Build Phases Build Rules
PROJECT
FlyingSpaceship
TARGETS
FlyingSpaceship
FlyingSpaceshipTests
Identity
Bundle Identifier com.mb.FlyingSpaceship
Version 1.0
Build 1.0
Team None
Deployment Info
Deployment Target 7.1
Devices iPhone
Main Interface Main
Device Orientation Portrait
Upside Down
Landscape Left
Landscape Right
Status Bar Style Default
Hide during application launch
App Icons
Source AppIcon
Launch Images
Source LaunchImage
Linked Frameworks and Libraries
Identity and Type
Name FlyingSpaceship
Location Absolute
FlyingSpaceship.xcodeproj
Full Path /Users/bhanubirani/Desktop/FlyingSpaceship/FlyingSpaceship.xcodeproj
Project Document
Project Format Xcode 3.2-compatible
Organization mb
Class Prefix FS
Text Settings
Indent Using Spaces
Widths 4 4
Tab Indent
Wrap lines
Source Control
Repository --
Type --
Current Branch --
Push Button - Intercepts mouse-down events and sends an action message to a target object when...
Gradient Button - Intercepts mouse-down events and sends an action message to a target object...
Rounded Rect Button - Intercepts mouse-down events and sends an action message to a target object...

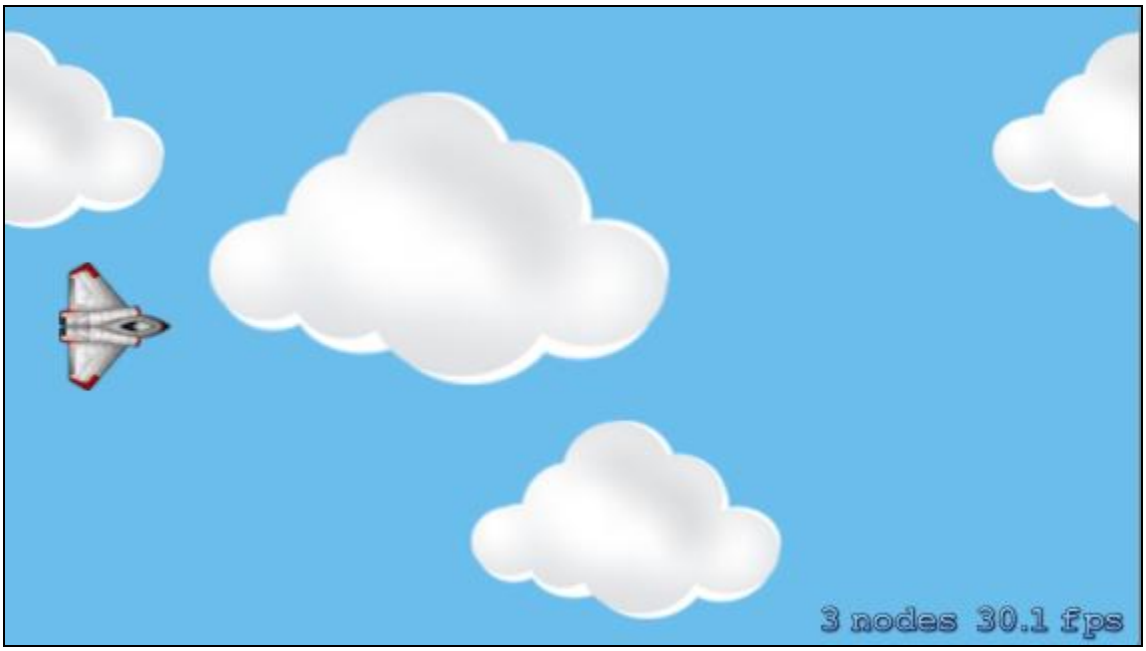
```objc
#import "FSViewController.h"
#import "FSMyScene.h"

@implementation FSViewController

- (void)viewDidLoad
{
    [super viewDidLoad];
}

- (void)viewWillLayoutSubviews
{
    [super viewWillLayoutSubviews];

    // Configure the view.
    SKView * skView = (SKView *)self.view;
    skView.showsFPS = YES;
    skView.showsNodeCount = YES;

    // Create and configure the scene.
    SKScene * scene = [FSMyScene sceneWithSize:skView.bounds.size];
    scene.scaleMode = SKSceneScaleModeAspectFill;

    // Present the scene.
    [skView presentScene:scene];
}
```

```objc
#import "FSMyScene.h"

@interface FSMyScene()

@property (nonatomic, strong) SKSpriteNode*     spaceShipSprite;

@end

@implementation FSMyScene

-(id)initWithSize:(CGSize)size {
    if (self = [super initWithSize:size]) {
        /* Setup your scene here */

        self.backgroundColor = [UIColor colorWithRed:135.0/255.0
                                               green:206.0/255.0
                                                blue:235.0/255.0
                                               alpha:1.0];

        self.spaceShipSprite = [SKSpriteNode spriteNodeWithImageNamed:@"Spaceship"];

        self.spaceShipSprite.position = CGPointMake(self.spaceShipSprite.size.width,
                                                    size.height/2);

        [self addChild:self.spaceShipSprite];
    }
    return self;
}

-(void)update:(CFTimeInterval)currentTime {
    /* Called before each frame is rendered */
}

@end
```




View Controller
[UIView Controller]
View
[UIView]
Converted to
Scene
[SKScene]
Added on
Nodes
[SKNode]
(Sprite, Labels etc)
Applied on
Actions
(SKAction)
Move, Rotate, Scale,
Action etc.

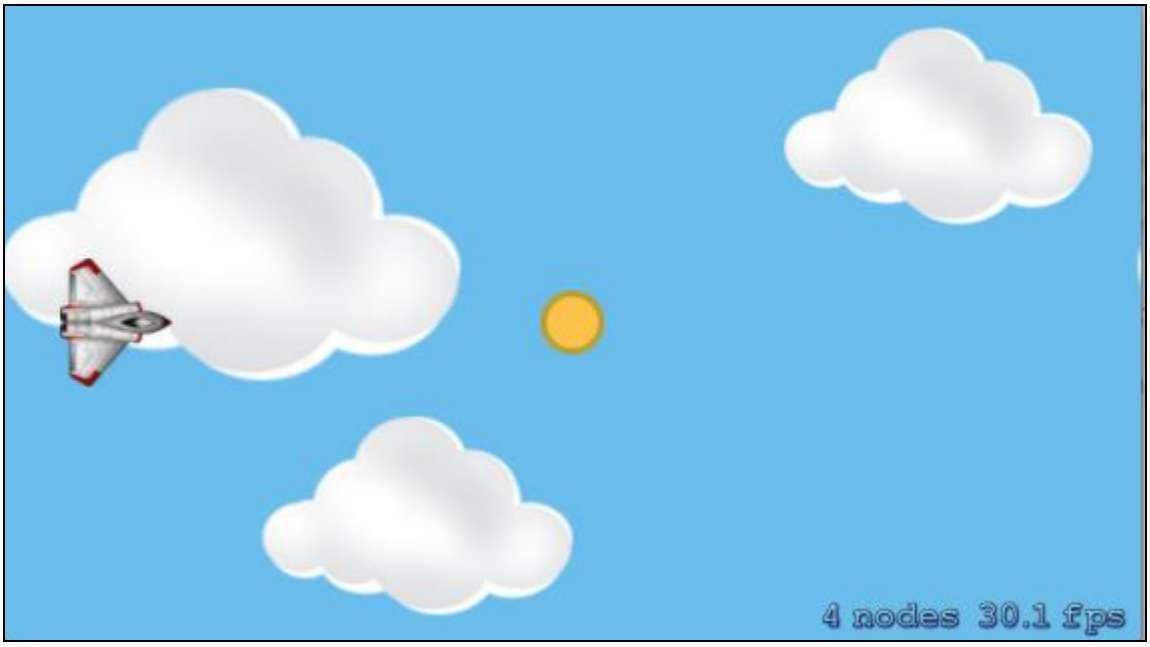

Each frame
SKView
renders the scene
-update:
-didSimulatePhysics
SKScene
simulates physics
-didEvaluateActions
SKScene
evaluates actions



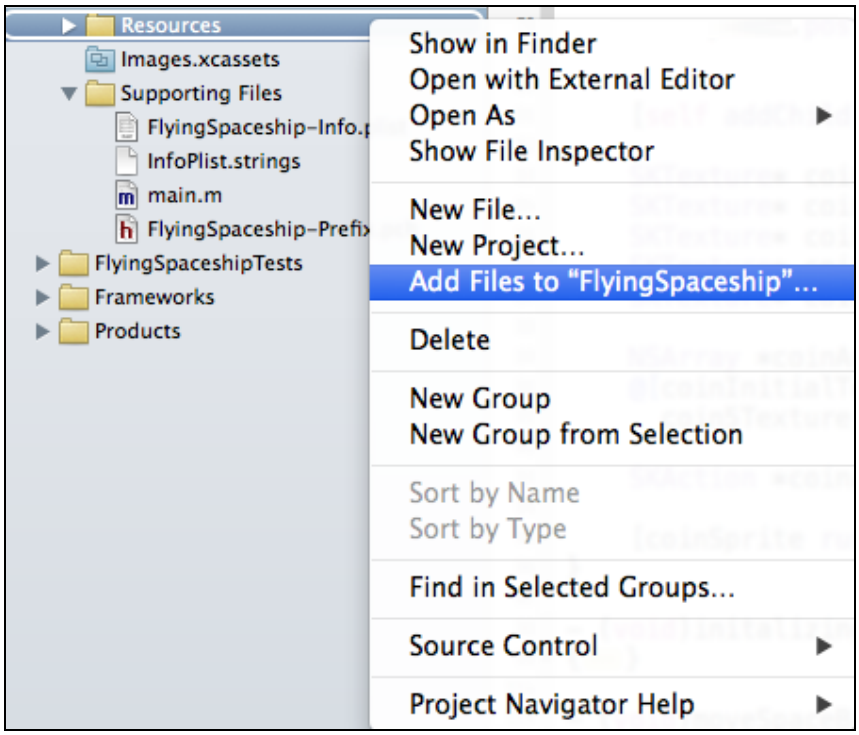
Chapter 3

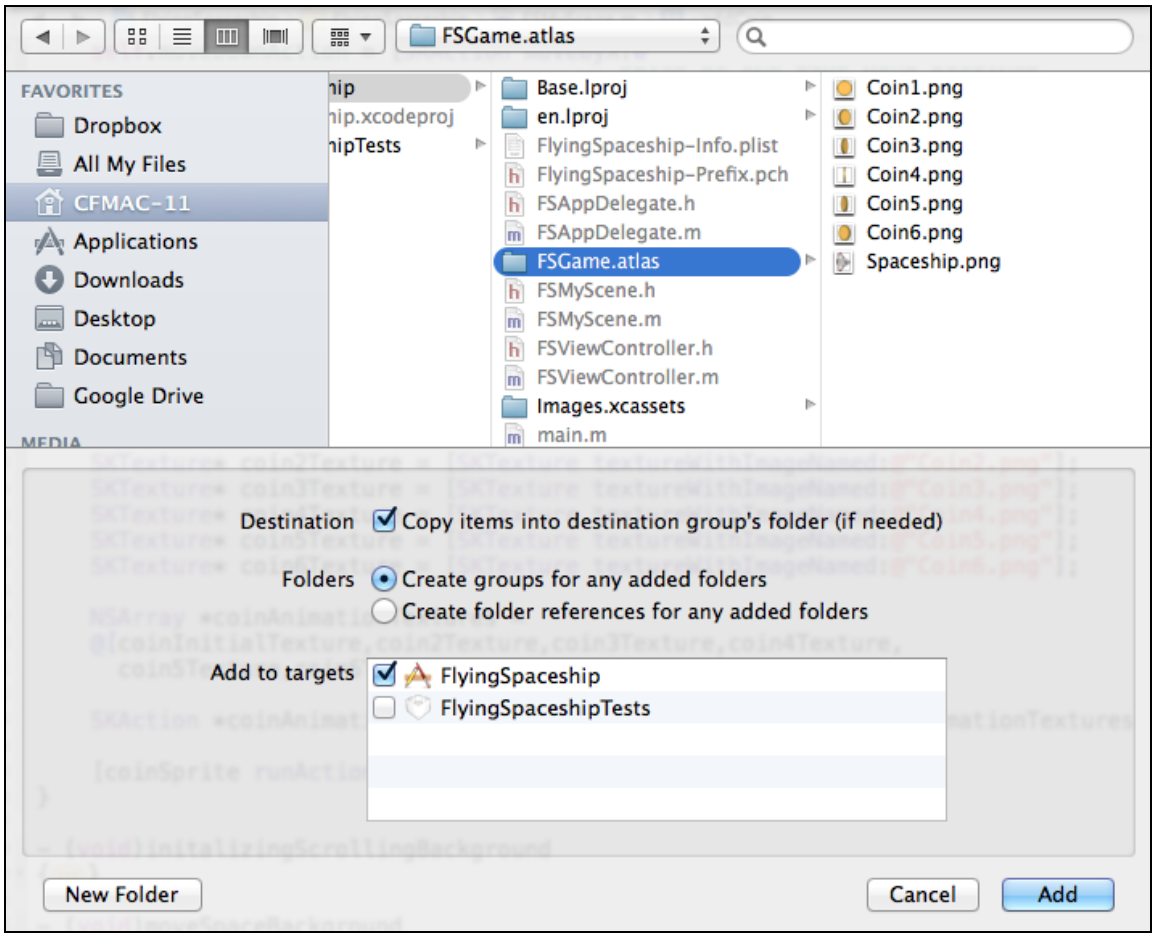
```
SKTexture* spaceShipTexture = [SKTexture textureWithImageNamed:@"Spaceship.png"];

self.spaceShipSprite = [SKSpriteNode spriteNodeWithTexture:spaceShipTexture];

self.spaceShipSprite.position = CGPointMake(self.spaceShipSprite.size.width,
                                            self.frame.size.height/2);

[self addChild:self.spaceShipSprite];
```

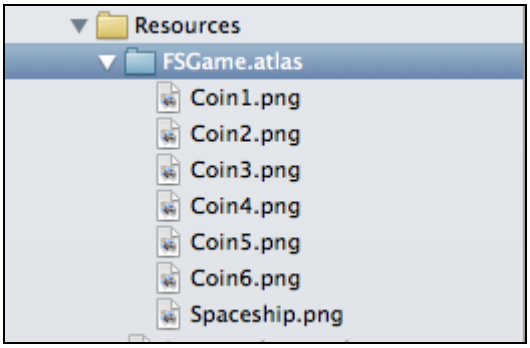
```objc
- (void)addCoin
{
    SKTexture* coinInitialTexture = [SKTexture textureWithImageNamed:@"Coin1.png"];

    SKSpriteNode* coinSprite = [SKSpriteNode spriteNodeWithTexture:coinInitialTexture];

    coinSprite.position = CGPointMake(self.frame.size.width/2,
                                      self.frame.size.height/2);

    [self addChild:coinSprite];

    SKTexture* coin2Texture = [SKTexture textureWithImageNamed:@"Coin2.png"];
    SKTexture* coin3Texture = [SKTexture textureWithImageNamed:@"Coin3.png"];
    SKTexture* coin4Texture = [SKTexture textureWithImageNamed:@"Coin4.png"];
    SKTexture* coin5Texture = [SKTexture textureWithImageNamed:@"Coin5.png"];
    SKTexture* coin6Texture = [SKTexture textureWithImageNamed:@"Coin6.png"];

    NSArray *coinAnimationTextures =
    @[coinInitialTexture,coin2Texture,coin3Texture,coin4Texture,
      coin5Texture,coin6Texture,coinInitialTexture];

    SKAction *coinAnimation = [SKAction animateWithTextures:coinAnimationTextures
                                                timePerFrame:0.2];
    [coinSprite runAction:coinAnimation];
}
```

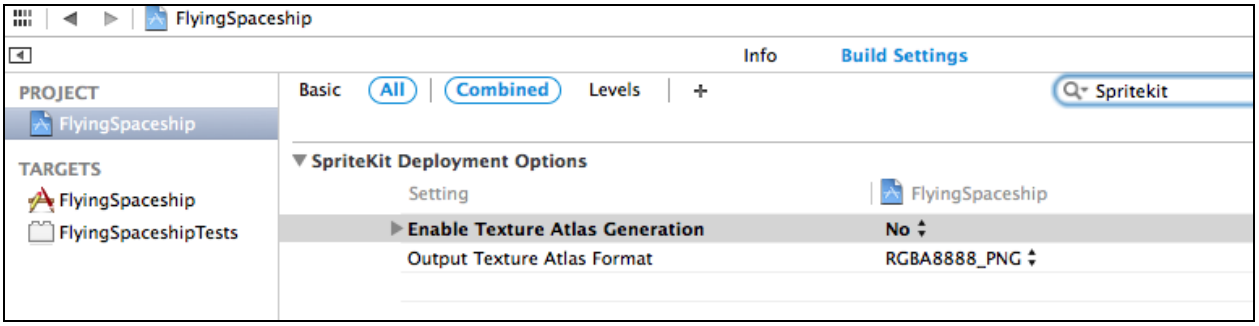


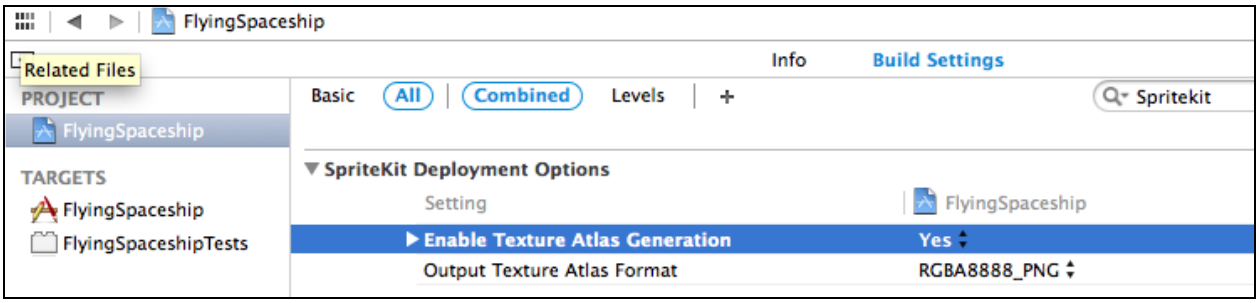

4 nodes 30.0 fps

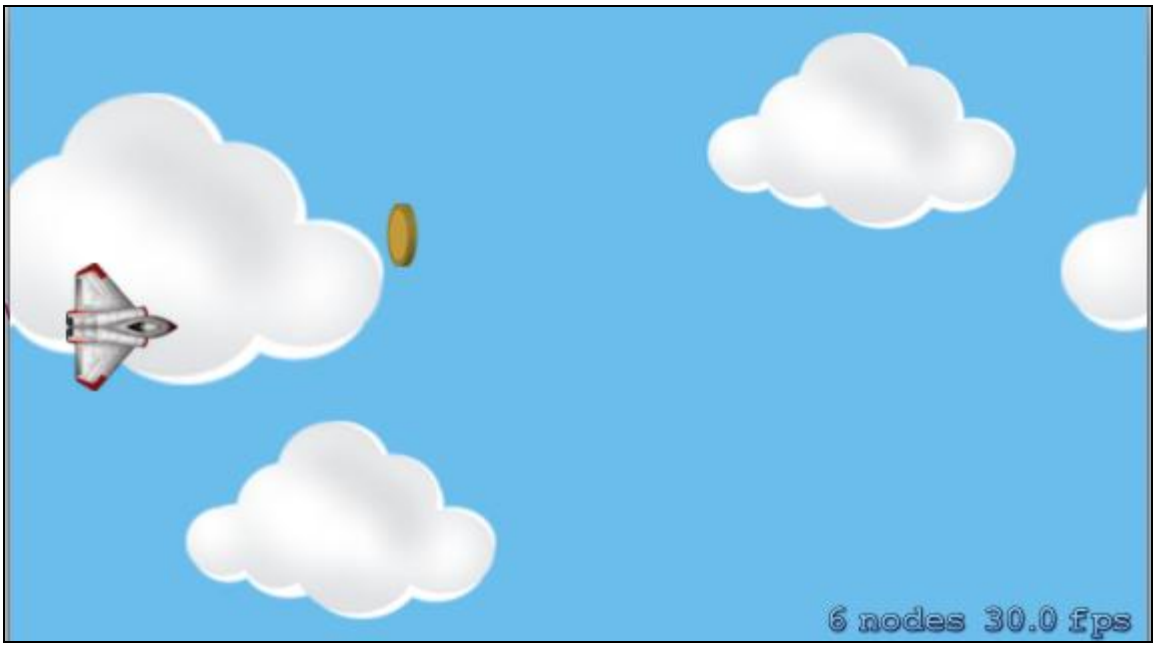

Resources
Images.xcassets
Supporting Files
FlyingSpaceship-Info.p
InfoPlist.strings
main.m
FlyingSpaceship-Prefix
FlyingSpaceshipTests
Frameworks
Products
Show in Finder
Open with External Editor
Open As
Show File Inspector
New File...
New Project...
Add Files to "FlyingSpaceship"...
Delete
New Group
New Group from Selection
Sort by Name
Sort by Type
Find in Selected Groups...
Source Control
Project Navigator Help

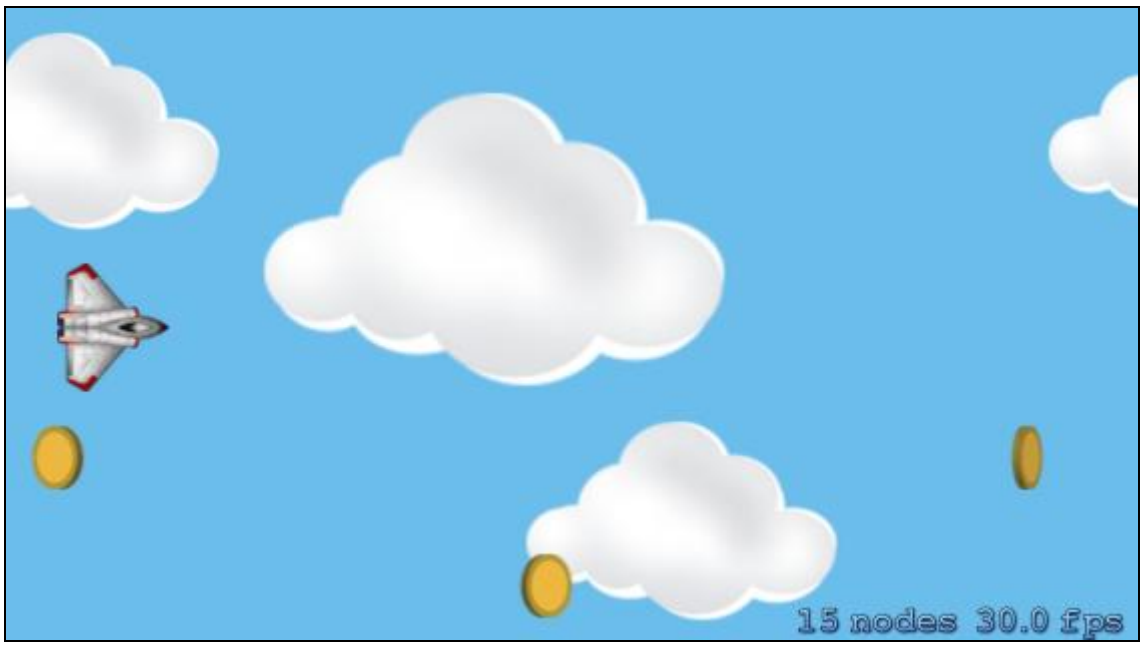

FSGame.atlas
FAVORITES
Dropbox
All My Files
CFMAC-11
Applications
Downloads
Desktop
Documents
Google Drive
MEDIA
Base.lproj
en.lproj
FlyingSpaceship-Info.plist
FlyingSpaceship-Prefix.pch
FSAppDelegate.h
FSAppDelegate.m
FSGame.atlas
FSMyScene.h
FSMyScene.m
FSViewController.h
FSViewController.m
Images.xcassets
main.m
Coin1.png
Coin2.png
Coin3.png
Coin4.png
Coin5.png
Coin6.png
Spaceship.png
Destination
Copy items into destination group's folder (if needed)
Folders
Create groups for any added folders
Create folder references for any added folders
Add to targets
FlyingSpaceship
FlyingSpaceshipTests
New Folder
Cancel
Add


Resources
FSGame.atlas
Coin1.png
Coin2.png
Coin3.png
Coin4.png
Coin5.png
Coin6.png
Spaceship.png

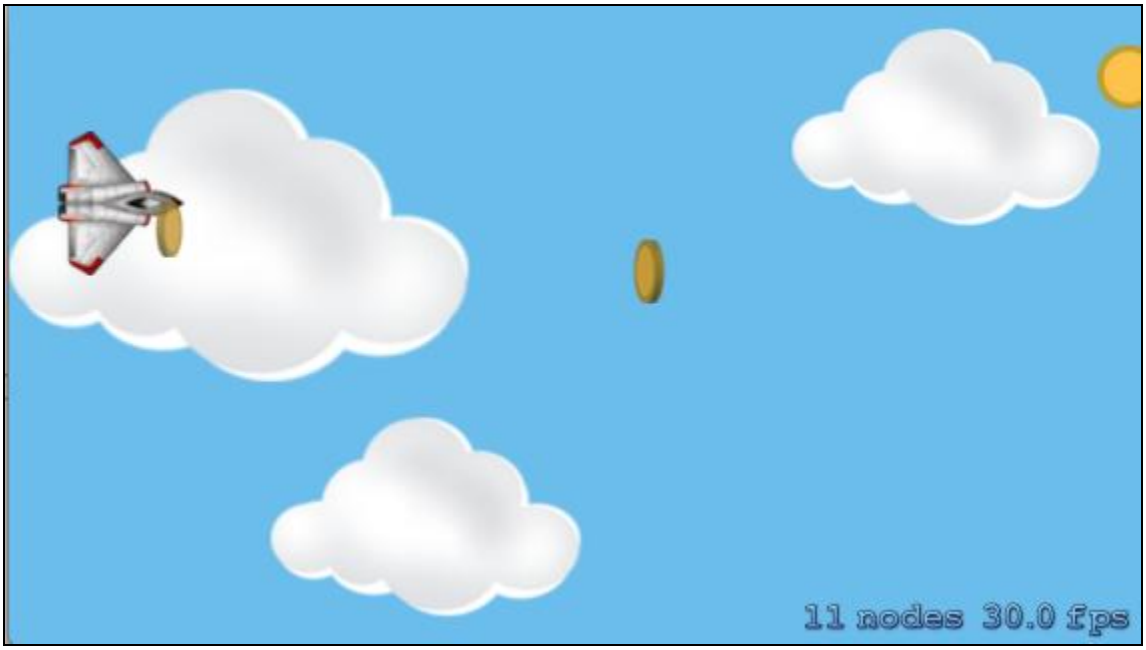

FlyingSpaceship
Info
Build Settings
PROJECT
FlyingSpaceship
TARGETS
FlyingSpaceship
FlyingSpaceshipTests
Basic
All
Combined
Levels
Spritekit
SpriteKit Deployment Options
Setting
FlyingSpaceship
Enable Texture Atlas Generation
No
Output Texture Atlas Format
RGBA8888_PNG

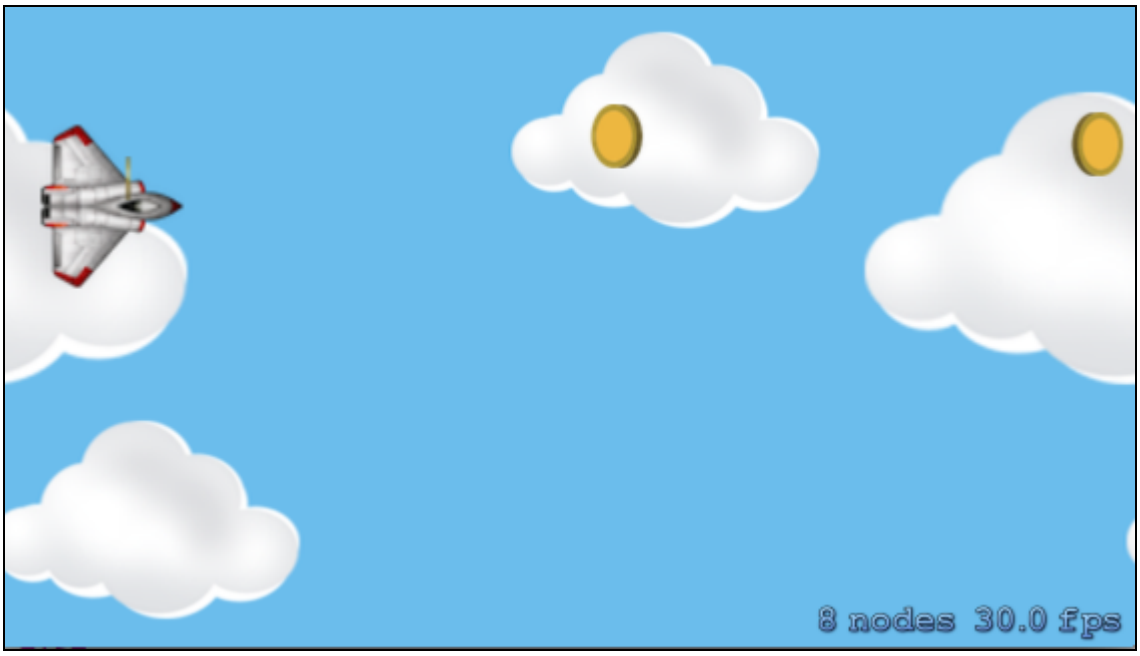

FlyingSpaceship
Related Files
Info
Build Settings
PROJECT
FlyingSpaceship
TARGETS
FlyingSpaceship
FlyingSpaceshipTests
Basic
All
Combined
Levels
Spritekit
SpriteKit Deployment Options
Setting
FlyingSpaceship
Enable Texture Atlas Generation
Yes
Output Texture Atlas Format
RGBA8888_PNG

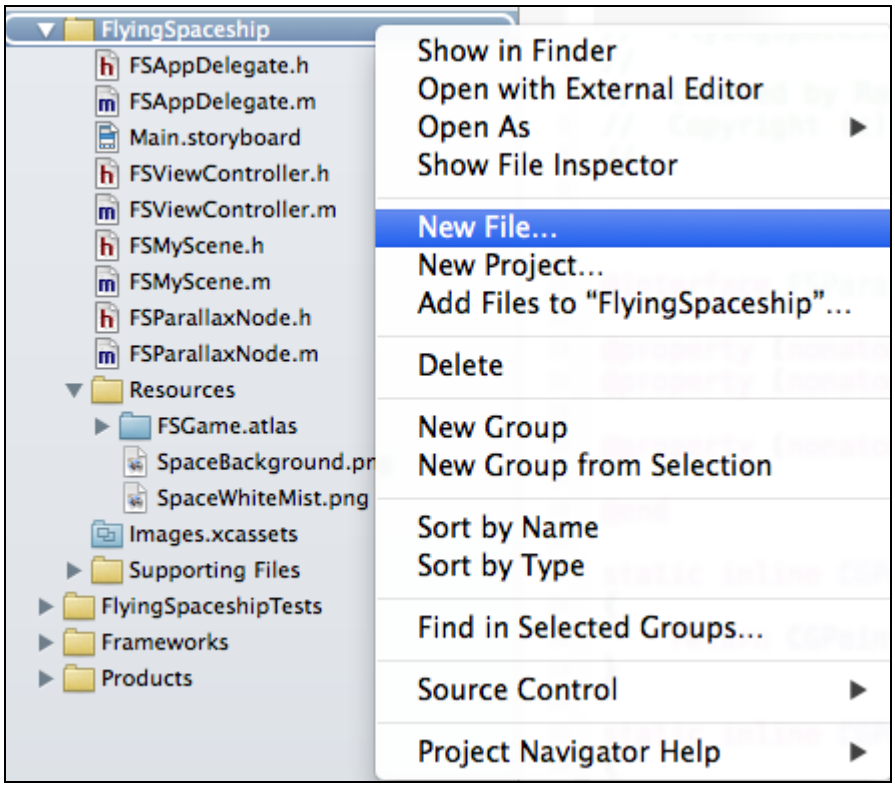

6 nodes 30.0 fps

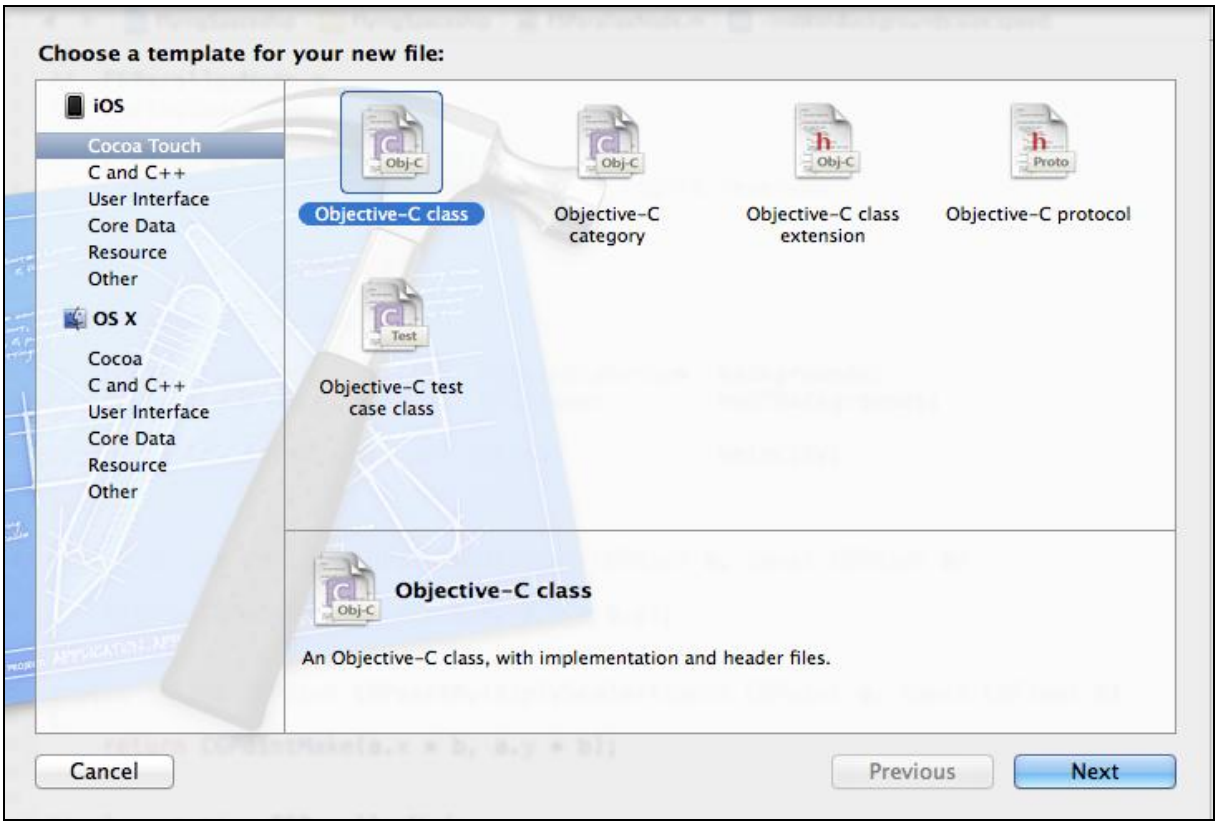

15 nodes 30.0 fps

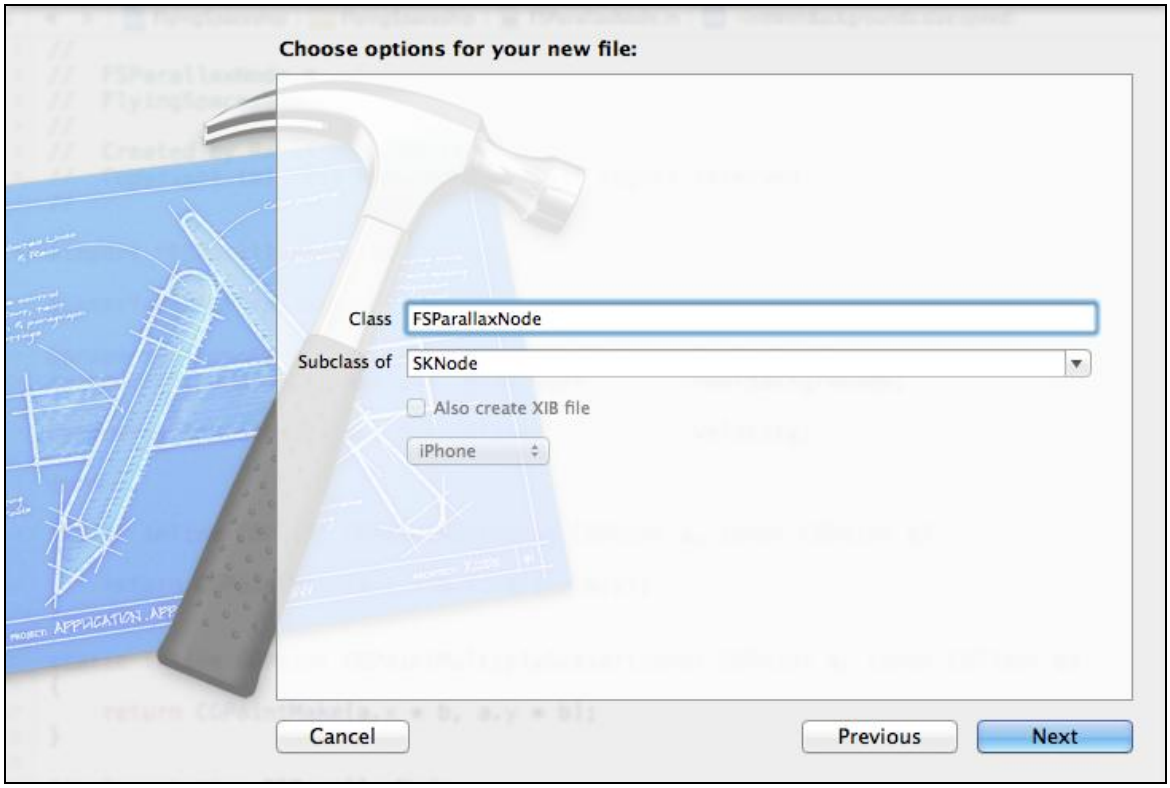
```
- (void)detectSpaceShipCollisionWithCoins
{
    [self enumerateChildNodesWithName:@"Coin"
                            usingBlock: ^(SKNode *node, BOOL *stop)
     {
         if (CGRectIntersectsRect(self.spaceShipSprite.frame, node.frame))
         {
             [self spaceShipCollidedWithCoin:node];
         }
     }];

}
```

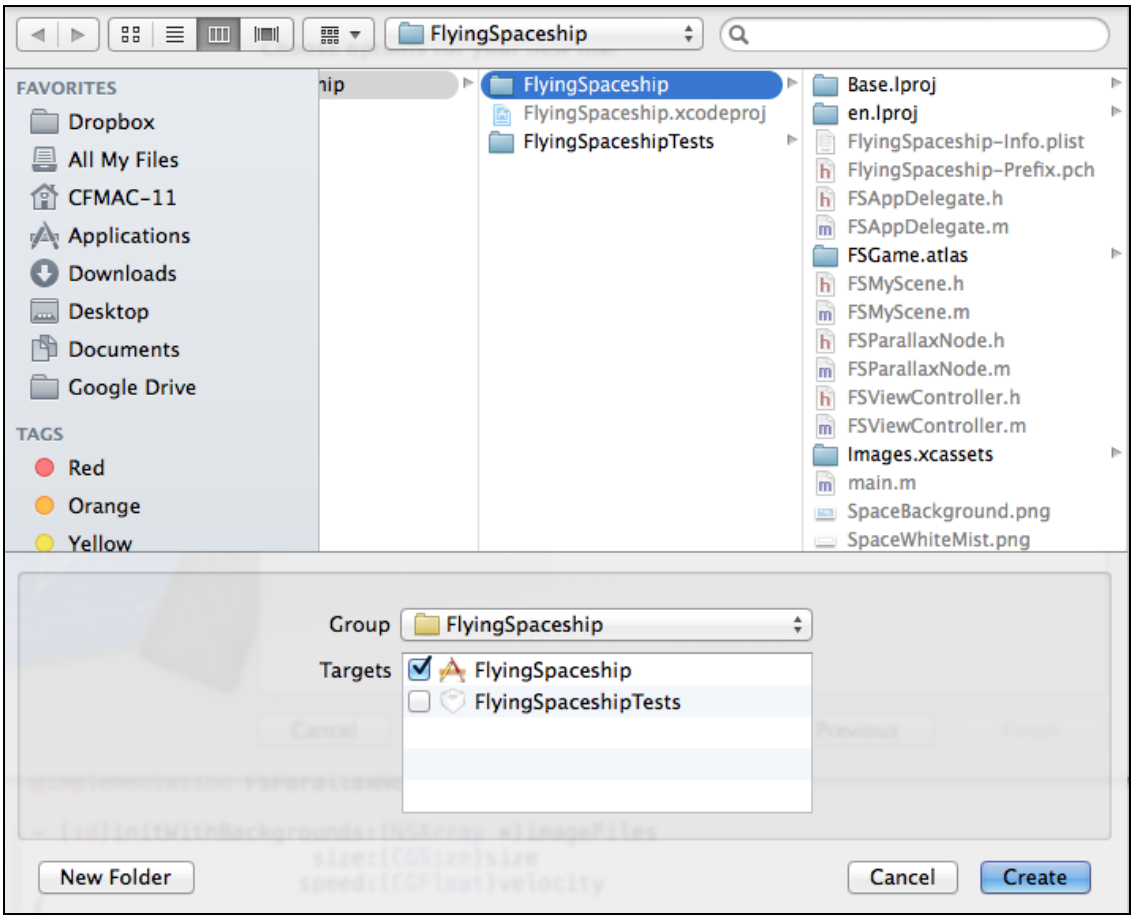



8 nodes 30.0 fps


FlyingSpaceship
FSAppDelegate.h
FSAppDelegate.m
Main.storyboard
FSViewController.h
FSViewController.m
FSMyScene.h
FSMyScene.m
FSParallaxNode.h
FSParallaxNode.m
Resources
FSGame.atlas
SpaceBackground.pr
SpaceWhiteMist.png
Images.xcassets
Supporting Files
FlyingSpaceshipTests
Frameworks
Products
Show in Finder
Open with External Editor
Open As
Show File Inspector
New File...
New Project...
Add Files to "FlyingSpaceship"...
Delete
New Group
New Group from Selection
Sort by Name
Sort by Type
Find in Selected Groups...
Source Control
Project Navigator Help

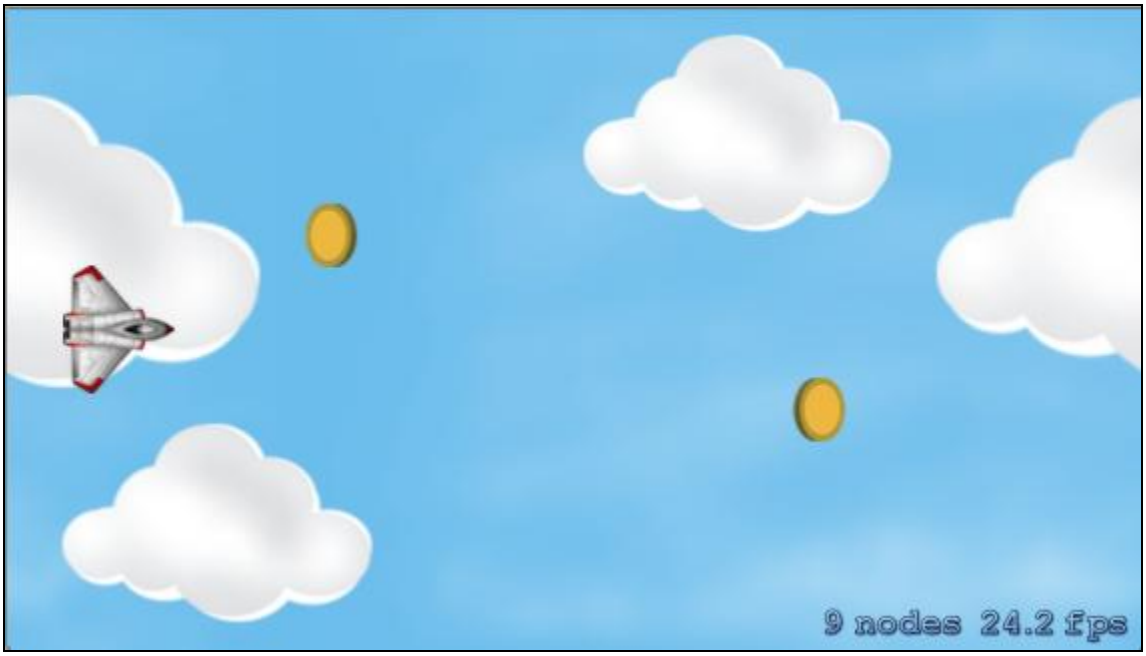

Choose a template for your new file:
iOS
Cocoa Touch
C and C++
User Interface
Core Data
Resource
Other
OS X
Cocoa
C and C++
User Interface
Core Data
Resource
Other
Objective-C class
Objective-C category
Objective-C class extension
Objective-C protocol
Objective-C test case class
Objective-C class
An Objective-C class, with implementation and header files.
Cancel
Previous
Next


Choose options for your new file:
Class
FSParallaxNode
Subclass of
SKNode
Also create XIB file
iPhone
Cancel
Previous
Next

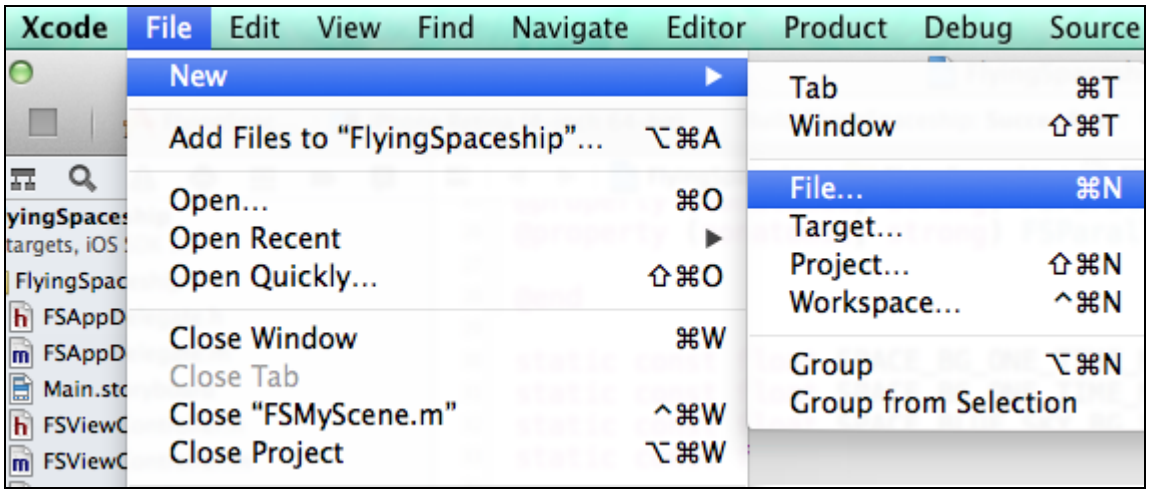


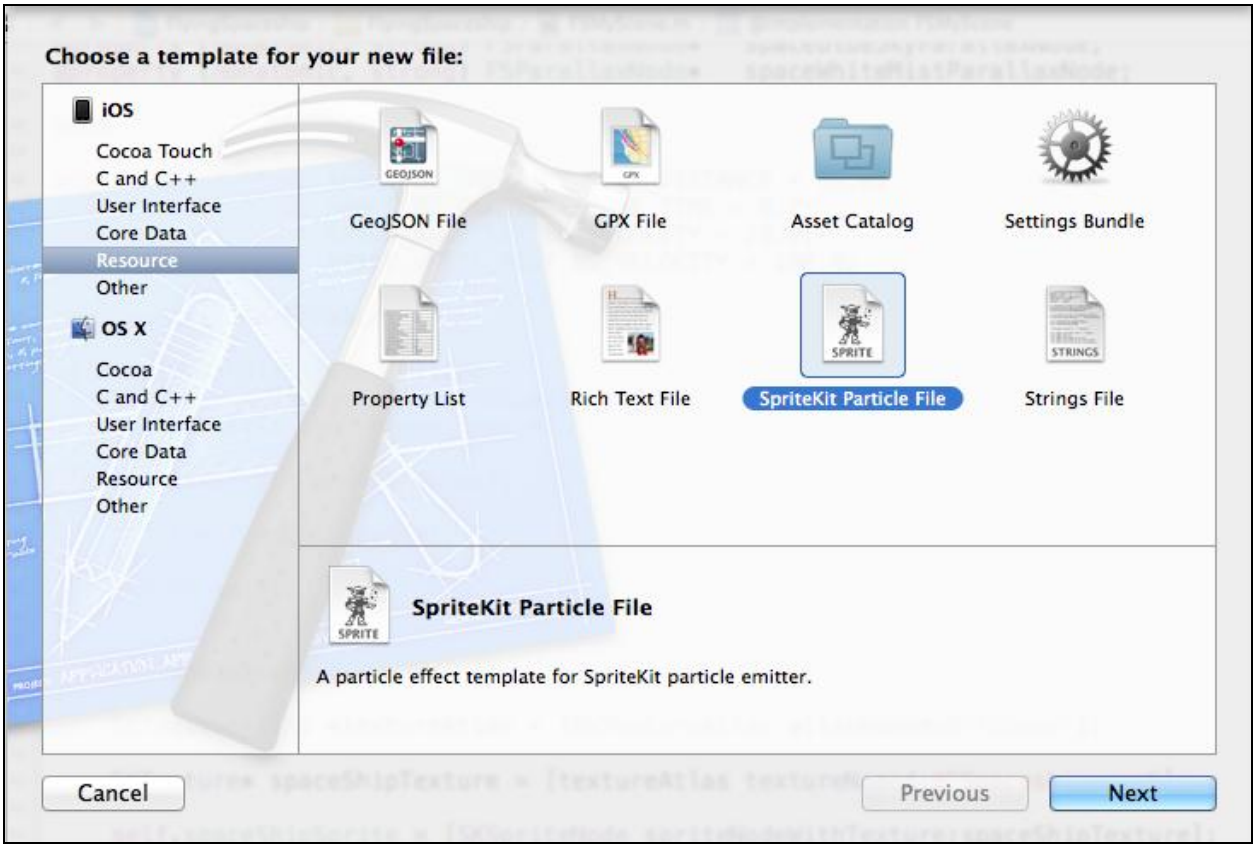

```
- (id)initWithBackgrounds:(NSArray *)imageFiles
                     size:(CGSize)size
                    speed:(CGFloat)velocity
{
    if (self = [super init])
    {
        self.velocity = velocity;

        self.noOfBackgrounds = [imageFiles count];
        self.backgrounds =
        [NSMutableArray arrayWithCapacity:self.noOfBackgrounds];

        [imageFiles enumerateObjectsUsingBlock:^(id obj, NSUInteger idx, BOOL *stop)
        {
            SKSpriteNode *backgroundNode =
            [SKSpriteNode spriteNodeWithImageNamed:obj];

            backgroundNode.size = size;
            backgroundNode.anchorPoint = CGPointZero;
            backgroundNode.position = CGPointMake(size.width * idx, 0.0);
            backgroundNode.name = @"background";
            [self.backgrounds addObject:backgroundNode];
            [self addChild:backgroundNode];
        }];
    }
    return self;
}
```

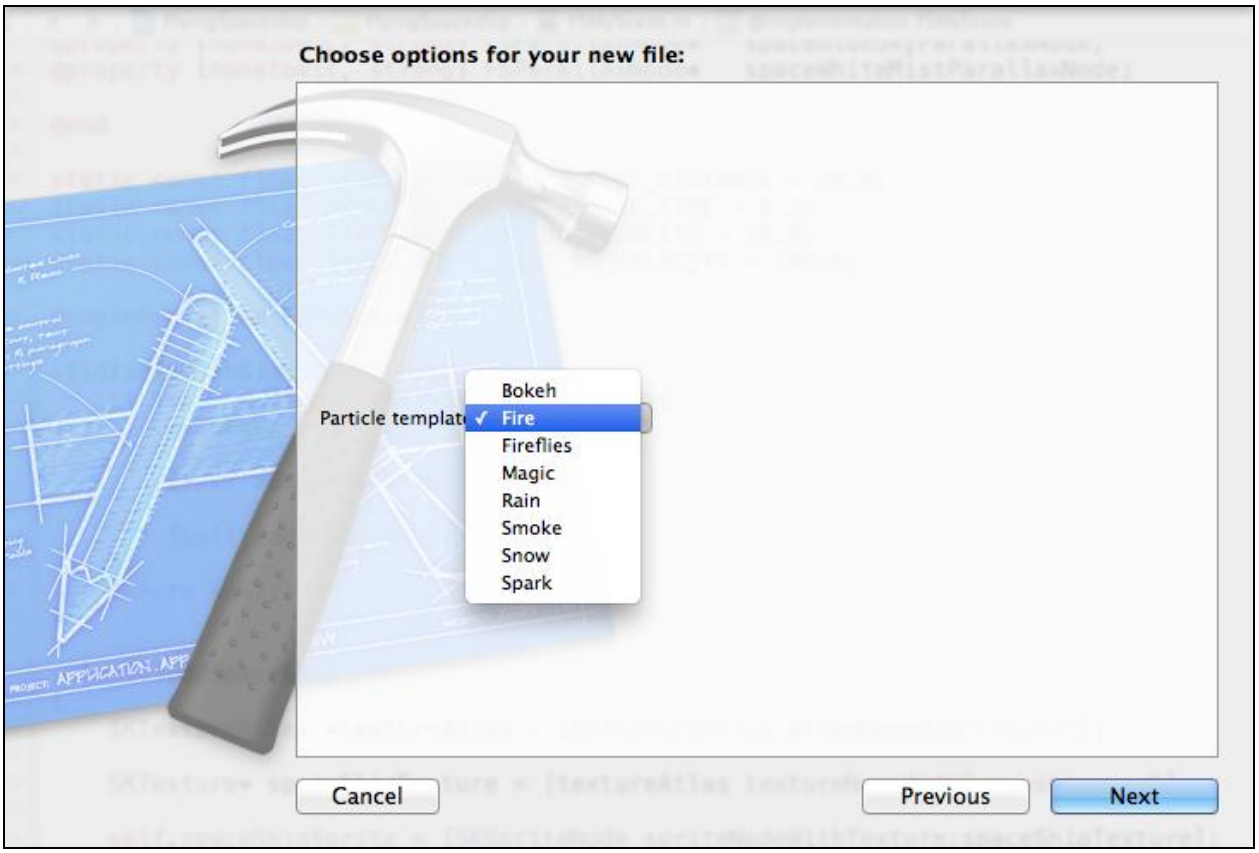
```
- (void)updateForDeltaTime:(NSTimeInterval)diffTime
{
    CGPoint bgVelocity = CGPointMake(self.velocity, 0.0);

    CGPoint amtToMove = CGPointMultiplyScalar(bgVelocity,diffTime);

    self.position = CGPointAdd(self.position, amtToMove);

    SKNode *backgroundScreen = self.parent;

    [self.backgrounds enumerateObjectsUsingBlock:^(id obj, NSUInteger idx, BOOL *stop)
    {
        SKSpriteNode *bg = (SKSpriteNode *)obj;

        CGPoint bgScreenPos = [self convertPoint:bg.position
                                          toNode:backgroundScreen];

        if (bgScreenPos.x <= -bg.size.width)
        {
            bg.position =
            CGPointMake(bg.position.x + (bg.size.width * self.noOfBackgrounds),
                        bg.position.y);
        }
    }];
}
```

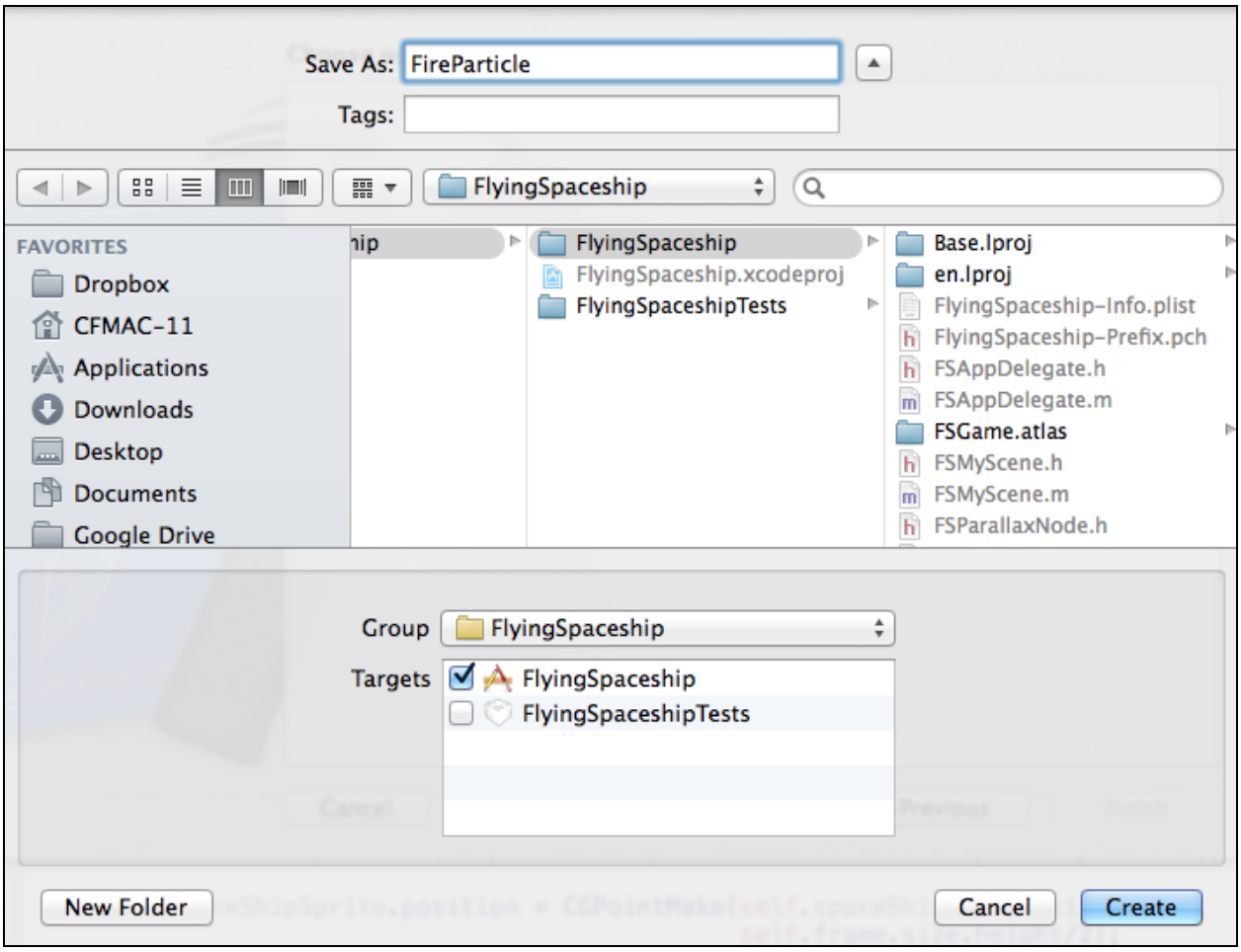


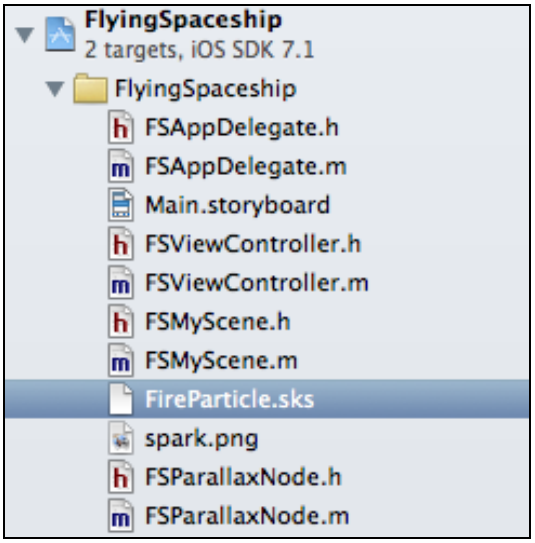
Chapter 4

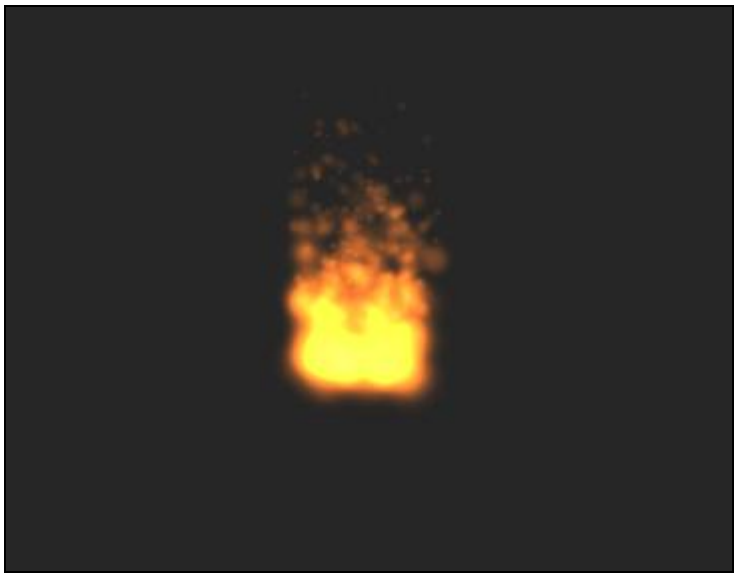

Xcode
File
Edit
View
Find
Navigate
Editor
Product
Debug
Source
New
Add Files to "FlyingSpaceship"... ⌥⌘A
Open... ⌘O
Open Recent
Open Quickly... ⇧⌘O
Close Window ⌘W
Close Tab
Close "FSMyScene.m" ^⌘W
Close Project ⌥⌘W
Tab ⌘T
Window ⇧⌘T
File... ⌘N
Target...
Project... ⇧⌘N
Workspace... ^⌘N
Group ⌥⌘N
Group from Selection

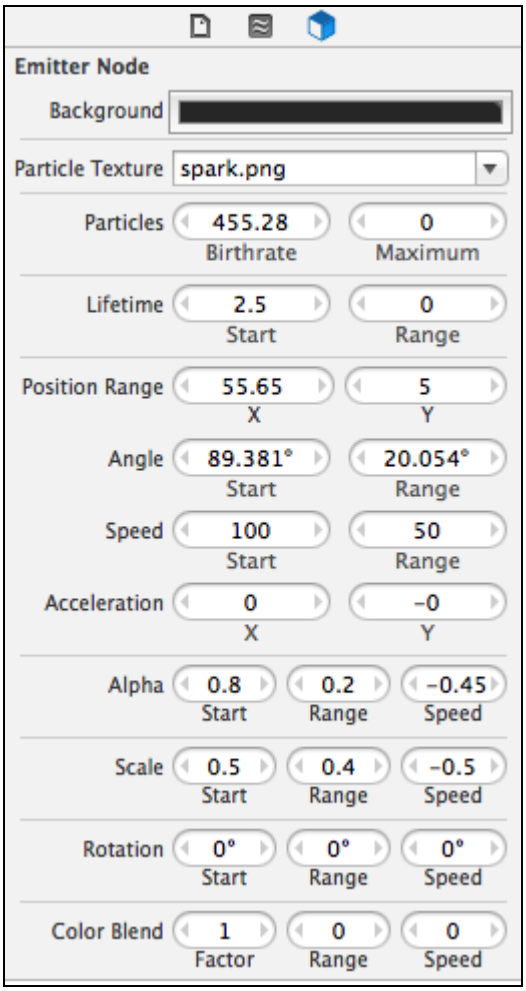

Choose a template for your new file:
iOS
Cocoa Touch
C and C++
User Interface
Core Data
Resource
Other
OS X
Cocoa
C and C++
User Interface
Core Data
Resource
Other
GeoJSON File
GPX File
Asset Catalog
Settings Bundle
Property List
Rich Text File
SpriteKit Particle File
Strings File
SpriteKit Particle File
A particle effect template for SpriteKit particle emitter.
Cancel
Previous
Next

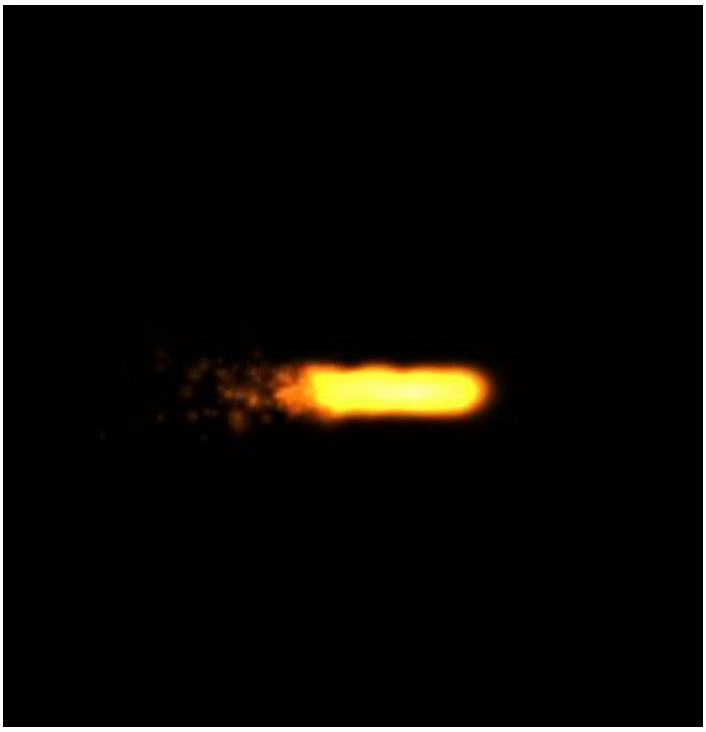

Choose options for your new file:
Particle templat
Bokeh
Fire
Fireflies
Magic
Rain
Smoke
Snow
Spark
Cancel
Previous
Next

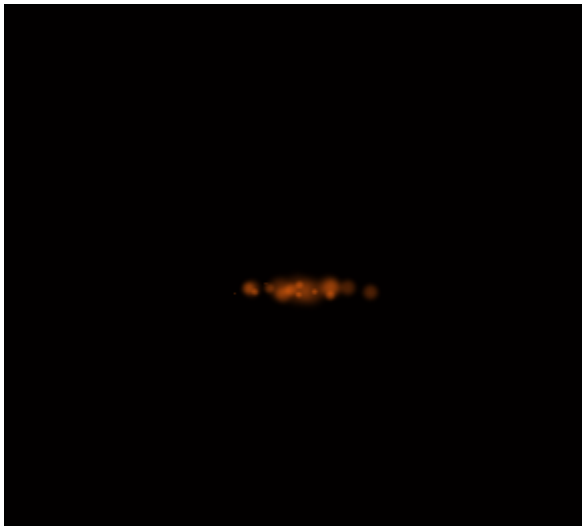

Save As: FireParticle
Tags:
FlyingSpaceship
FAVORITES
Dropbox
CFMAC-11
Applications
Downloads
Desktop
Documents
Google Drive
FlyingSpaceship
FlyingSpaceship.xcodeproj
FlyingSpaceshipTests
Base.lproj
en.lproj
FlyingSpaceship-Info.plist
FlyingSpaceship-Prefix.pch
FSAppDelegate.h
FSAppDelegate.m
FSGame.atlas
FSMyScene.h
FSMyScene.m
FSParallaxNode.h
Group FlyingSpaceship
Targets
FlyingSpaceship
FlyingSpaceshipTests
New Folder
Cancel
Create

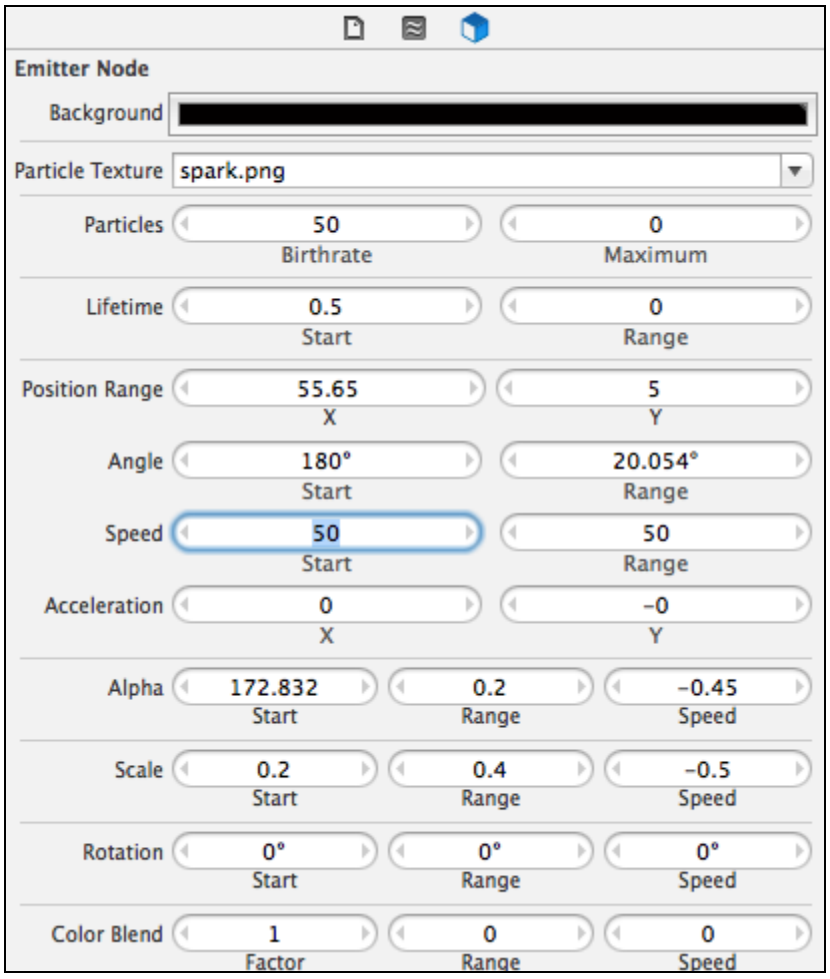

FlyingSpaceship
2 targets, iOS SDK 7.1
FlyingSpaceship
FSAppDelegate.h
FSAppDelegate.m
Main.storyboard
FSViewController.h
FSViewController.m
FSMyScene.h
FSMyScene.m
FireParticle.sks
spark.png
FSParallaxNode.h
FSParallaxNode.m

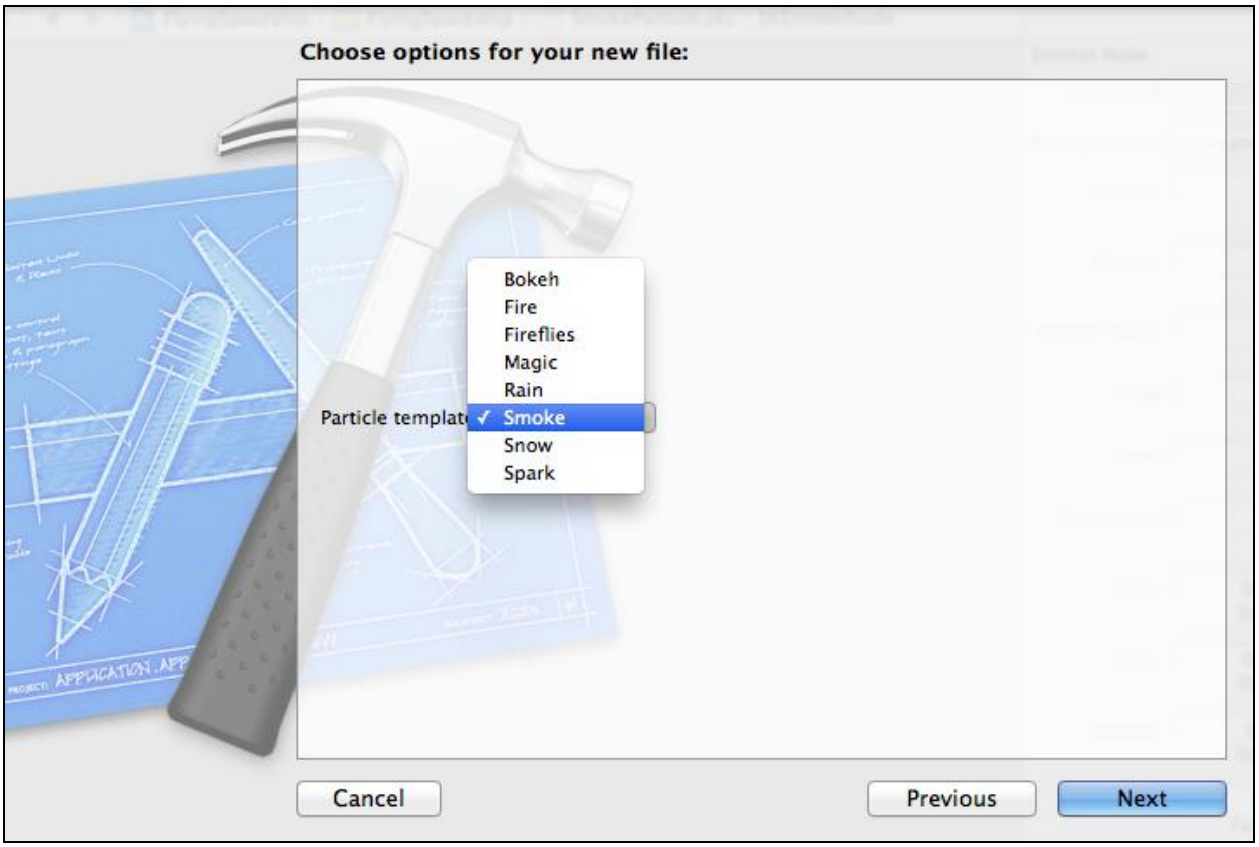


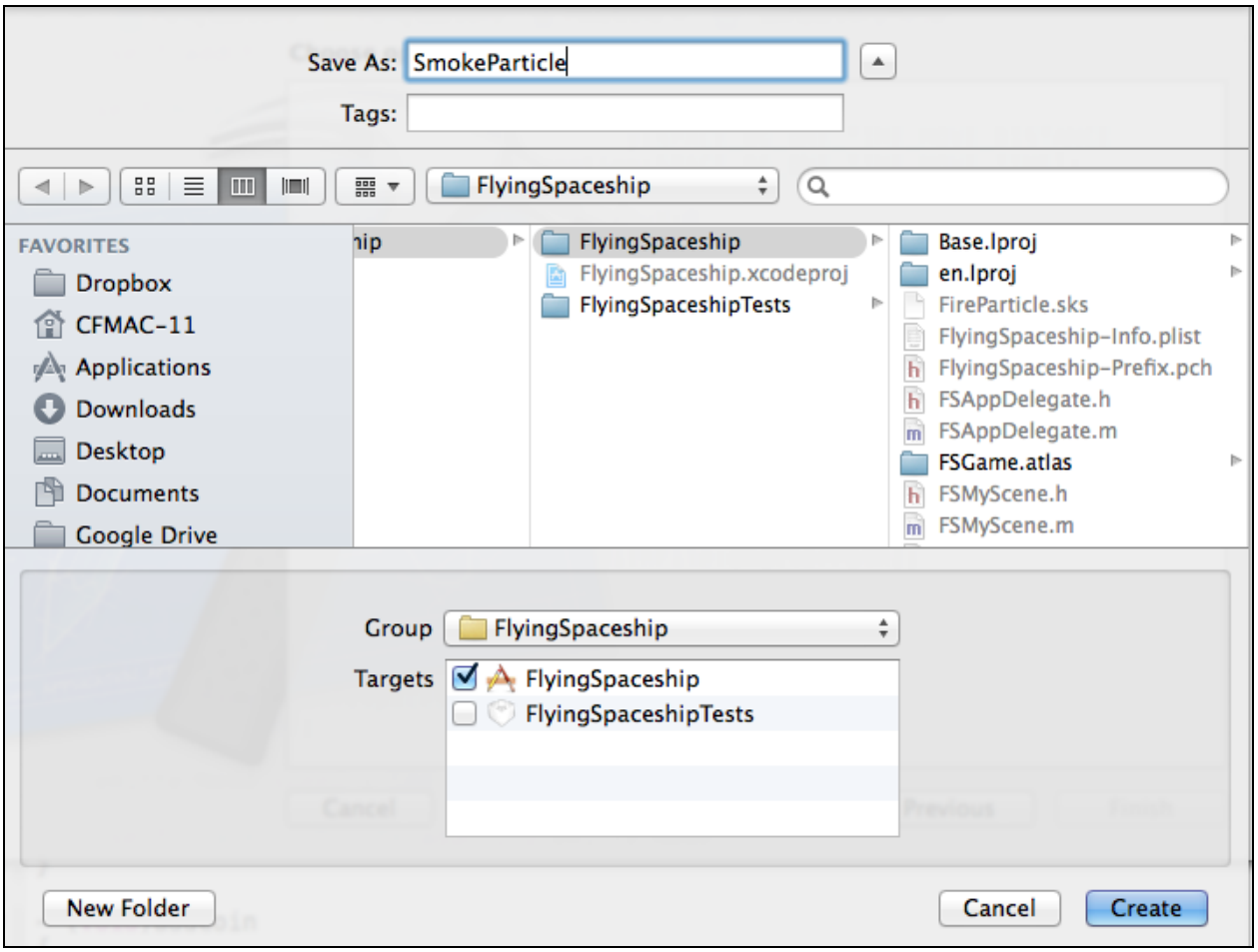

Emitter Node
Background
Particle Texture
spark.png
Particles
455.28
Birthrate
0
Maximum
Lifetime
2.5
Start
0
Range
Position Range
55.65
X
5
Y
Angle
89.381°
Start
20.054°
Range
Speed
100
Start
50
Range
Acceleration
0
X
-0
Y
Alpha
0.8
Start
0.2
Range
-0.45
Speed
Scale
0.5
Start
0.4
Range
-0.5
Speed
Rotation
0°
Start
0°
Range
0°
Speed
Color Blend
1
Factor
0
Range
0
Speed

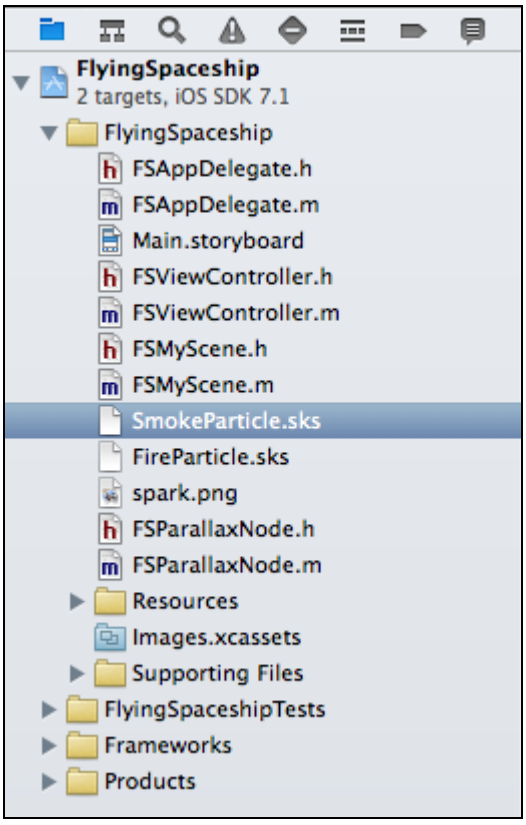


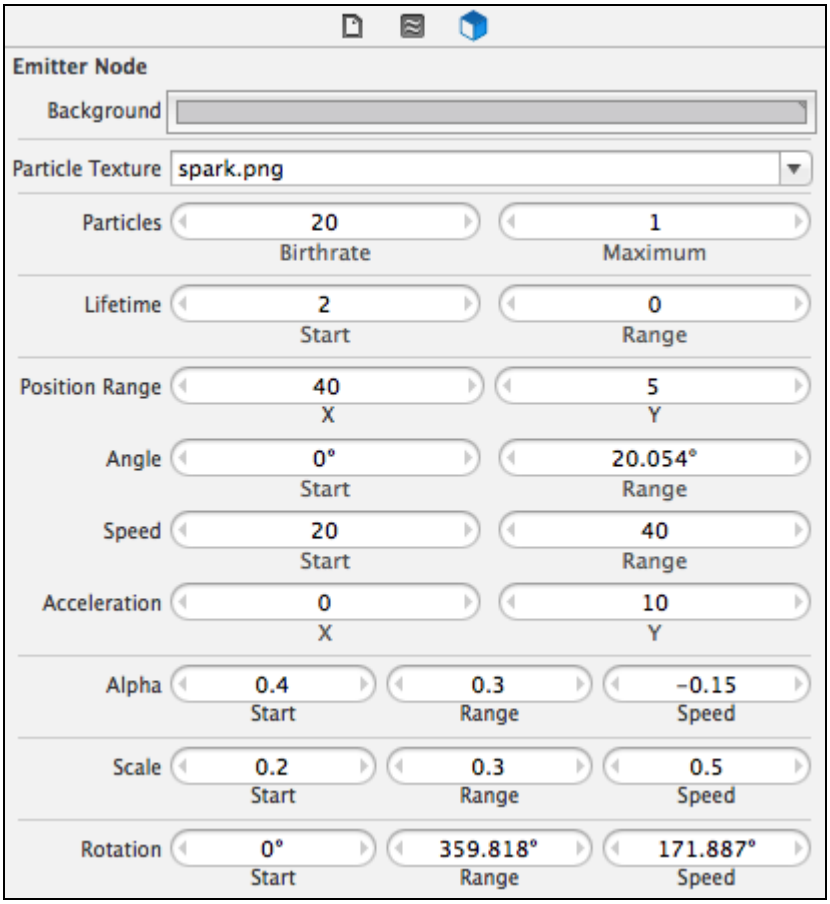



Emitter Node
Background
Particle Texture
spark.png
Particles
50
Birthrate
0
Maximum
Lifetime
0.5
Start
0
Range
Position Range
55.65
X
5
Y
Angle
180°
Start
20.054°
Range
Speed
50
Start
50
Range
Acceleration
0
X
-0
Y
Alpha
172.832
Start
0.2
Range
-0.45
Speed
Scale
0.2
Start
0.4
Range
-0.5
Speed
Rotation
0°
Start
0°
Range
0°
Speed
Color Blend
1
Factor
0
Range
0
Speed

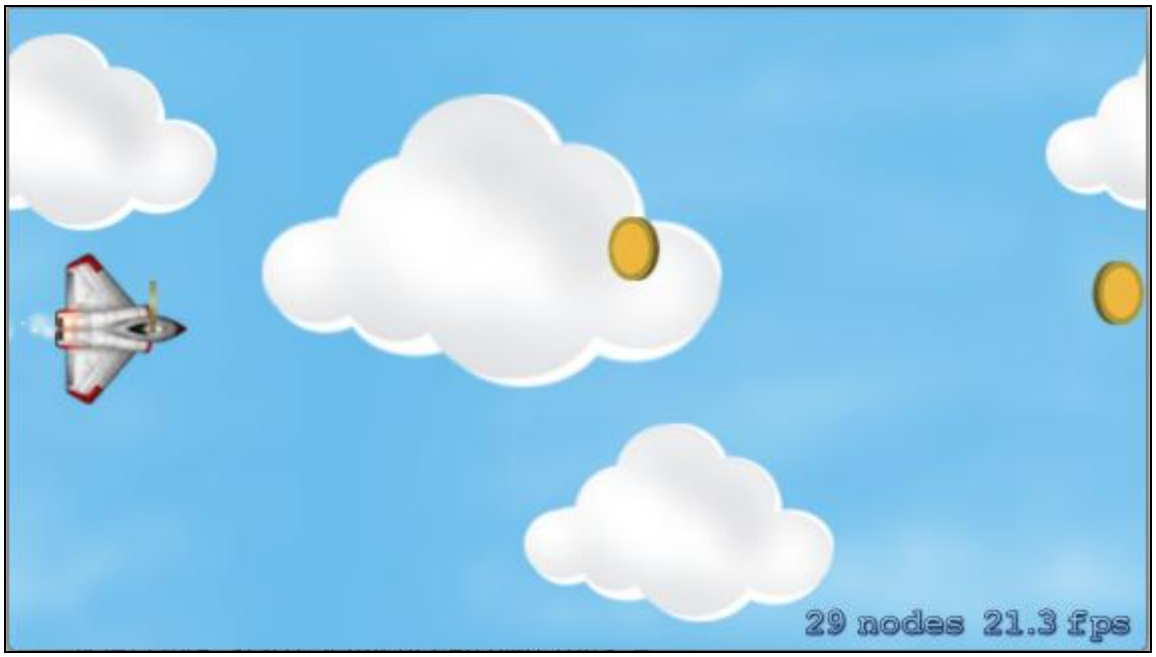

Choose options for your new file:
Particle templat
Bokeh
Fire
Fireflies
Magic
Rain
Smoke
Snow
Spark
Cancel
Previous
Next

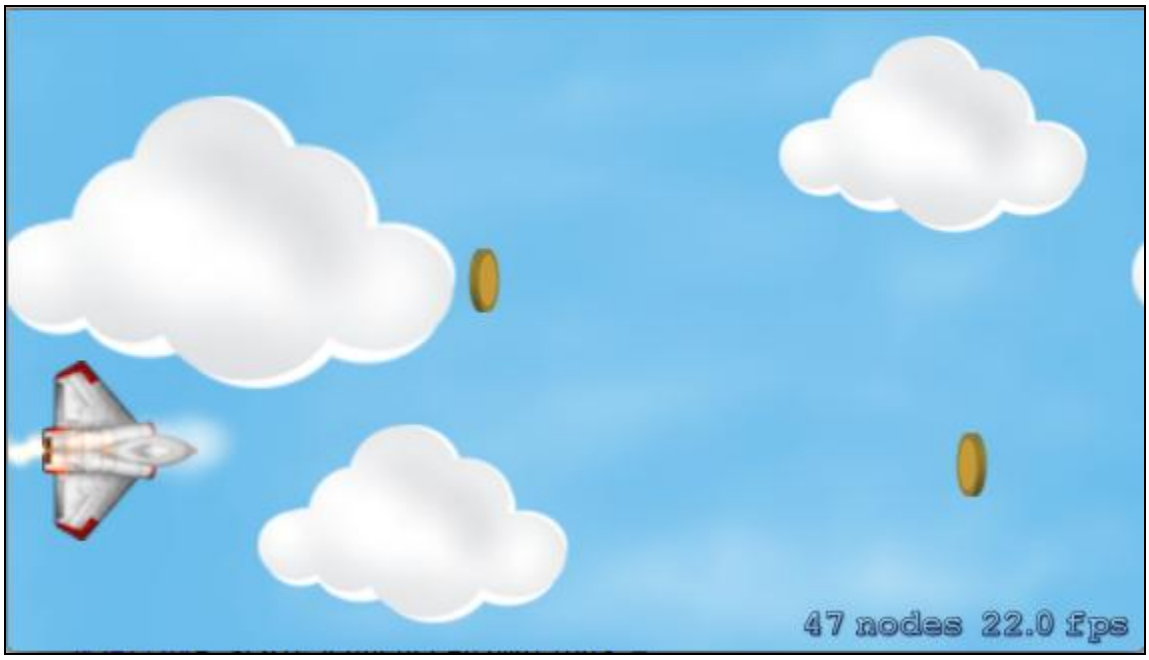

Save As: SmokeParticle
Tags:
FlyingSpaceship
FAVORITES
Dropbox
CFMAC-11
Applications
Downloads
Desktop
Documents
Google Drive
FlyingSpaceship
FlyingSpaceship.xcodeproj
FlyingSpaceshipTests
Base.lproj
en.lproj
FireParticle.sks
FlyingSpaceship-Info.plist
FlyingSpaceship-Prefix.pch
FSAppDelegate.h
FSAppDelegate.m
FSGame.atlas
FSMyScene.h
FSMyScene.m
Group
FlyingSpaceship
Targets
FlyingSpaceship
FlyingSpaceshipTests
New Folder
Cancel
Create

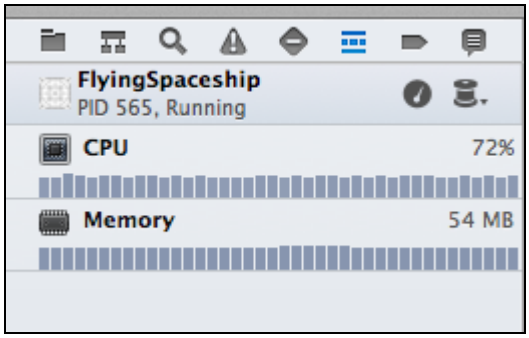

FlyingSpaceship
2 targets, iOS SDK 7.1
FlyingSpaceship
FSAppDelegate.h
FSAppDelegate.m
Main.storyboard
FSViewController.h
FSViewController.m
FSMyScene.h
FSMyScene.m
SmokeParticle.sks
FireParticle.sks
spark.png
FSParallaxNode.h
FSParallaxNode.m
Resources
Images.xcassets
Supporting Files
FlyingSpaceshipTests
Frameworks
Products

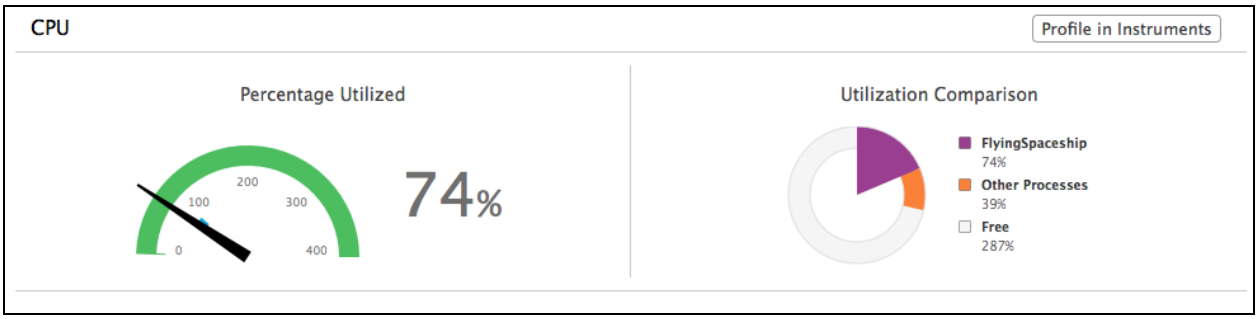

Emitter Node
Background
Particle Texture
spark.png
Particles
20
Birthrate
1
Maximum
Lifetime
2
Start
0
Range
Position Range
40
X
5
Y
Angle
0°
Start
20.054°
Range
Speed
20
Start
40
Range
Acceleration
0
X
10
Y
Alpha
0.4
Start
0.3
Range
-0.15
Speed
Scale
0.2
Start
0.3
Range
0.5
Speed
Rotation
0°
Start
359.818°
Range
171.887°
Speed

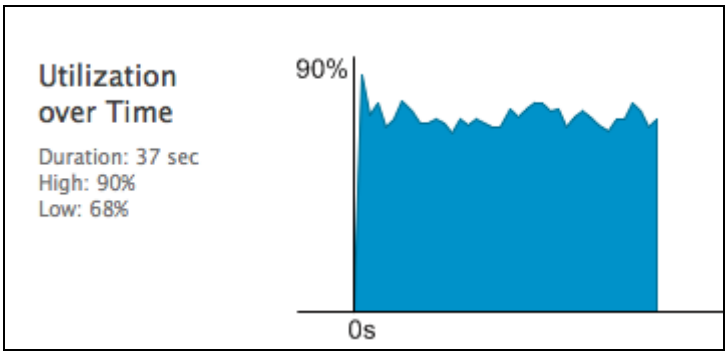

30 nodes 20.4 fps

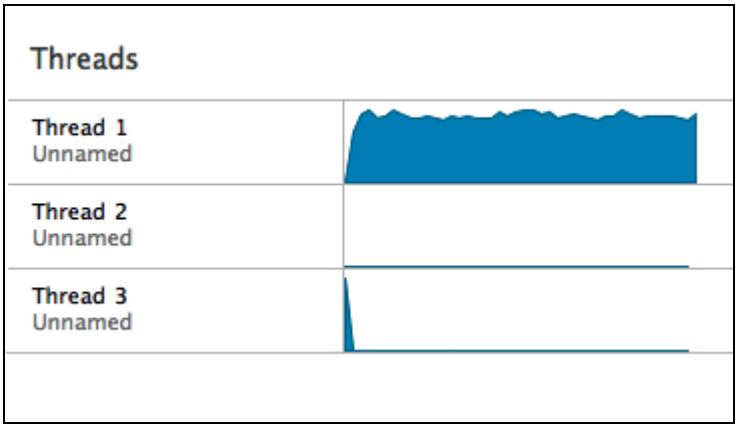

29 nodes 21.3 fps

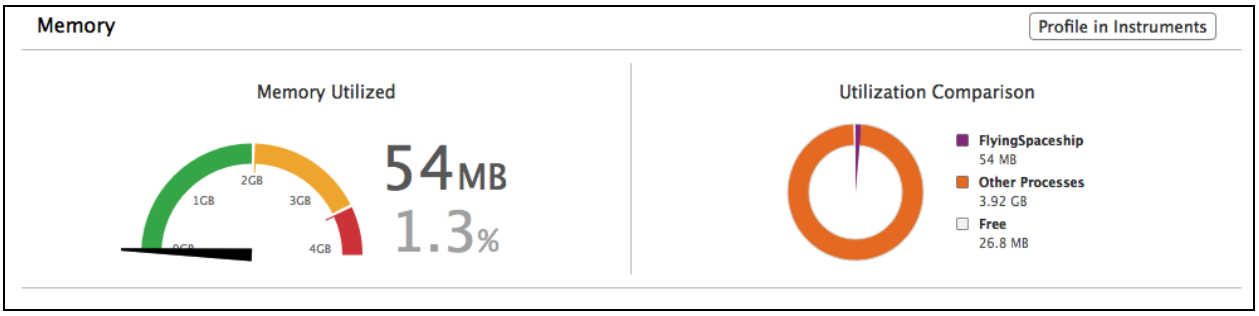

47 nodes 22.0 fps

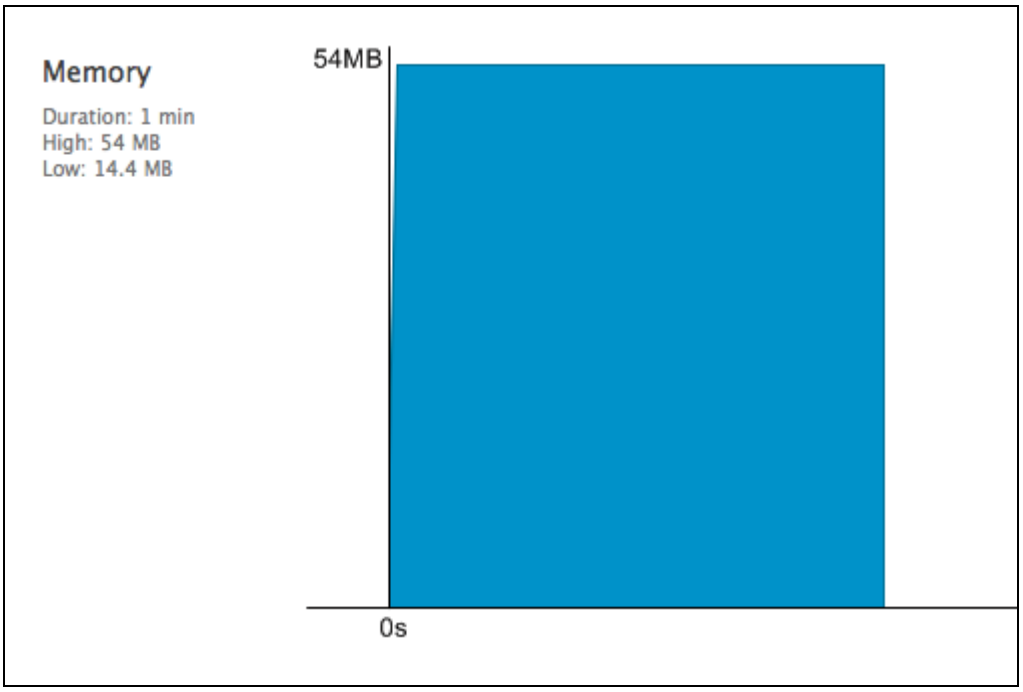

FlyingSpaceship
PID 565, Running
CPU
72%
Memory
54 MB

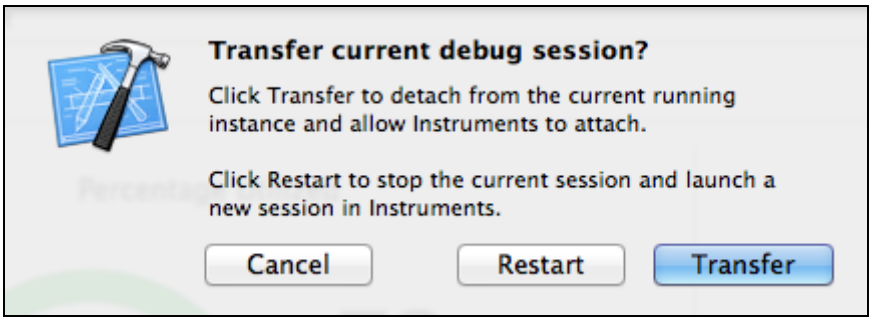

CPU
Profile in Instruments
Percentage Utilized
0
100
200
300
400
74%
Utilization Comparison
FlyingSpaceship
74%
Other Processes
39%
Free
287%

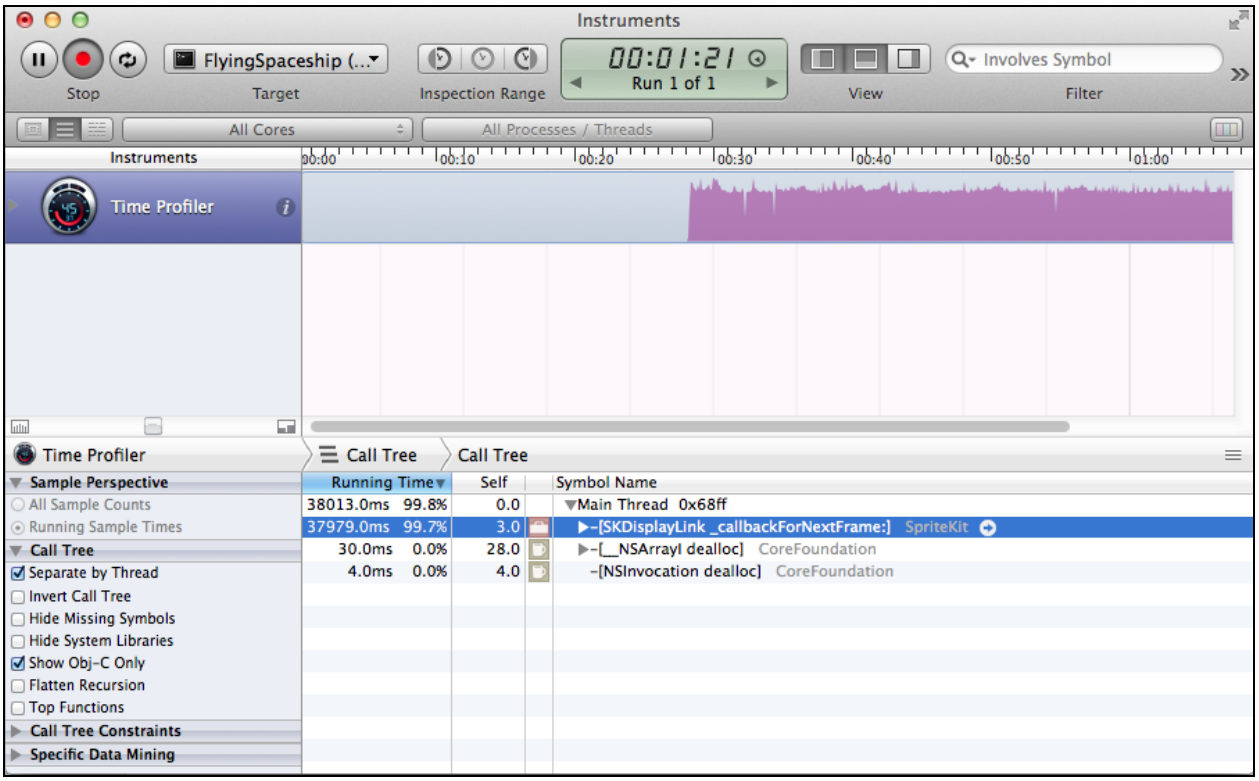

Utilization over Time
Duration: 37 sec
High: 90%
Low: 68%
90%
0s

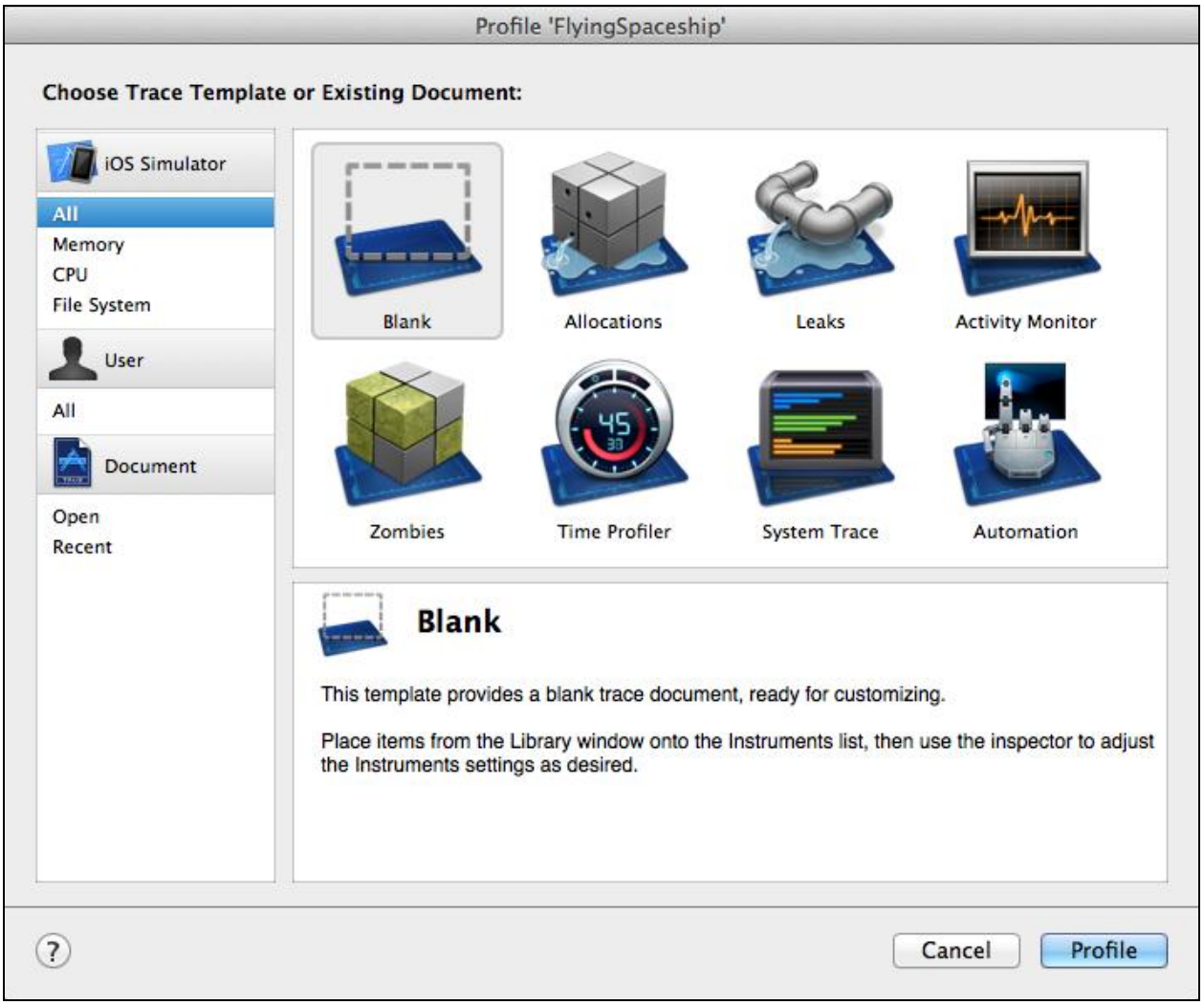

Threads
Thread 1
Unnamed
Thread 2
Unnamed
Thread 3
Unnamed

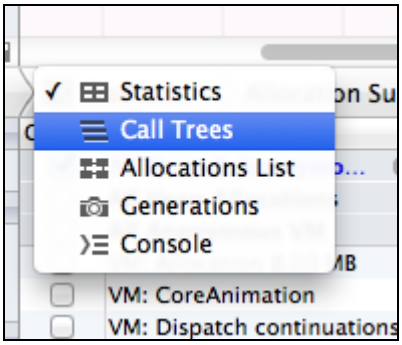

Memory
Profile in Instruments
Memory Utilized
1GB
2GB
3GB
4GB
54MB
1.3%
Utilization Comparison
FlyingSpaceship
54 MB
Other Processes
3.92 GB
Free
26.8 MB

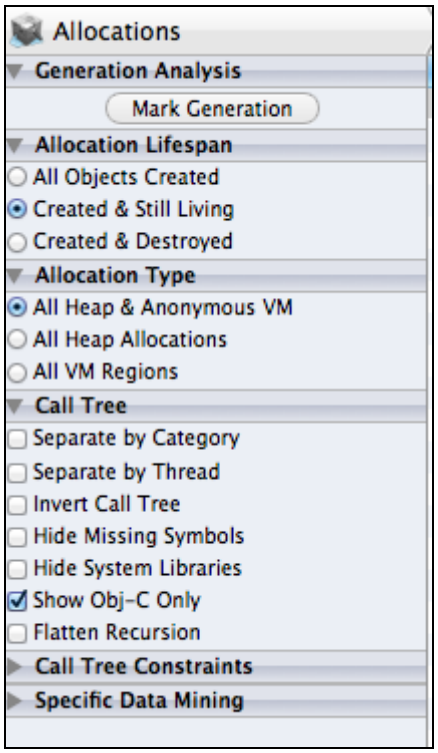

Memory
Duration: 1 min
High: 54 MB
Low: 14.4 MB
54MB
0s

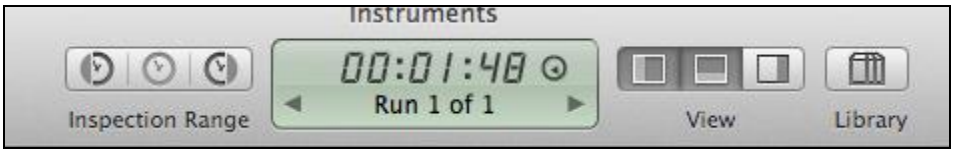

Transfer current debug session?
Click Transfer to detach from the current running instance and allow Instruments to attach.
Click Restart to stop the current session and launch a new session in Instruments.
Cancel
Restart
Transfer

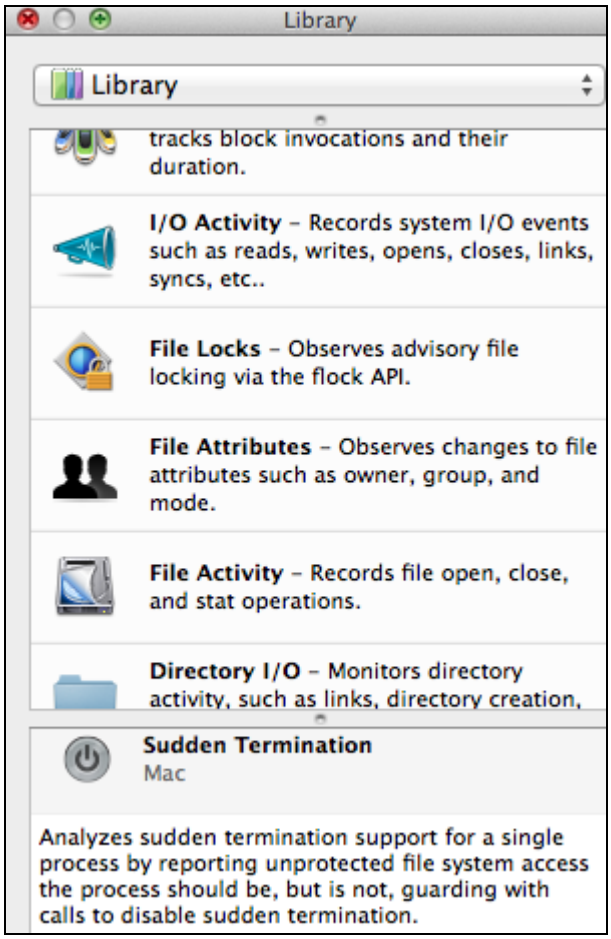

Instruments
Stop
FlyingSpaceship (...
Target
Inspection Range
00:01:21
Run 1 of 1
View
Involves Symbol
Filter
All Cores
All Processes / Threads
Instruments
00:00
00:10
00:20
00:30
00:40
00:50
01:00
Time Profiler
Time Profiler
Call Tree
Call Tree
Sample Perspective
All Sample Counts
Running Sample Times
Call Tree
Separate by Thread
Invert Call Tree
Hide Missing Symbols
Hide System Libraries
Show Obj-C Only
Flatten Recursion
Top Functions
Call Tree Constraints
Specific Data Mining
Running Time
Self
Symbol Name
38013.0ms 99.8% 0.0 Main Thread 0x68ff
37979.0ms 99.7% 3.0 -[SKDisplayLink _callbackForNextFrame:] SpriteKit
30.0ms 0.0% 28.0 -[__NSArrayI dealloc] CoreFoundation
4.0ms 0.0% 4.0 -[NSInvocation dealloc] CoreFoundation


Profile 'FlyingSpaceship'
Choose Trace Template or Existing Document:
iOS Simulator
All
Memory
CPU
File System
User
All
Document
Open
Recent
Blank
Allocations
Leaks
Activity Monitor
Zombies
Time Profiler
System Trace
Automation
Blank
This template provides a blank trace document, ready for customizing.
Place items from the Library window onto the Instruments list, then use the inspector to adjust the Instruments settings as desired.
Cancel
Profile


Statistics
Call Trees
Allocations List
Generations
Console
VM: CoreAnimation
VM: Dispatch continuations

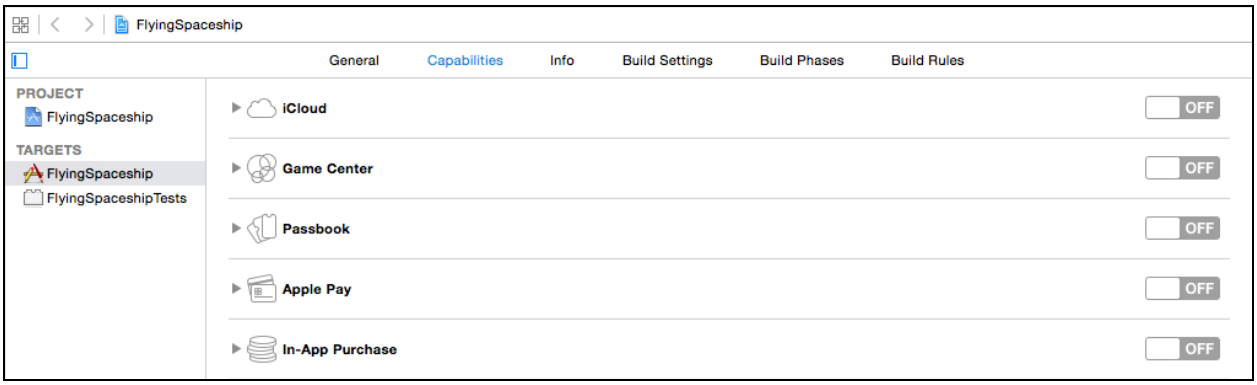

Allocations
Generation Analysis
Mark Generation
Allocation Lifespan
All Objects Created
Created & Still Living
Created & Destroyed
Allocation Type
All Heap & Anonymous VM
All Heap Allocations
All VM Regions
Call Tree
Separate by Category
Separate by Thread
Invert Call Tree
Hide Missing Symbols
Hide System Libraries
Show Obj-C Only
Flatten Recursion
Call Tree Constraints
Specific Data Mining

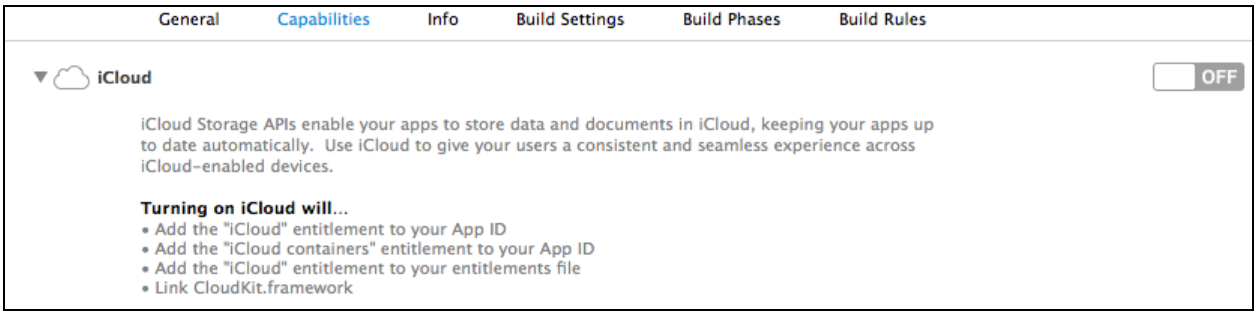

Instruments
00:01:48
Run 1 of 1
Inspection Range
View
Library

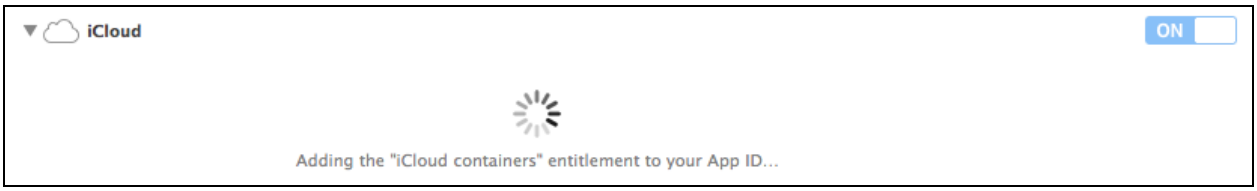

Library
Library
tracks block invocations and their duration.
I/O Activity – Records system I/O events such as reads, writes, opens, closes, links, syncs, etc..
File Locks – Observes advisory file locking via the flock API.
File Attributes – Observes changes to file attributes such as owner, group, and mode.
File Activity – Records file open, close, and stat operations.
Directory I/O – Monitors directory activity, such as links, directory creation,
Sudden Termination
Mac
Analyzes sudden termination support for a single process by reporting unprotected file system access the process should be, but is not, guarding with calls to disable sudden termination.

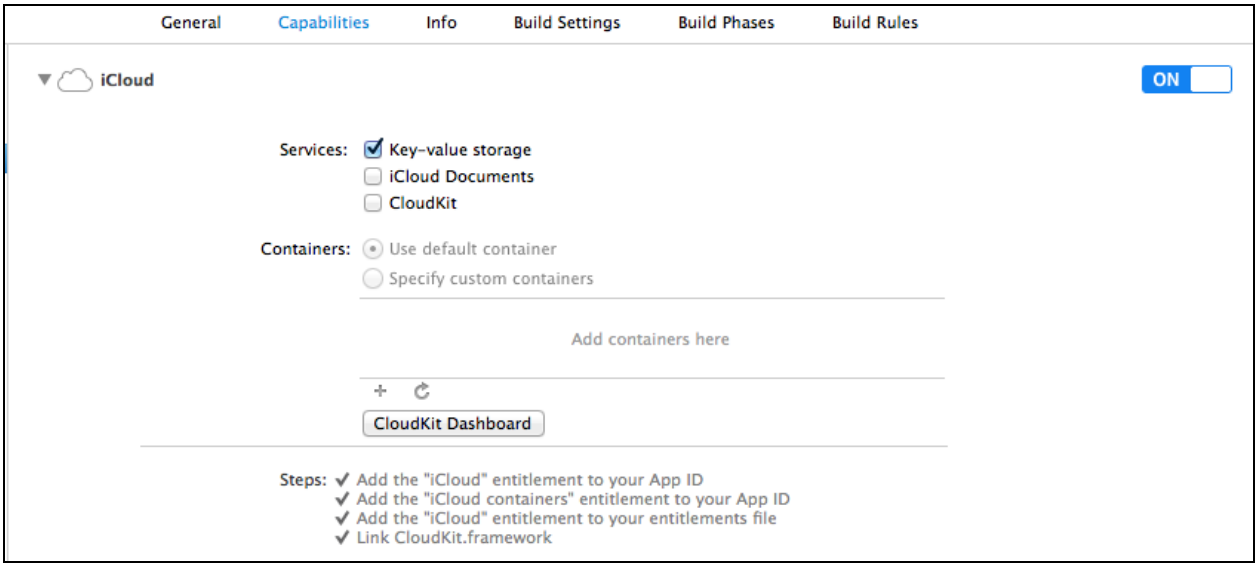
```
- (void)startBackgroundMusic
{
    NSString *samplePath =
    [[NSBundle mainBundle] pathForResource:@"background-music.caf"
                                    ofType:nil];
    NSURL *file =
    [NSURL fileURLWithPath:samplePath];

    NSError *error;

    self.backgroundAudioPlayer =
    [[AVAudioPlayer alloc] initWithContentsOfURL:file
                                           error:&error];

    if (error)
    {
        NSLog(@"Error in audio play %@",[error userInfo]);
        return;
    }

    [self.backgroundAudioPlayer prepareToPlay];
    self.backgroundAudioPlayer.numberOfLoops = -1;
    self.backgroundAudioPlayer.volume = 1.0;
    [self.backgroundAudioPlayer play];
}
```

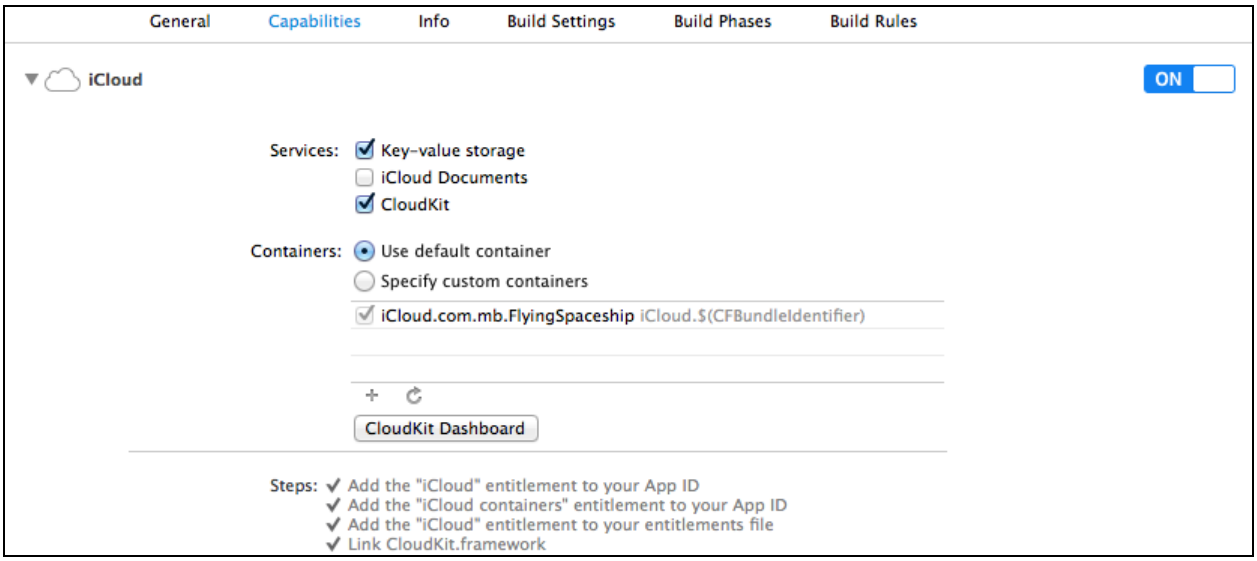
```
- (void)playCoinCollectedSoundEffect
{
    NSString *samplePath =
    [[NSBundle mainBundle] pathForResource:@"coin-collected-sound.caf"
                                    ofType:nil];
    NSURL *file =
    [NSURL fileURLWithPath:samplePath];

    NSError *error;

    self.coinCollectedAudioPlayer =
    [[AVAudioPlayer alloc] initWithContentsOfURL:file
                                           error:&error];

    if (error)
    {
        NSLog(@"Error in audio play %@",[error userInfo]);
        return;
    }

    [self.coinCollectedAudioPlayer prepareToPlay];
    self.coinCollectedAudioPlayer.numberOfLoops = 1;
    self.coinCollectedAudioPlayer.volume = 1.0;
    [self.coinCollectedAudioPlayer play];
}
```

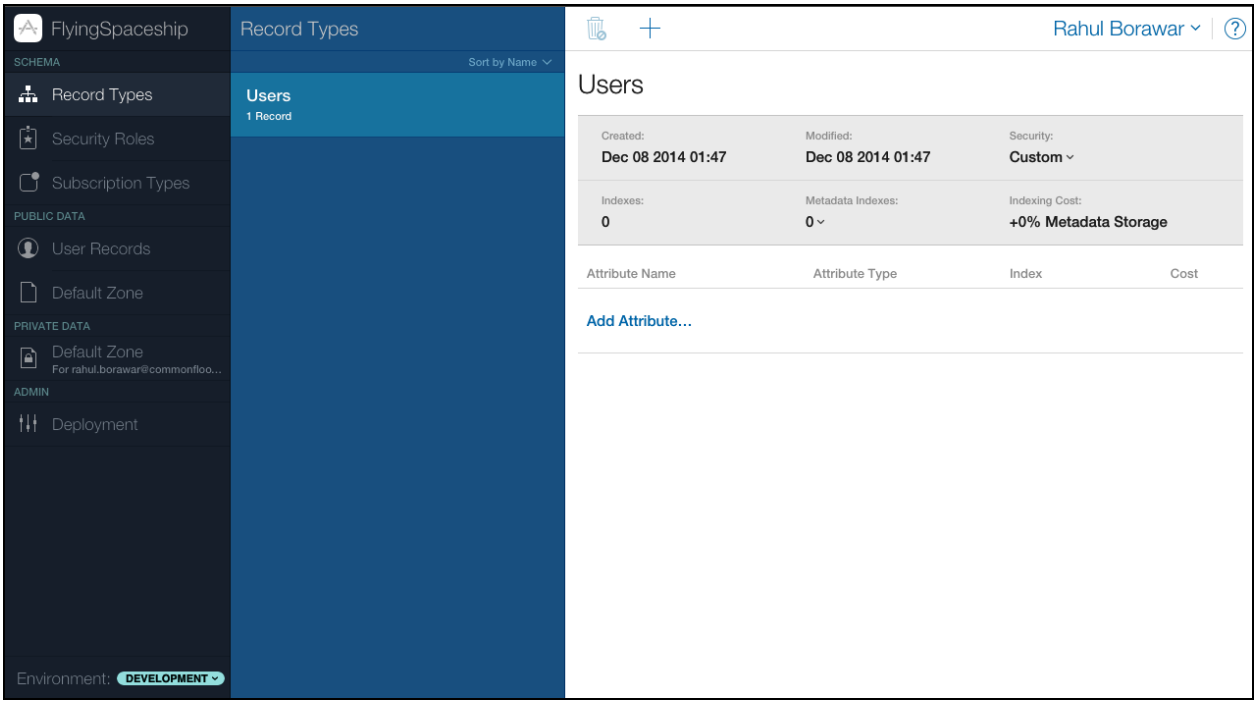

FlyingSpaceship
General
Capabilities
Info
Build Settings
Build Phases
Build Rules
PROJECT
FlyingSpaceship
TARGETS
FlyingSpaceship
FlyingSpaceshipTests
iCloud
OFF
Game Center
OFF
Passbook
OFF
Apple Pay
OFF
In-App Purchase
OFF

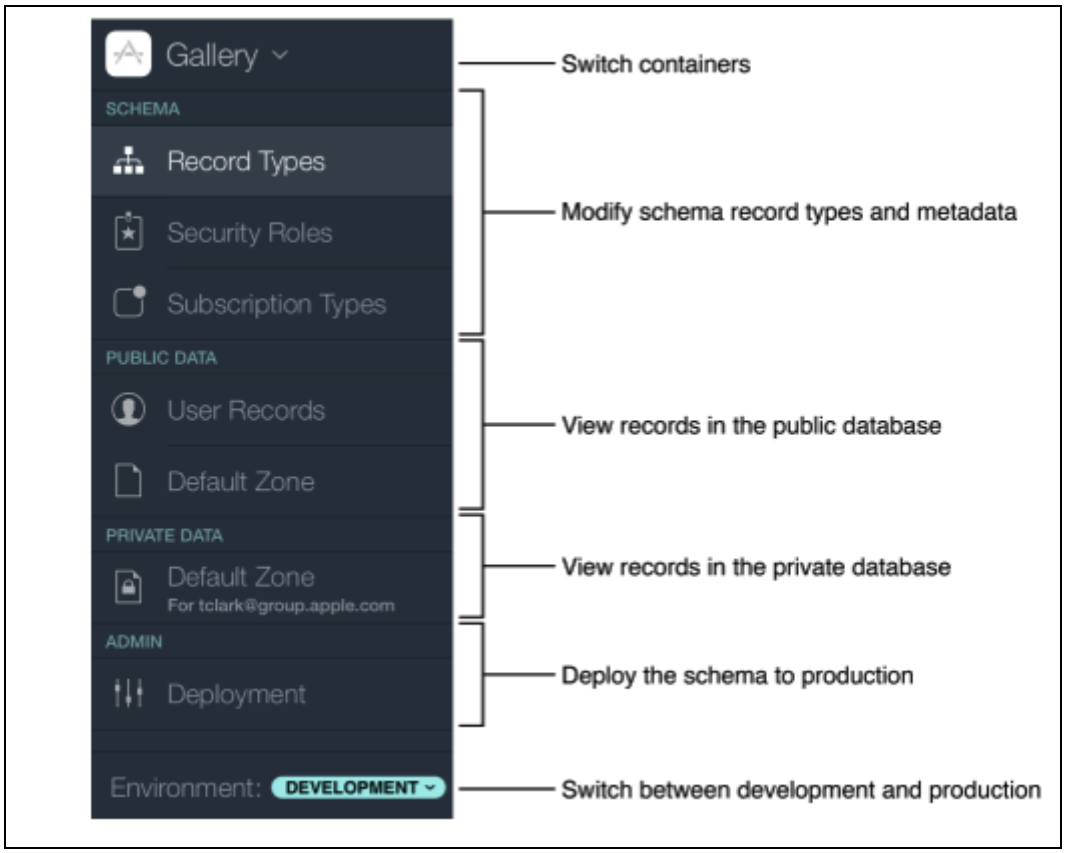

General
Capabilities
Info
Build Settings
Build Phases
Build Rules
iCloud
OFF
iCloud Storage APIs enable your apps to store data and documents in iCloud, keeping your apps up to date automatically. Use iCloud to give your users a consistent and seamless experience across iCloud-enabled devices.
Turning on iCloud will...
• Add the "iCloud" entitlement to your App ID
• Add the "iCloud containers" entitlement to your App ID
• Add the "iCloud" entitlement to your entitlements file
• Link CloudKit.framework

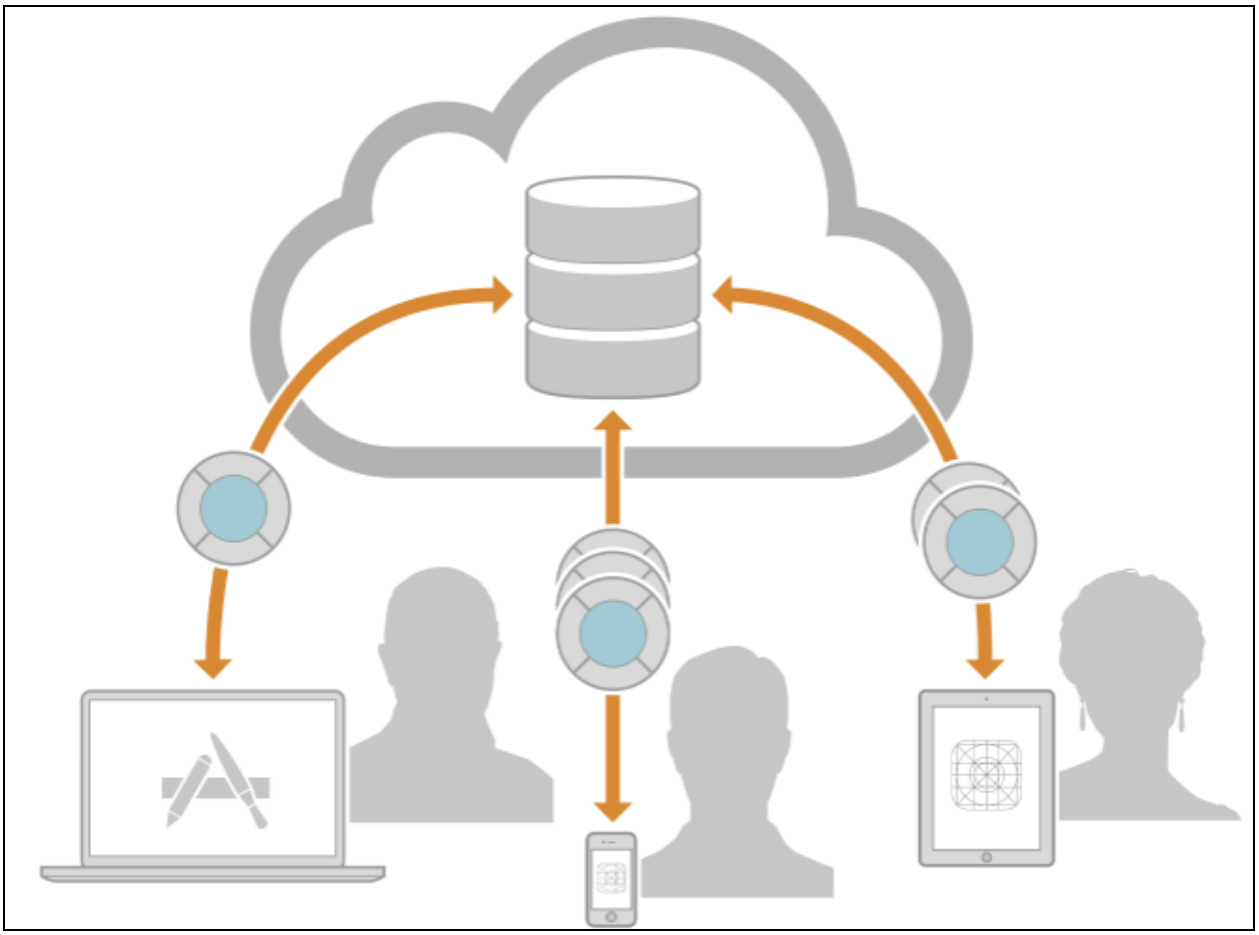

iCloud
ON
Adding the "iCloud containers" entitlement to your App ID...

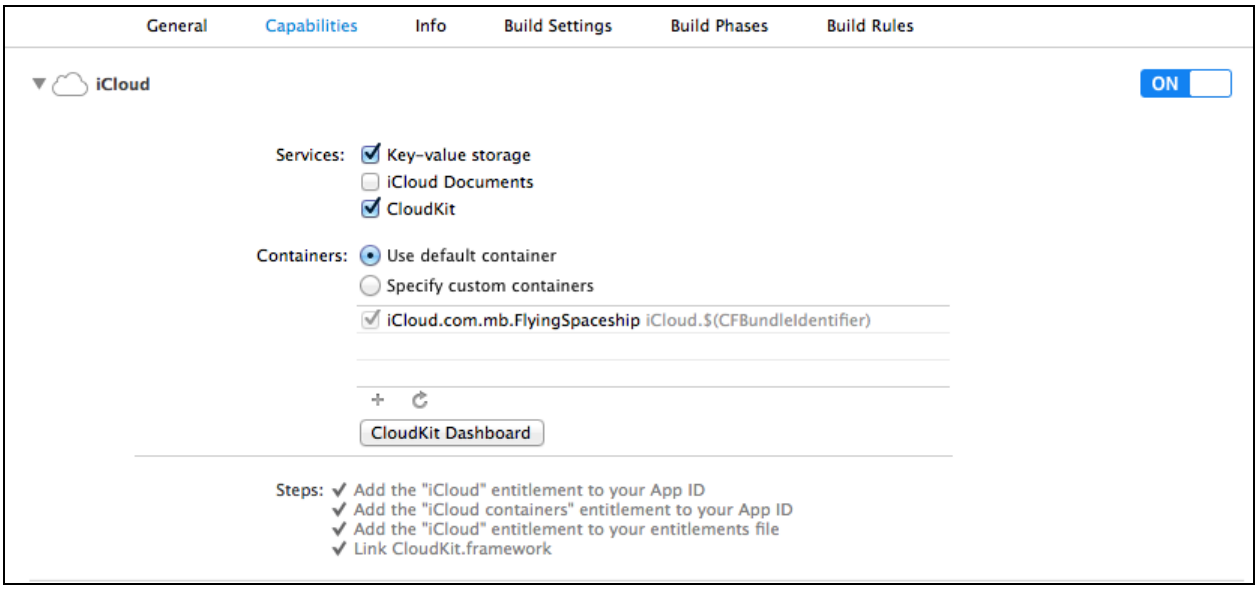

General
Capabilities
Info
Build Settings
Build Phases
Build Rules
iCloud
ON
Services:
Key-value storage
iCloud Documents
CloudKit
Containers:
Use default container
Specify custom containers
Add containers here
CloudKit Dashboard
Steps:
Add the "iCloud" entitlement to your App ID
Add the "iCloud containers" entitlement to your App ID
Add the "iCloud" entitlement to your entitlements file
Link CloudKit.framework

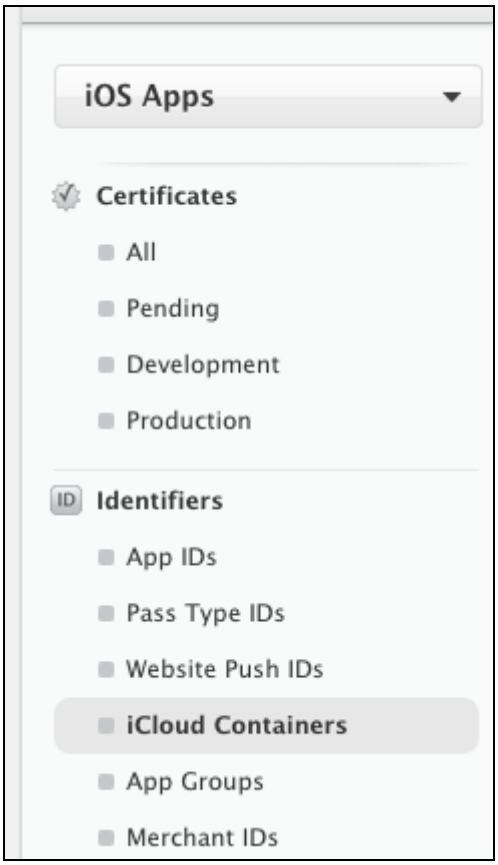

General
Capabilities
Info
Build Settings
Build Phases
Build Rules
iCloud
ON
Services:
Key-value storage
iCloud Documents
CloudKit
Containers:
Use default container
Specify custom containers
iCloud.com.mb.FlyingSpaceship iCloud.$(CFBundleIdentifier)
CloudKit Dashboard
Steps:
Add the "iCloud" entitlement to your App ID
Add the "iCloud containers" entitlement to your App ID
Add the "iCloud" entitlement to your entitlements file
Link CloudKit.framework

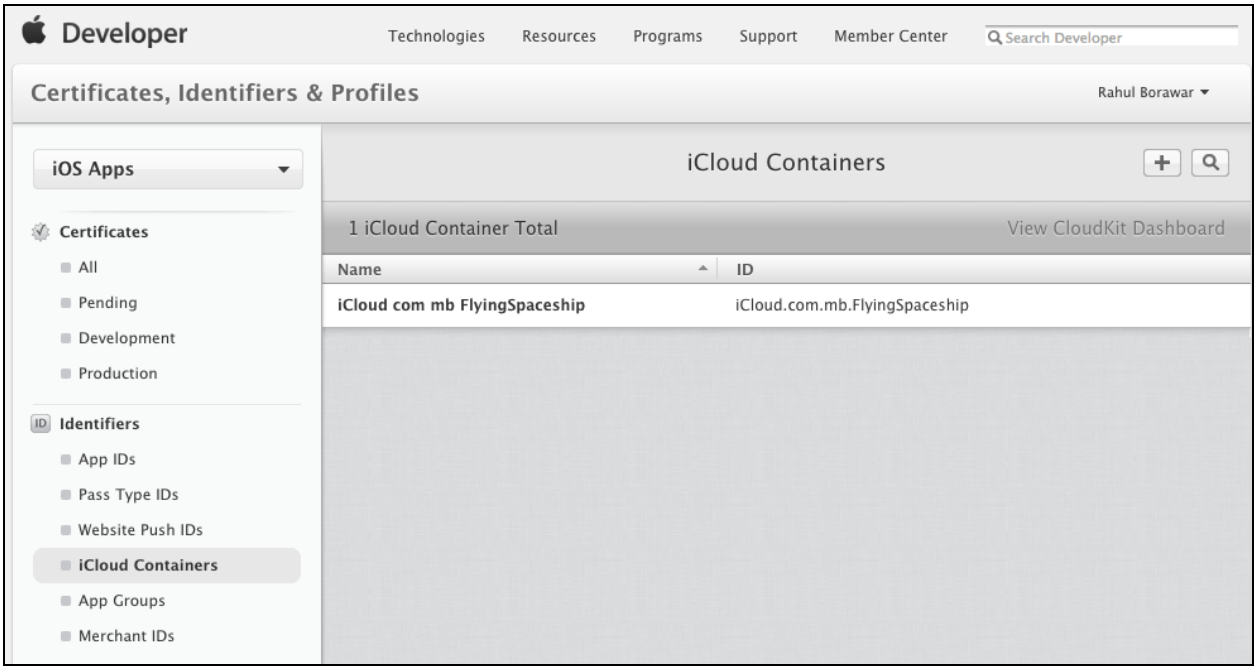

FlyingSpaceship
SCHEMA
Record Types
Security Roles
Subscription Types
PUBLIC DATA
User Records
Default Zone
PRIVATE DATA
Default Zone
For rahul.borawar@commonfloo...
ADMIN
Deployment
Environment:
DEVELOPMENT
Record Types
Sort by Name
Users
1 Record
Rahul Borawar
Users
Created:
Dec 08 2014 01:47
Modified:
Dec 08 2014 01:47
Security:
Custom
Indexes:
0
Metadata Indexes:
0
Indexing Cost:
+0% Metadata Storage
Attribute Name
Attribute Type
Index
Cost
Add Attribute...

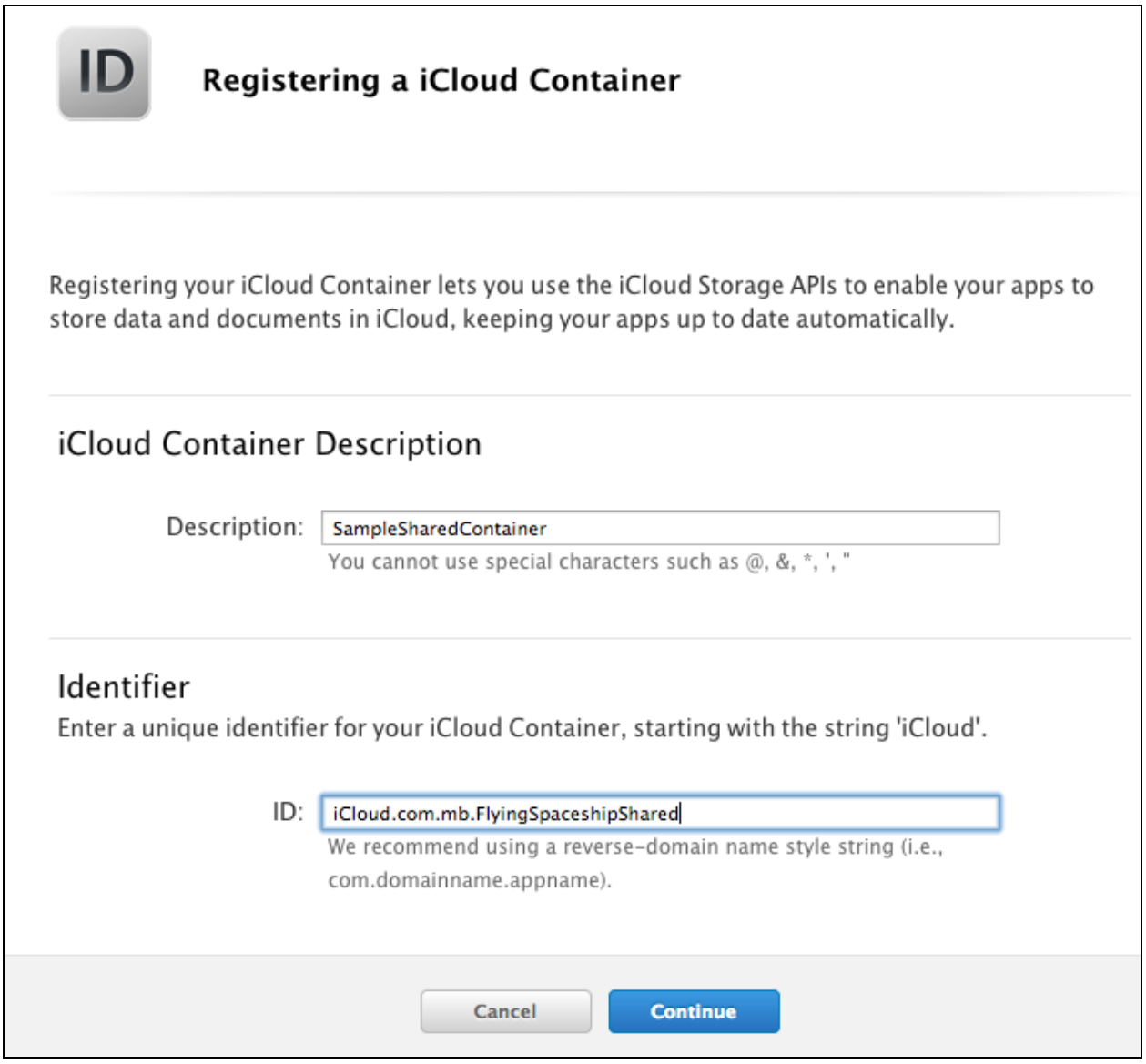

Gallery
Switch containers
SCHEMA
Record Types
Security Roles
Subscription Types
Modify schema record types and metadata
PUBLIC DATA
User Records
Default Zone
View records in the public database
PRIVATE DATA
Default Zone
For tclark@group.apple.com
View records in the private database
ADMIN
Deployment
Deploy the schema to production
Environment:
DEVELOPMENT
Switch between development and production



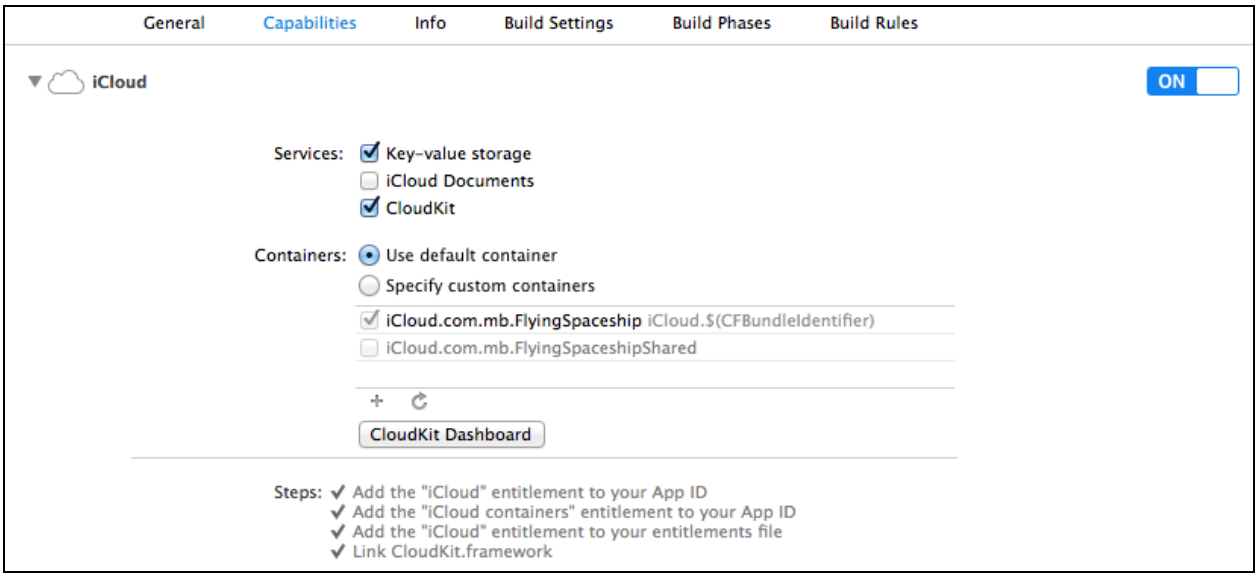

General
Capabilities
Info
Build Settings
Build Phases
Build Rules
iCloud
ON
Services:
Key-value storage
iCloud Documents
CloudKit
Containers:
Use default container
Specify custom containers
iCloud.com.mb.FlyingSpaceship iCloud.$(CFBundleIdentifier)
CloudKit Dashboard
Steps:
Add the "iCloud" entitlement to your App ID
Add the "iCloud containers" entitlement to your App ID
Add the "iCloud" entitlement to your entitlements file
Link CloudKit.framework


iOS Apps
Certificates
All
Pending
Development
Production
Identifiers
App IDs
Pass Type IDs
Website Push IDs
iCloud Containers
App Groups
Merchant IDs


Developer
Technologies
Resources
Programs
Support
Member Center
Search Developer
Certificates, Identifiers & Profiles
Rahul Borawar
iOS Apps
Certificates
All
Pending
Development
Production
Identifiers
App IDs
Pass Type IDs
Website Push IDs
iCloud Containers
App Groups
Merchant IDs
iCloud Containers
1 iCloud Container Total
View CloudKit Dashboard
Name
ID
iCloud com mb FlyingSpaceship
iCloud.com.mb.FlyingSpaceship

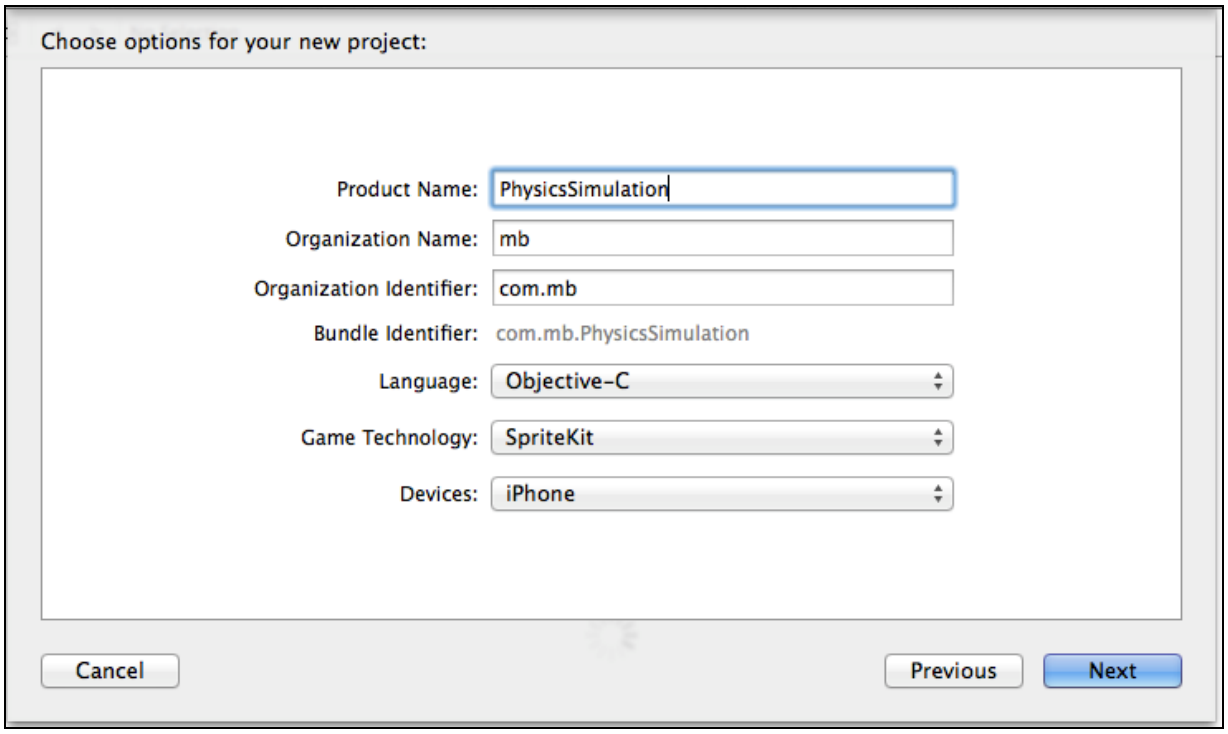

Registering a iCloud Container
Registering your iCloud Container lets you use the iCloud Storage APIs to enable your apps to store data and documents in iCloud, keeping your apps up to date automatically.
iCloud Container Description
Description:
SampleSharedContainer
You cannot use special characters such as @, &, *, ', "
Identifier
Enter a unique identifier for your iCloud Container, starting with the string 'iCloud'.
ID:
iCloud.com.mb.FlyingSpaceshipShared
We recommend using a reverse-domain name style string (i.e., com.domainname.appname).
Cancel
Continue

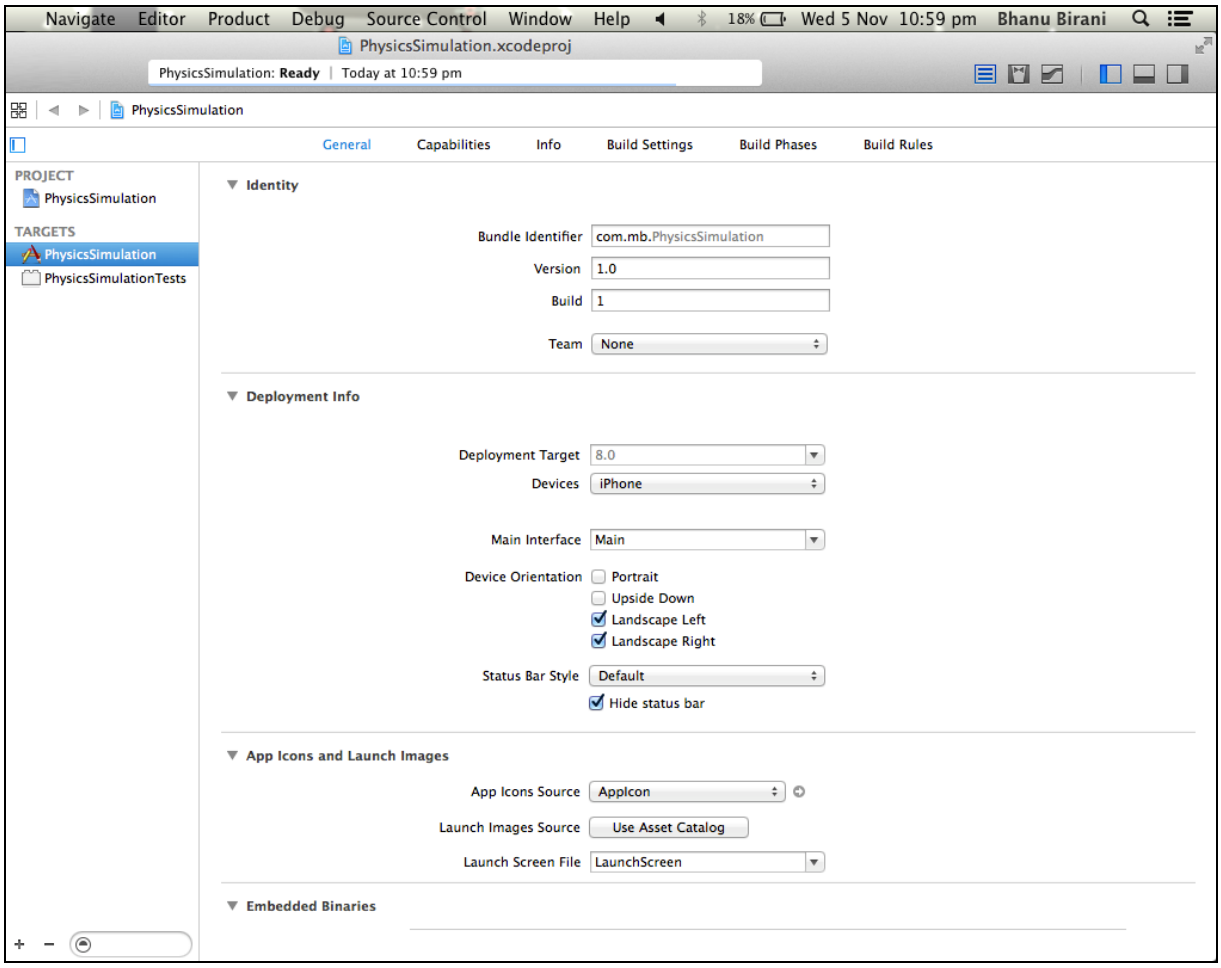

iCloud Containers
2 iCloud Containers Total
View CloudKit Dashboard
Name
ID
SampleSharedContainer
iCloud.com.mb.FlyingSpaceshipShared
iCloud com mb FlyingSpaceship
iCloud.com.mb.FlyingSpaceship

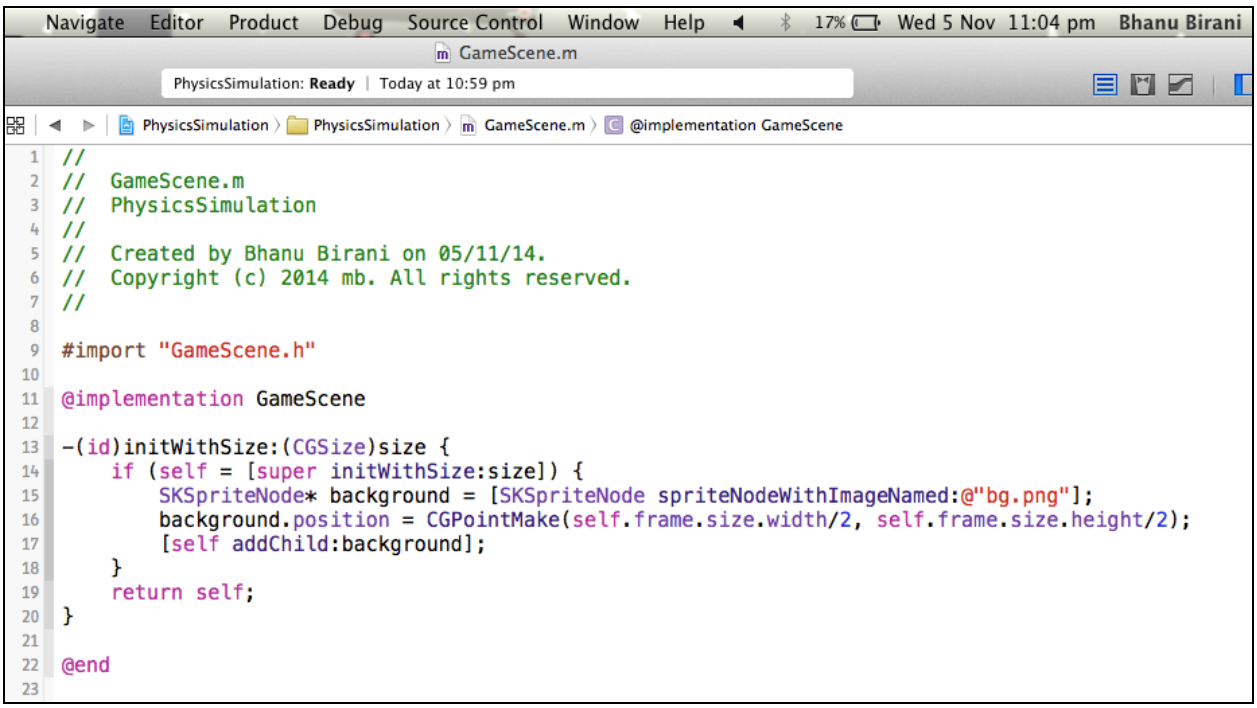


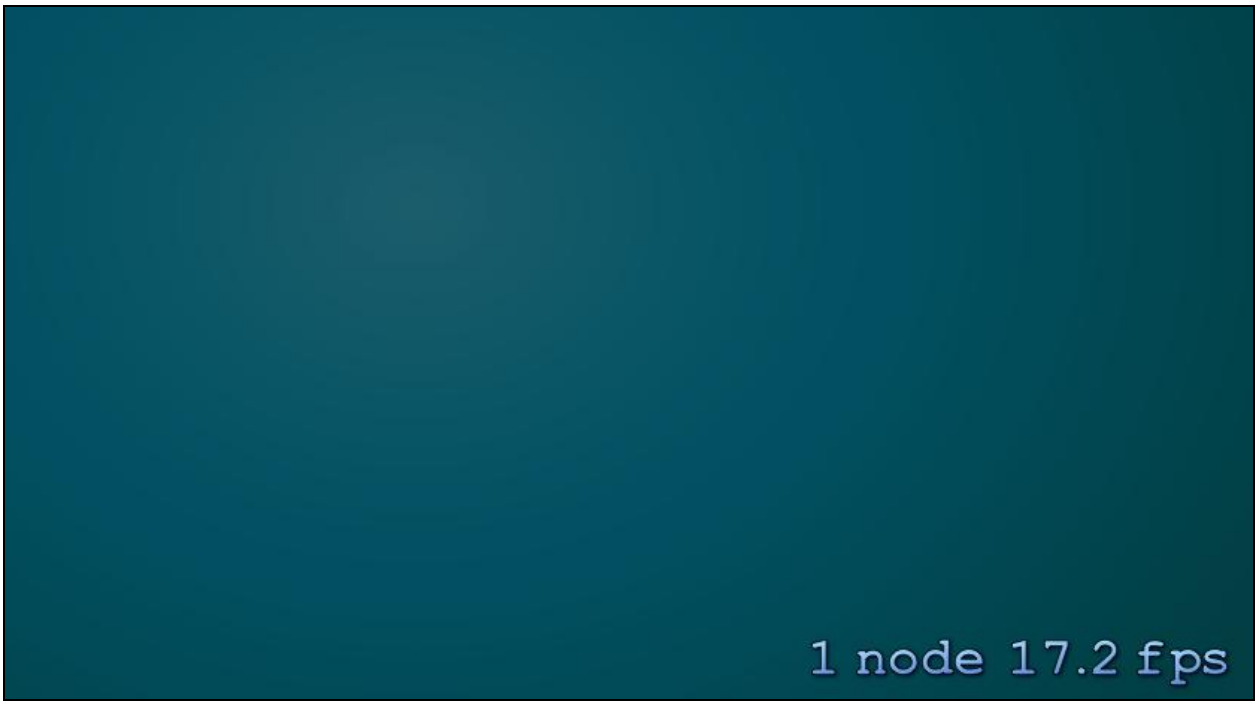

```objc
- (BOOL)application:(UIApplication *)application didFinishLaunchingWithOptions:(NSDictionary *)launchOptions
{
    // Override point for customization after application launch.

    NSFileManager* fileManager = [NSFileManager defaultManager];
    currentiCloudToken = fileManager.ubiquityIdentityToken;

    if (currentiCloudToken)
    {
        NSData *newTokenData =
        [NSKeyedArchiver archivedDataWithRootObject:currentiCloudToken];

        [[NSUserDefaults standardUserDefaults]
         setObject:newTokenData
         forKey:@"com.mb.FlyingSpaceship.UbiquityIdentityToken"];

        BOOL firstLaunchWithiCloudAvailable =
        [[NSUserDefaults standardUserDefaults] objectForKey:@"FirstLaunchWithiCloudAvailable"];

        if (firstLaunchWithiCloudAvailable == NO)
        {
            [[NSUserDefaults standardUserDefaults] setObject:[NSNumber numberWithBool:YES]
                                                      forKey:@"FirstLaunchWithiCloudAvailable"];
        }

        [[NSUserDefaults standardUserDefaults] synchronize];
    }
    else
    {
        [[NSUserDefaults standardUserDefaults]
         removeObjectForKey: @"com.mb.FlyingSpaceship.UbiquityIdentityToken"];
    }

    [[NSNotificationCenter defaultCenter] addObserver:self
                                             selector:@selector(iCloudAccountAvailabilityChanged:)
                                                 name:NSUbiquityIdentityDidChangeNotification
                                               object:nil];

    [self showiCloudInviteAlertView];
    return YES;
}
```

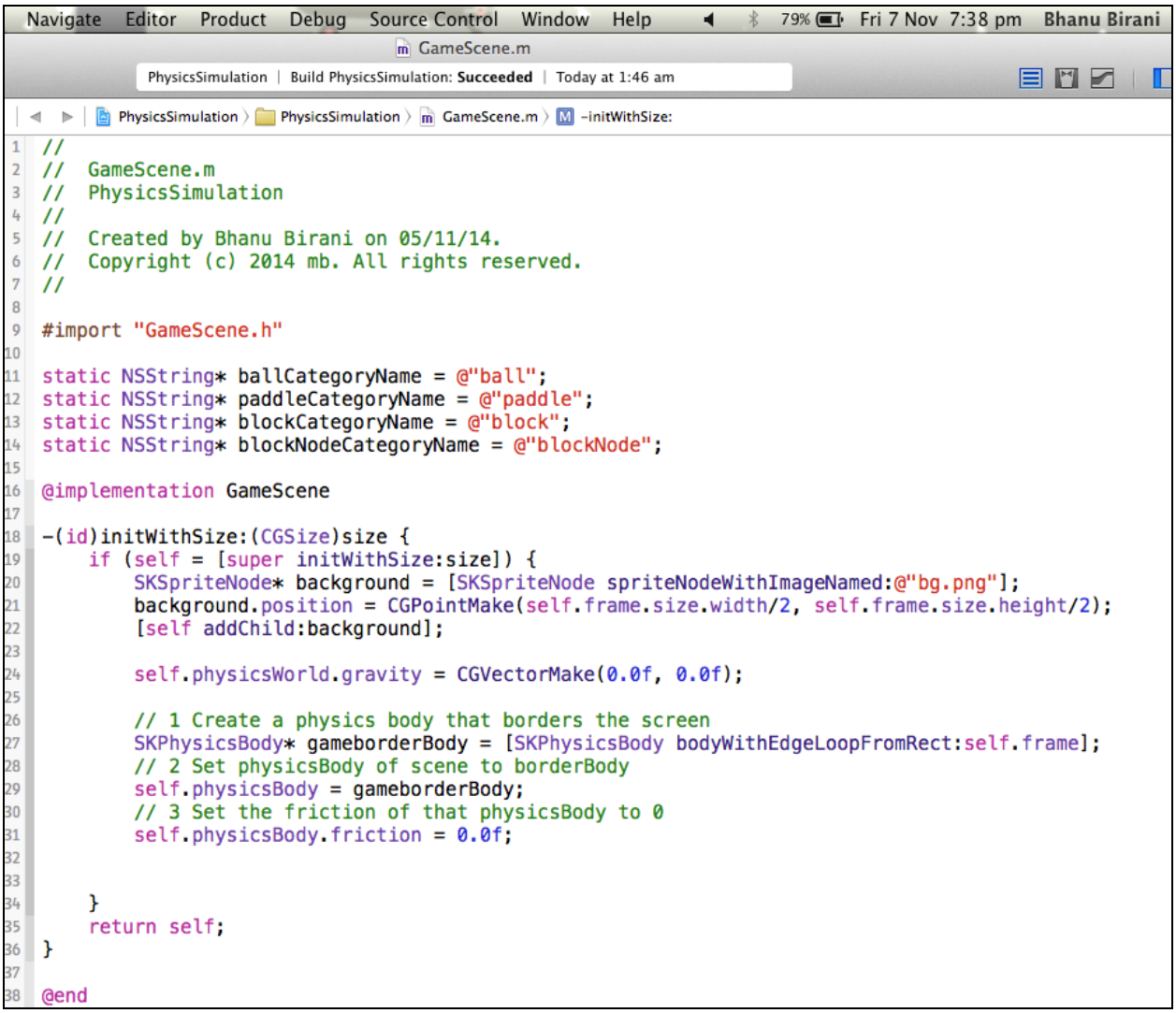
Chapter 6

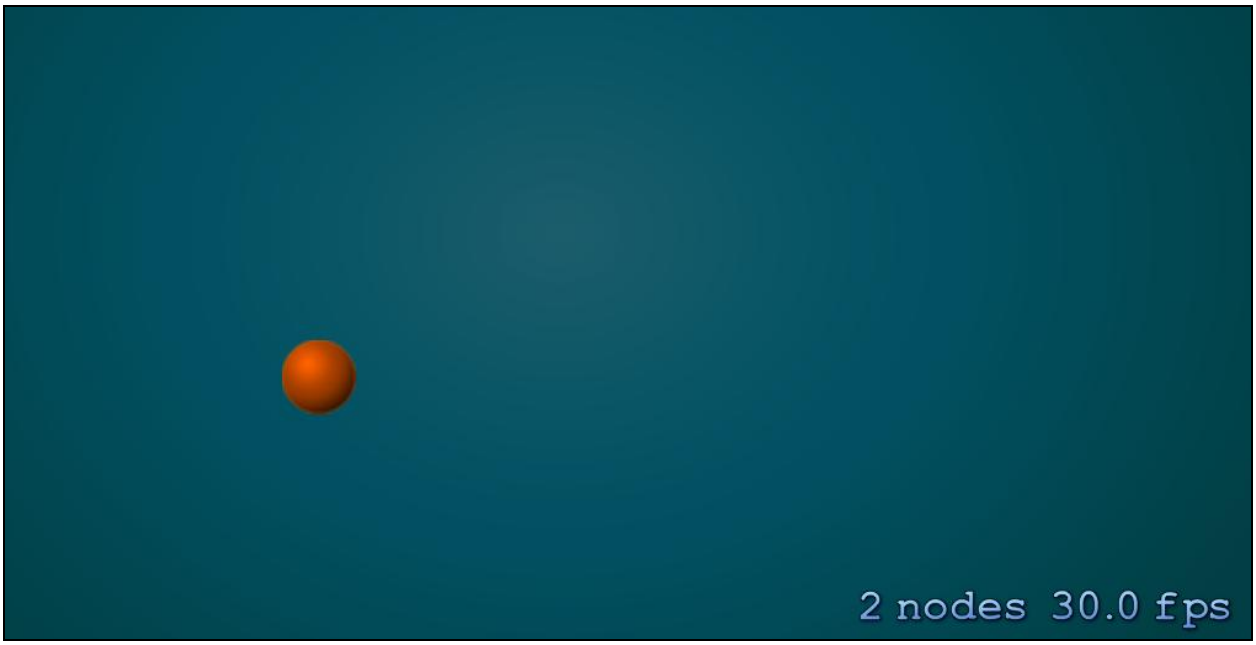

Choose options for your new project:
Product Name: PhysicsSimulation
Organization Name: mb
Organization Identifier: com.mb
Bundle Identifier: com.mb.PhysicsSimulation
Language: Objective-C
Game Technology: SpriteKit
Devices: iPhone
Cancel
Previous
Next

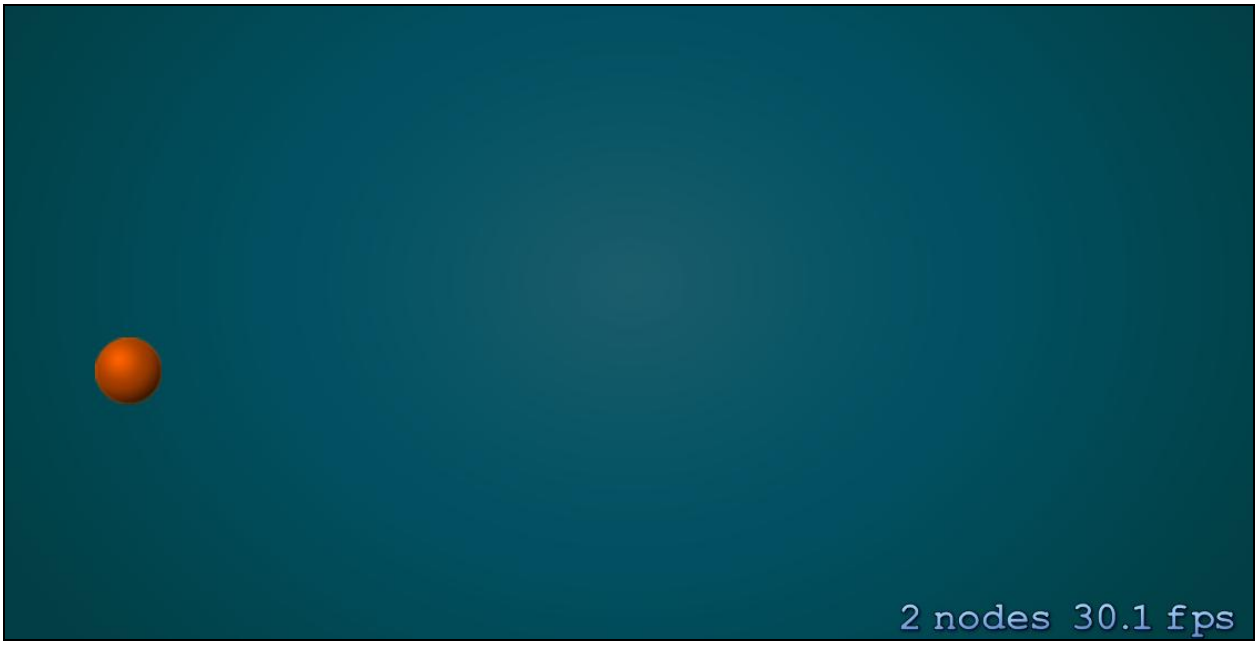

Navigate Editor Product Debug Source Control Window Help 18% Wed 5 Nov 10:59 pm Bhanu Birani
PhysicsSimulation.xcodeproj
PhysicsSimulation: Ready | Today at 10:59 pm
PhysicsSimulation
General Capabilities Info Build Settings Build Phases Build Rules
PROJECT
PhysicsSimulation
TARGETS
PhysicsSimulation
PhysicsSimulationTests
Identity
Bundle Identifier com.mb.PhysicsSimulation
Version 1.0
Build 1
Team None
Deployment Info
Deployment Target 8.0
Devices iPhone
Main Interface Main
Device Orientation Portrait
Upside Down
Landscape Left
Landscape Right
Status Bar Style Default
Hide status bar
App Icons and Launch Images
App Icons Source AppIcon
Launch Images Source Use Asset Catalog
Launch Screen File LaunchScreen
Embedded Binaries


Navigate Editor Product Debug Source Control Window Help 17% Wed 5 Nov 11:04 pm Bhanu Birani
GameScene.m
PhysicsSimulation: Ready | Today at 10:59 pm
PhysicsSimulation PhysicsSimulation GameScene.m @implementation GameScene
1 //
2 // GameScene.m
3 // PhysicsSimulation
4 //
5 // Created by Bhanu Birani on 05/11/14.
6 // Copyright (c) 2014 mb. All rights reserved.
7 //
8
9 #import "GameScene.h"
10
11 @implementation GameScene
12
13 -(id)initWithSize:(CGSize)size {
14 if (self = [super initWithSize:size]) {
15 SKSpriteNode* background = [SKSpriteNode spriteNodeWithImageNamed:@"bg.png"];
16 background.position = CGPointMake(self.frame.size.width/2, self.frame.size.height/2);
17 [self addChild:background];
18 }
19 return self;
20 }
21
22 @end
23


1 node 17.2 fps


Navigate Editor Product Debug Source Control Window Help 79% Fri 7 Nov 7:38 pm Bhanu Birani
GameScene.m
PhysicsSimulation | Build PhysicsSimulation: Succeeded | Today at 1:46 am
PhysicsSimulation PhysicsSimulation GameScene.m -initWithSize:
//
// GameScene.m
// PhysicsSimulation
//
// Created by Bhanu Birani on 05/11/14.
// Copyright (c) 2014 mb. All rights reserved.
//
#import "GameScene.h"
static NSString* ballCategoryName = @"ball";
static NSString* paddleCategoryName = @"paddle";
static NSString* blockCategoryName = @"block";
static NSString* blockNodeCategoryName = @"blockNode";
@implementation GameScene
-(id)initWithSize:(CGSize)size {
if (self = [super initWithSize:size]) {
SKSpriteNode* background = [SKSpriteNode spriteNodeWithImageNamed:@"bg.png"];
background.position = CGPointMake(self.frame.size.width/2, self.frame.size.height/2);
[self addChild:background];
self.physicsWorld.gravity = CGVectorMake(0.0f, 0.0f);
// 1 Create a physics body that borders the screen
SKPhysicsBody* gameborderBody = [SKPhysicsBody bodyWithEdgeLoopFromRect:self.frame];
// 2 Set physicsBody of scene to borderBody
self.physicsBody = gameborderBody;
// 3 Set the friction of that physicsBody to 0
self.physicsBody.friction = 0.0f;
}
return self;
}
@end


2 nodes 30.0 fps


2 nodes 30.1 fps

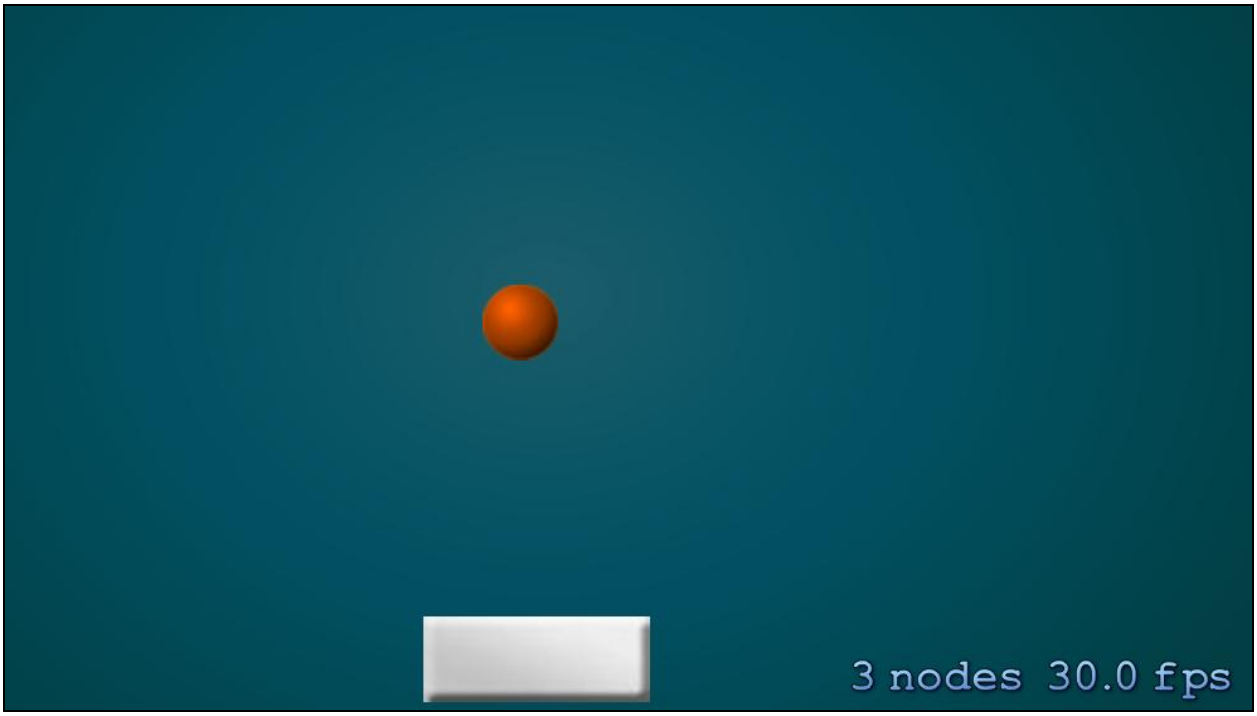
Navigate Editor Product Debug Source Control Window Help 34% Fri 7 Nov 9:22 pm Bhanu Birani

GameScene.m

Running PhysicsSimulation on iPhone 5

PhysicsSimulation › PhysicsSimulation › GameScene.m › -initWithSize:

```
        self.physicsBody = gameborderBody;
        // 3 Set the friction of that physicsBody to 0
        self.physicsBody.friction = 0.0f;


        // 1
        SKSpriteNode* circlularObject = [SKSpriteNode spriteNodeWithImageNamed: @"ball.png"];
        circlularObject.name = ballCategoryName;
        circlularObject.position = CGPointMake(self.frame.size.width/3, self.frame.size.height/3);
        [self addChild:circlularObject];

        // 2
        circlularObject.physicsBody = [SKPhysicsBody bodyWithCircleOfRadius:circlularObject.frame.size.
            width/2];
        // 3
        circlularObject.physicsBody.friction = 0.0f;
        // 4
        circlularObject.physicsBody.restitution = 1.0f;
        // 5
        circlularObject.physicsBody.linearDamping = 0.0f;
        // 6
        circlularObject.physicsBody.allowsRotation = NO;

        [circlularObject.physicsBody applyImpulse:CGVectorMake(10.0f, -10.0f)];

        SKSpriteNode* block = [[SKSpriteNode alloc] initWithImageNamed: @"block.png"];
        block.name = paddleCategoryName;
        block.position = CGPointMake(CGRectGetMidX(self.frame), block.frame.size.height * 0.6f);
        [self addChild:block];
        block.physicsBody = [SKPhysicsBody bodyWithRectangleOfSize:block.frame.size];
        block.physicsBody.restitution = 0.1f;
        block.physicsBody.friction = 0.4f;
        // make physicsBody static
        block.physicsBody.dynamic = NO;
    }
    return self;
}
```



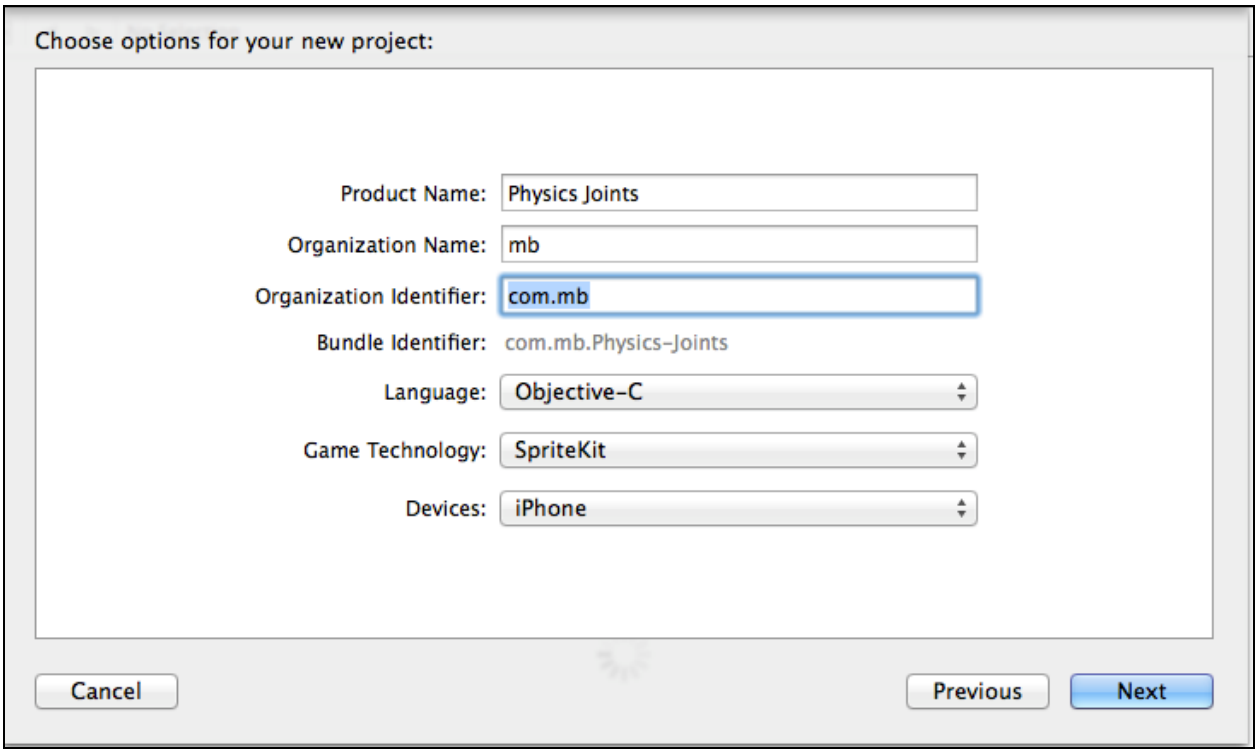
```
71
72  -(void)touchesBegan:(NSSet*)touches withEvent:(UIEvent*)event {
73
74      UITouch* touch = [touches anyObject];
75      CGPoint touchLocation = [touch locationInNode:self];
76
77      SKPhysicsBody* body = [self.physicsWorld bodyAtPoint:touchLocation];
78      if (body && [body.node.name isEqualToString: paddleCategoryName]) {
79          NSLog(@"touch began on paddle");
80          self.isPaddleTapped = YES;
81      }
82  }
83
84  @end
85
```

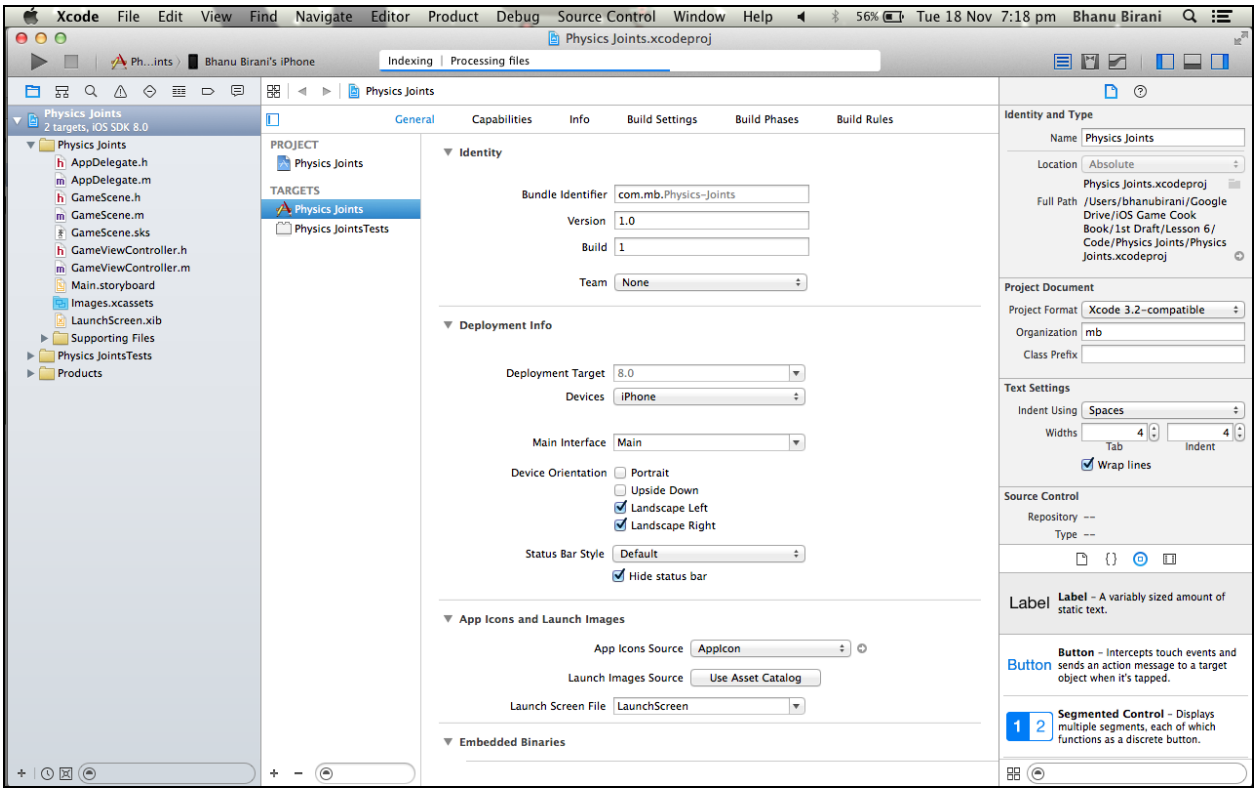
No Selection

```
2014-11-07 22:24:14.078 PhysicsSimulation[1673:52375] touch began on paddle
2014-11-07 22:24:16.332 PhysicsSimulation[1673:52375] touch began on paddle
2014-11-07 22:24:19.760 PhysicsSimulation[1673:52375] touch began on paddle
2014-11-07 22:24:20.820 PhysicsSimulation[1673:52375] touch began on paddle
```

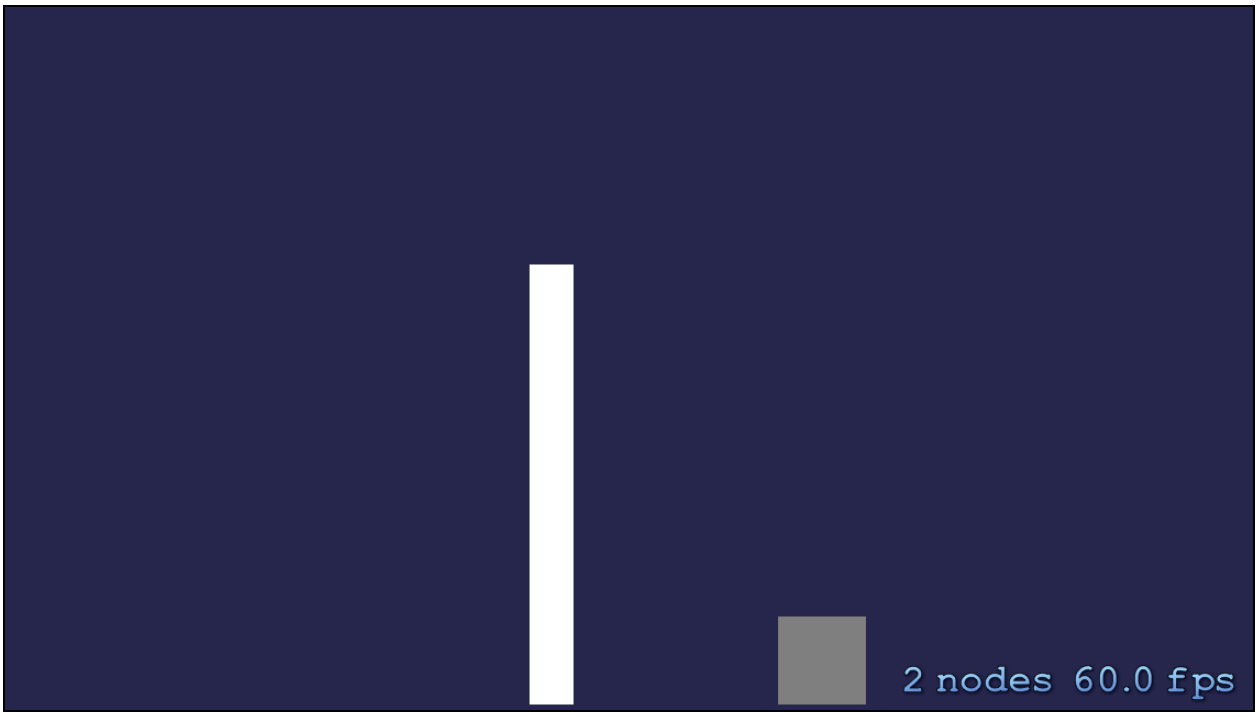
All Output

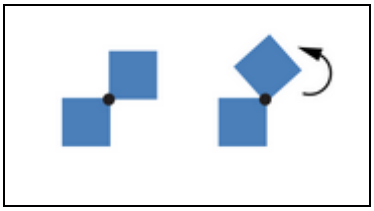
Chapter 7

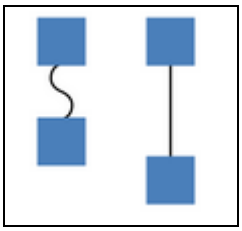


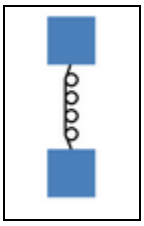

Xcode File Edit View Find Navigate Editor Product Debug Source Control Window Help 56% Tue 18 Nov 7:18 pm Bhanu Birani
Physics Joints.xcodeproj
Indexing | Processing files
Physics Joints
2 targets, iOS SDK 8.0
Physics Joints
AppDelegate.h
AppDelegate.m
GameScene.h
GameScene.m
GameScene.sks
GameViewController.h
GameViewController.m
Main.storyboard
Images.xcassets
LaunchScreen.xib
Supporting Files
Physics JointsTests
Products
General Capabilities Info Build Settings Build Phases Build Rules
PROJECT
Physics Joints
TARGETS
Physics Joints
Physics JointsTests
Identity
Bundle Identifier com.mb.Physics-Joints
Version 1.0
Build 1
Team None
Deployment Info
Deployment Target 8.0
Devices iPhone
Main Interface Main
Device Orientation Portrait
Upside Down
Landscape Left
Landscape Right
Status Bar Style Default
Hide status bar
App Icons and Launch Images
App Icons Source AppIcon
Launch Images Source Use Asset Catalog
Launch Screen File LaunchScreen
Embedded Binaries
Identity and Type
Name Physics Joints
Location Absolute
Physics Joints.xcodeproj
Full Path /Users/bhanubirani/Google Drive/iOS Game Cook Book/1st Draft/Lesson 6/Code/Physics Joints/Physics Joints.xcodeproj
Project Document
Project Format Xcode 3.2-compatible
Organization mb
Class Prefix
Text Settings
Indent Using Spaces
Widths 4 4
Tab Indent
Wrap lines
Source Control
Repository --
Type --
Label Label – A variably sized amount of static text.
Button Button – Intercepts touch events and sends an action message to a target object when it's tapped.
1 2 Segmented Control – Displays multiple segments, each of which functions as a discrete button.

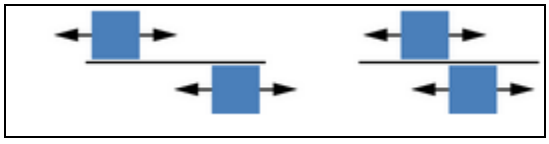

0 nodes 60.0 fps

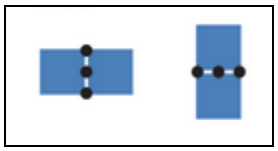

2 nodes 60.0 fps



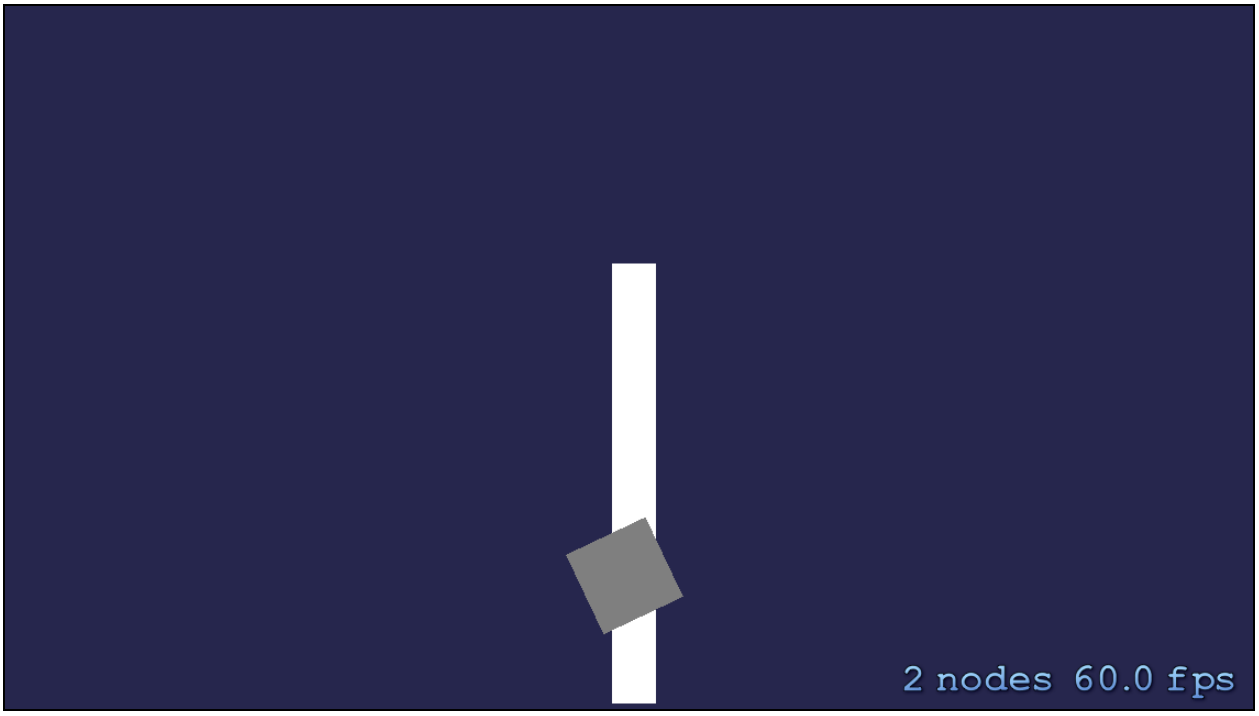


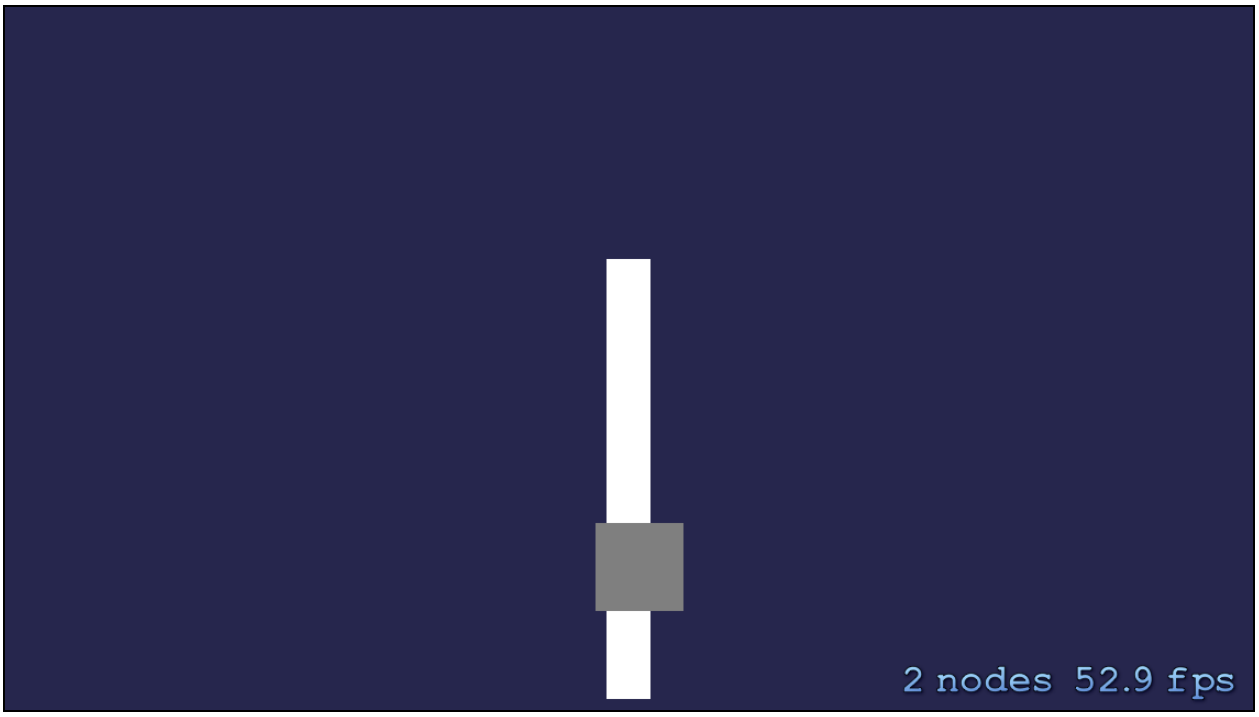


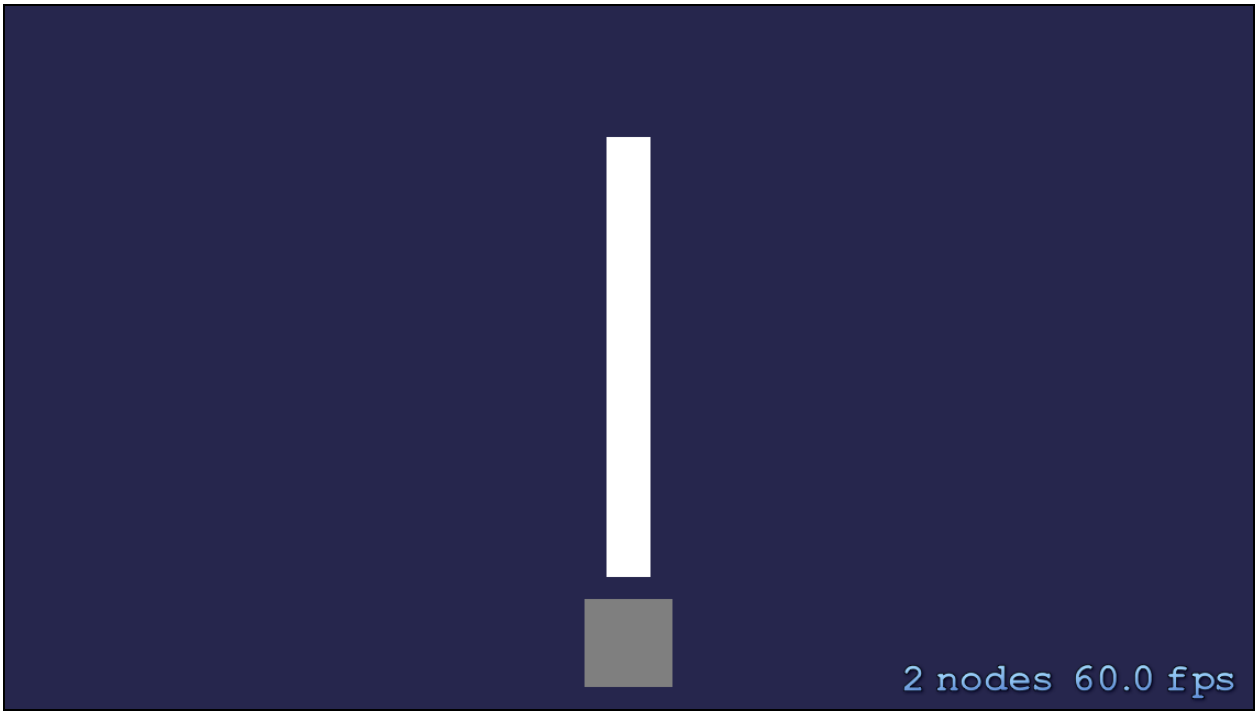


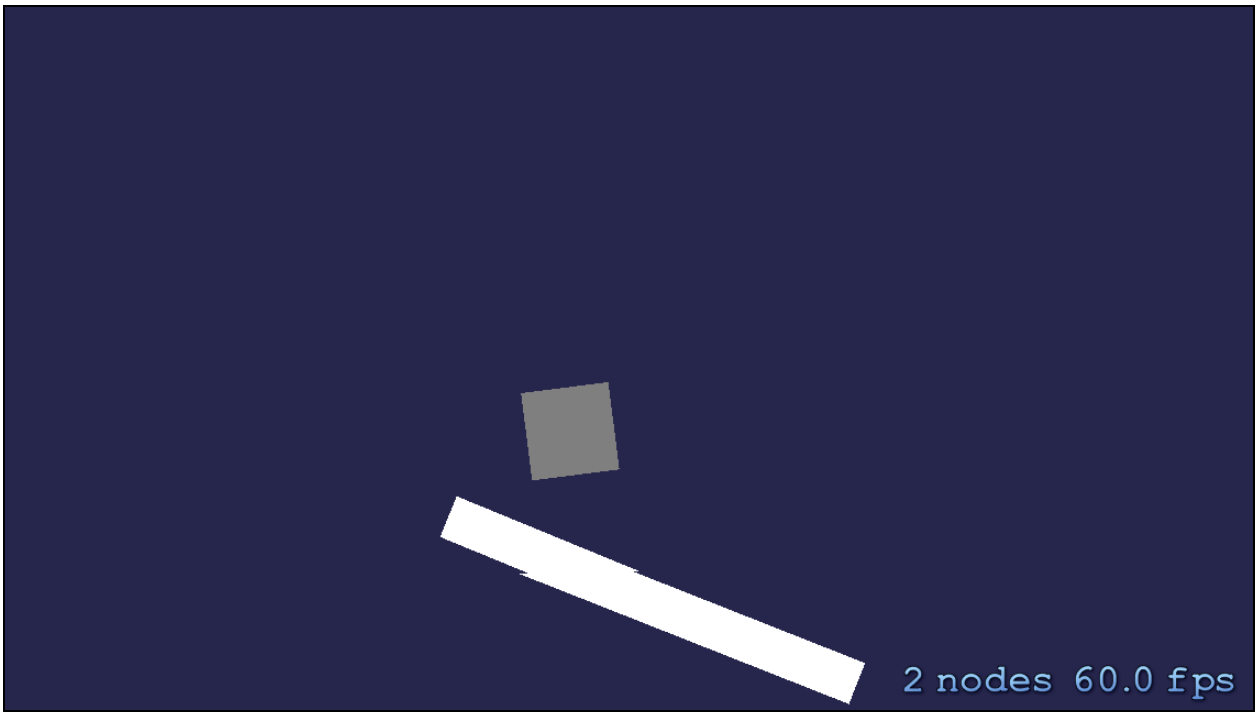


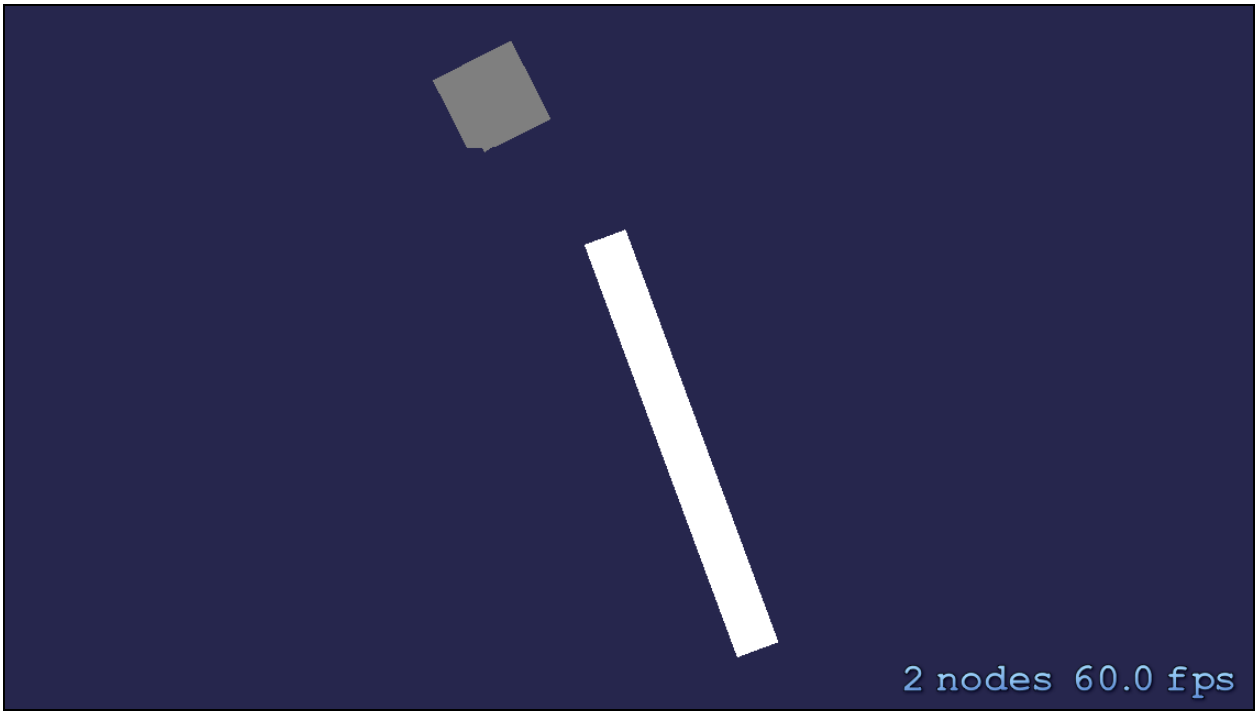
```objc
-(id)initWithSize:(CGSize)size {
    if (self = [super initWithSize:size]) {
        self.backgroundColor = [SKColor colorWithRed:0.15 green:0.15 blue:0.3 alpha:1.0];
        self.physicsWorld.gravity = CGVectorMake(0, -0.5);
        self.physicsBody = [SKPhysicsBody bodyWithEdgeLoopFromRect:self.frame];
        self.physicsBody.friction = 0.0f;

        [self createPinJointOnScene:self];
    }
    return self;
}
```




2 nodes 52.9 fps

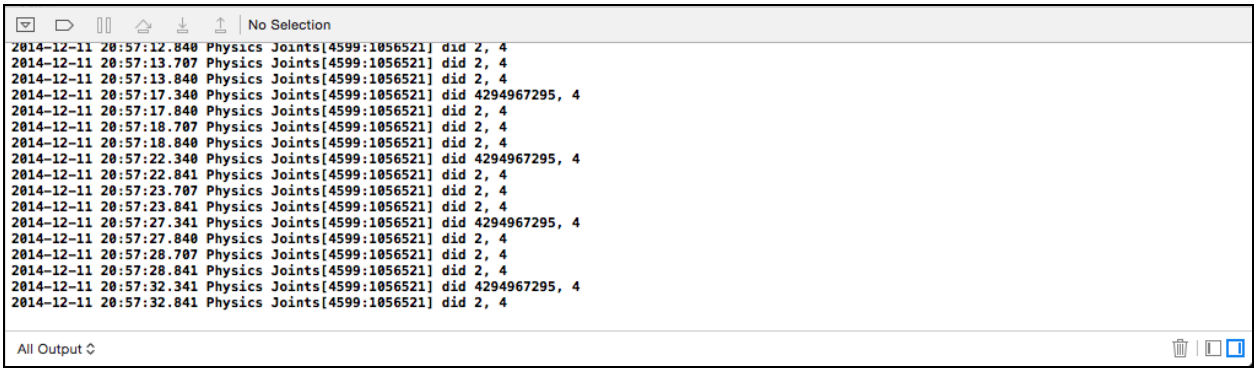

2 nodes 60.0 fps

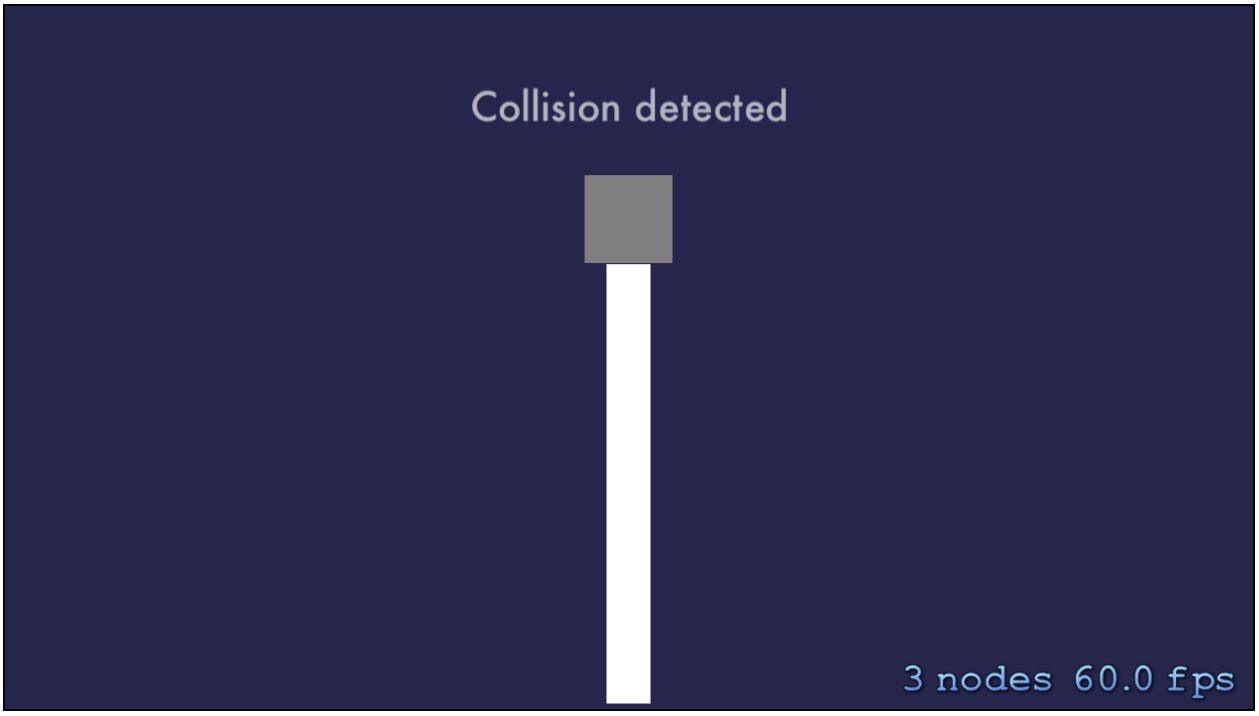




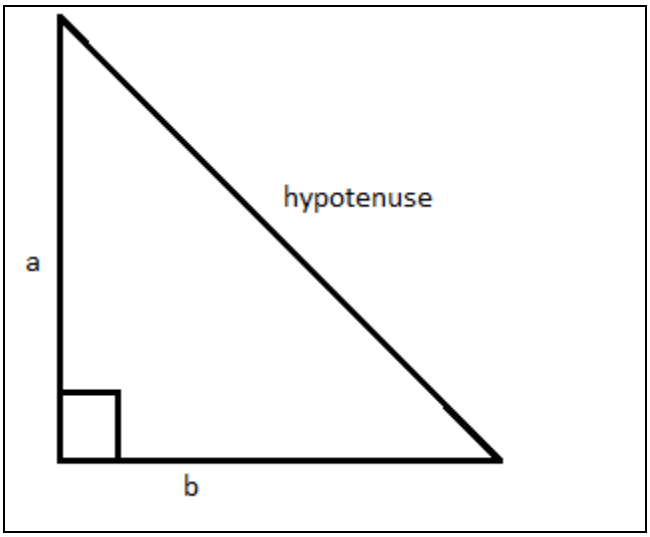

```
- (void)didBeginContact:(SKPhysicsContact *)contact
{
    NSLog(@"did %u, %u", contact.bodyA.categoryBitMask, contact.bodyB.categoryBitMask);

}
```

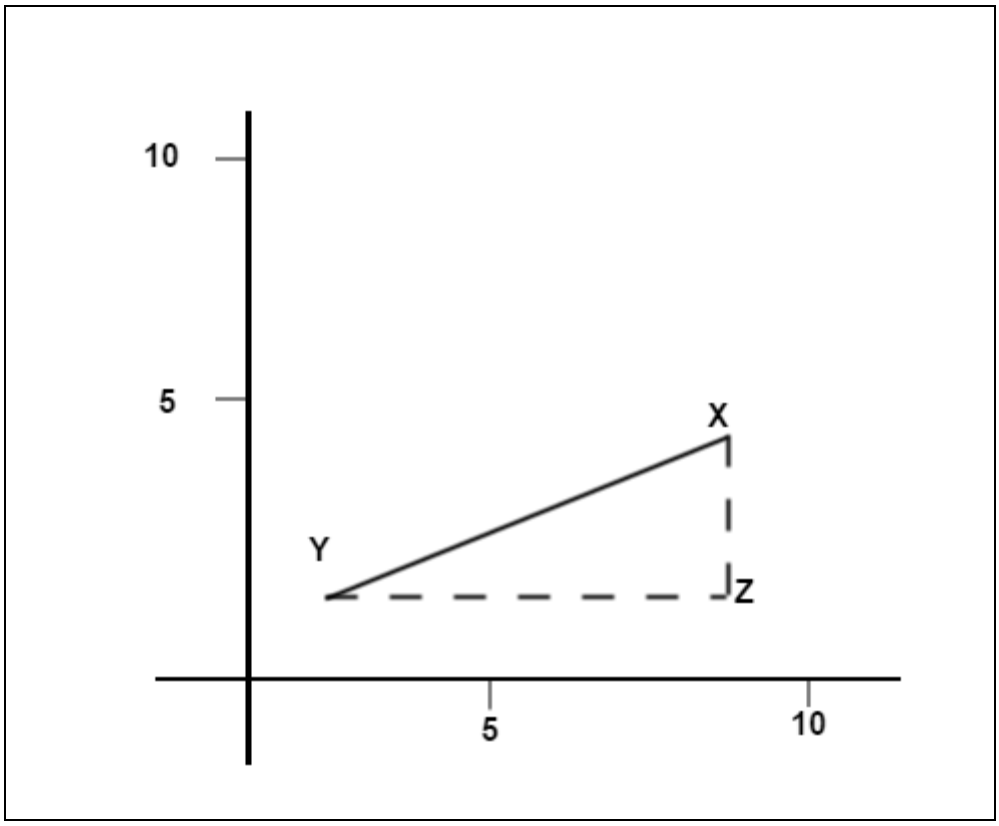
```objc
#import <SpriteKit/SpriteKit.h>

@interface GameScene : SKScene <SKPhysicsContactDelegate>

@end
```



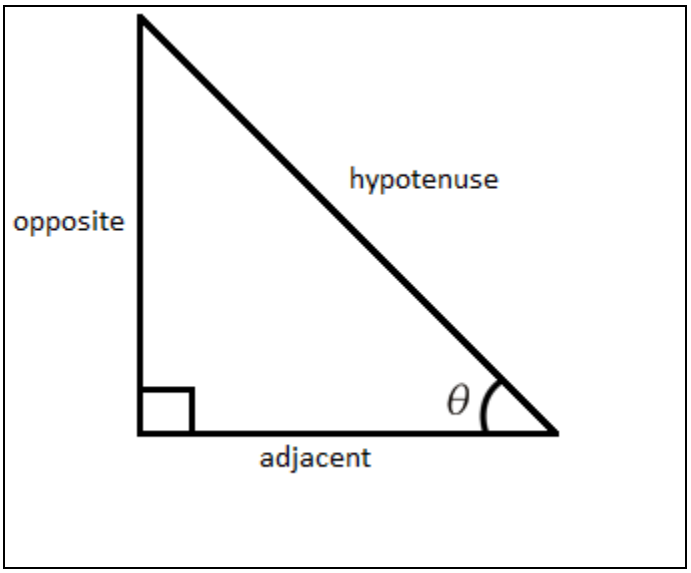


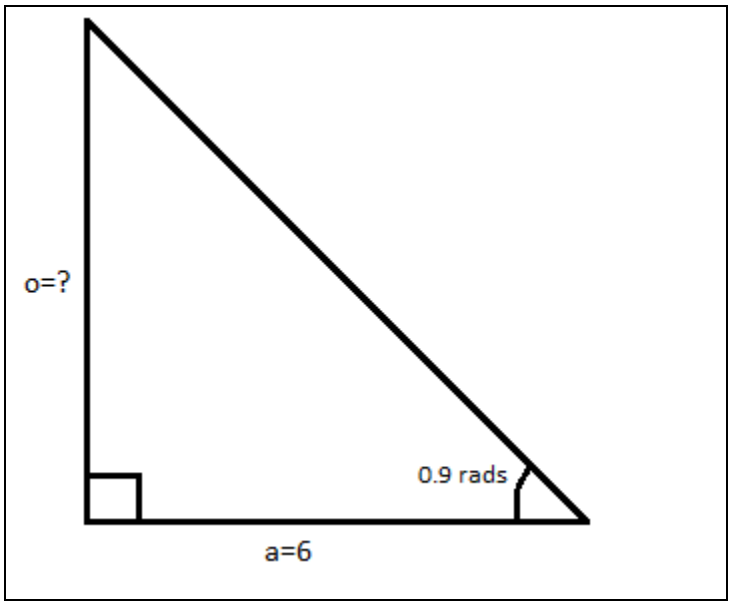
Chapter 8

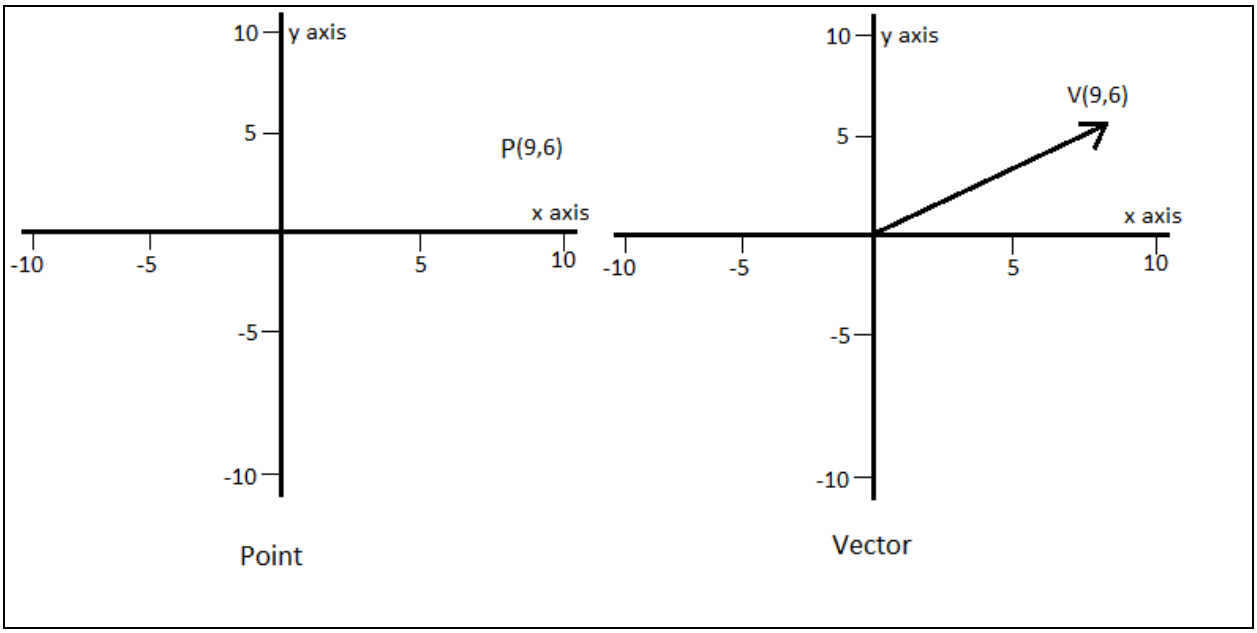


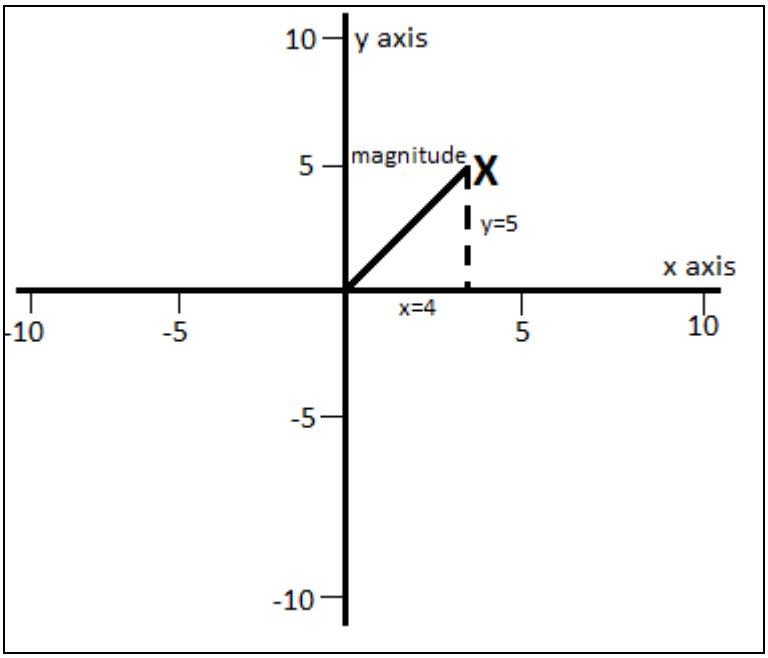


$$XY = \sqrt{XZ^2 + YZ^2}$$
$$= \sqrt{3^2 + 6^2}$$
$$= 6.71$$



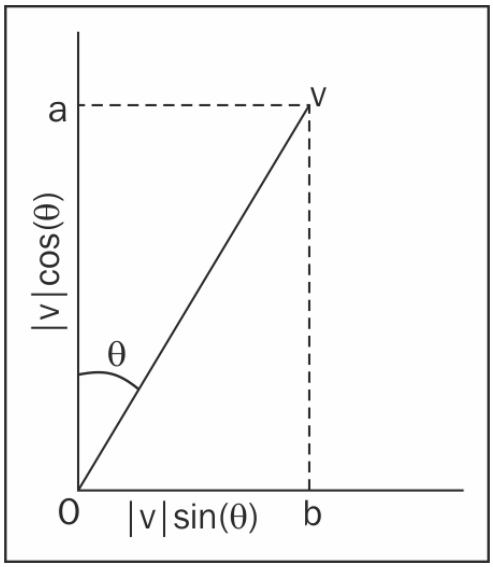


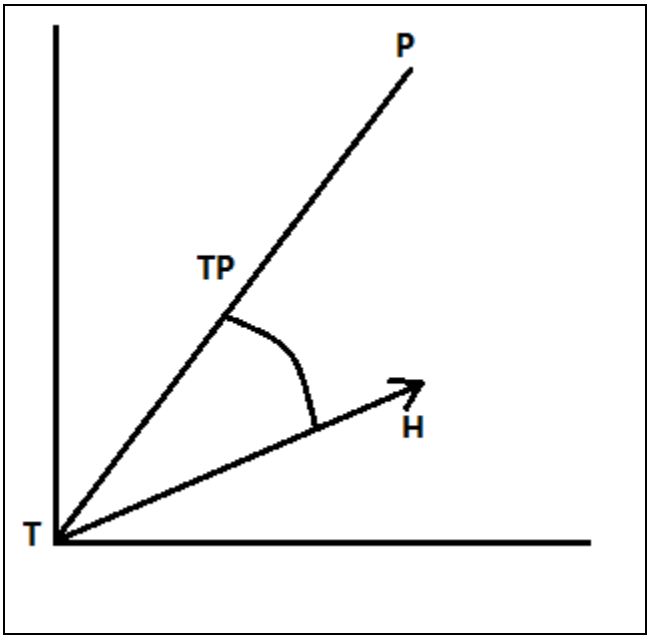




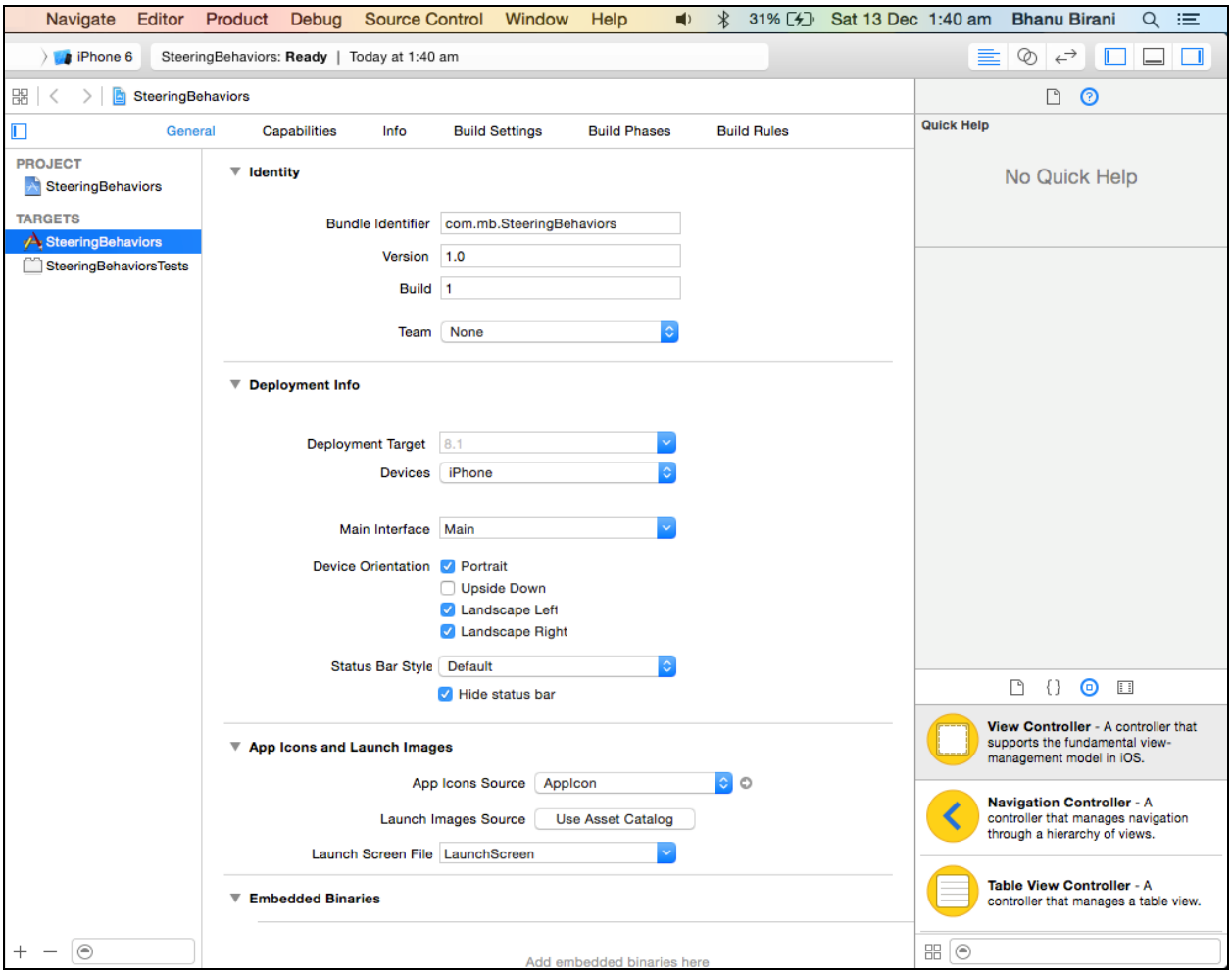
$$\sqrt{4^2 + 5^2 = 6.403}$$

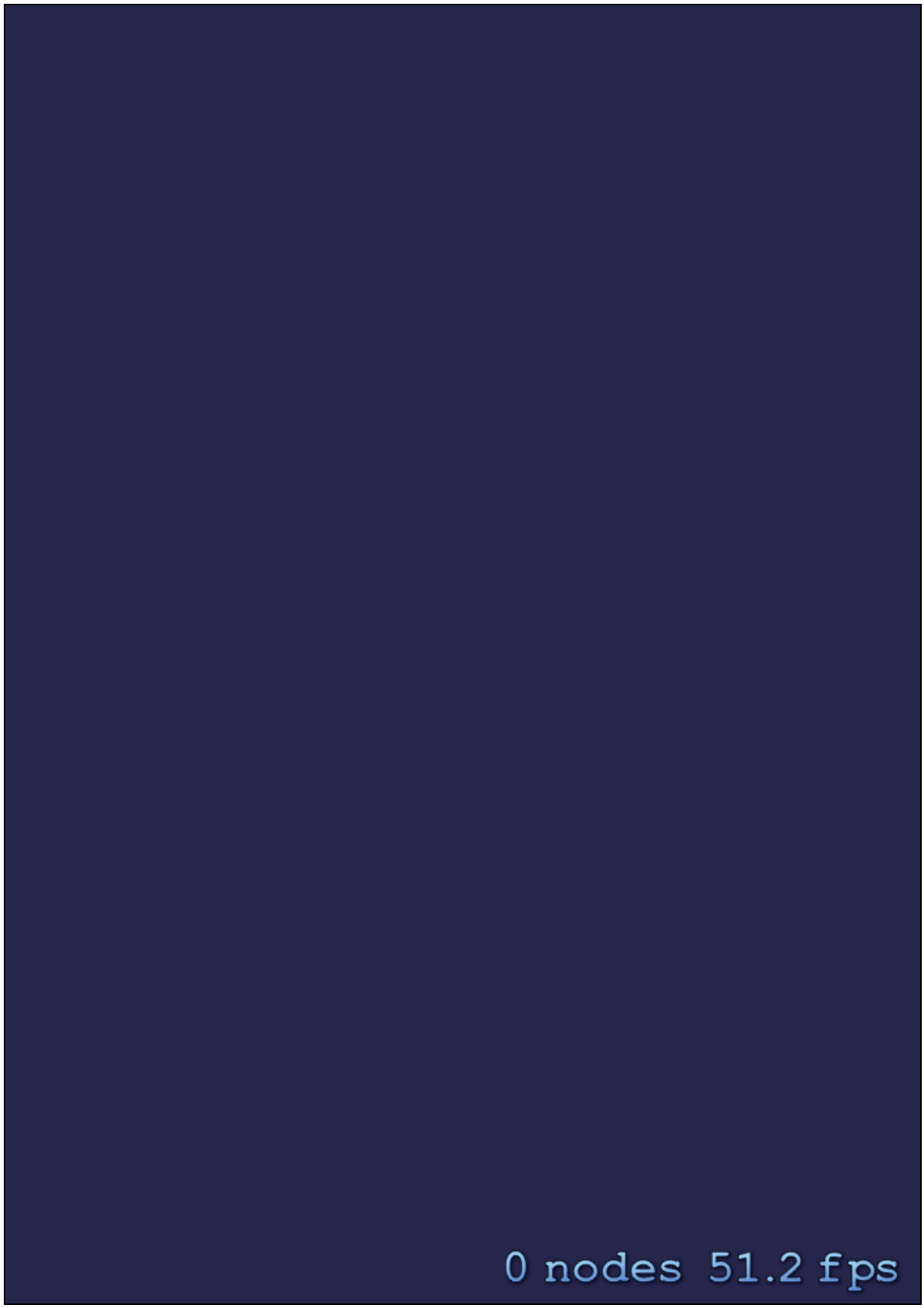
$$\sqrt{x^2 + y^2 + z^2}$$

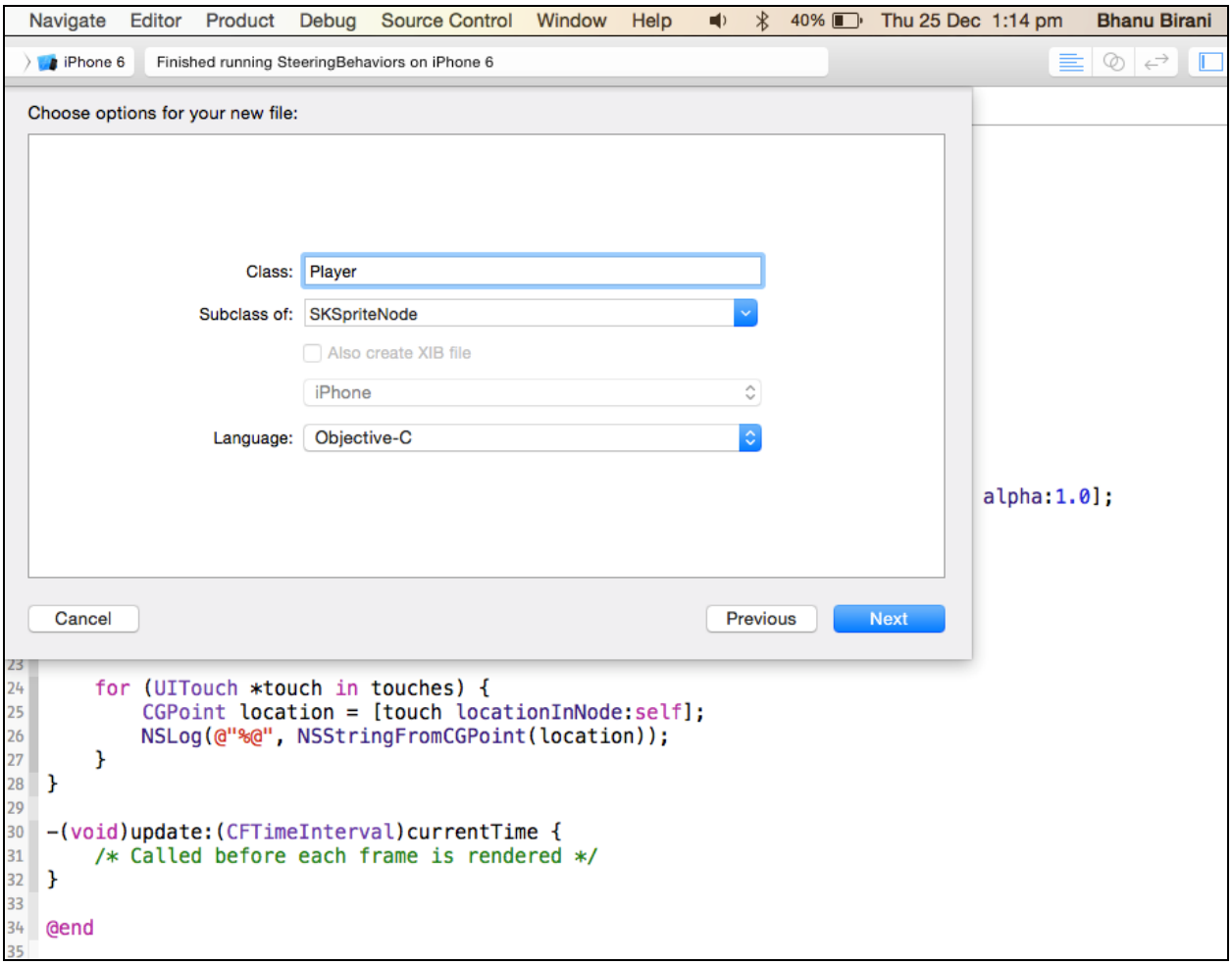

a
v
|v|cos(θ)
θ
0
|v|sin(θ)
b

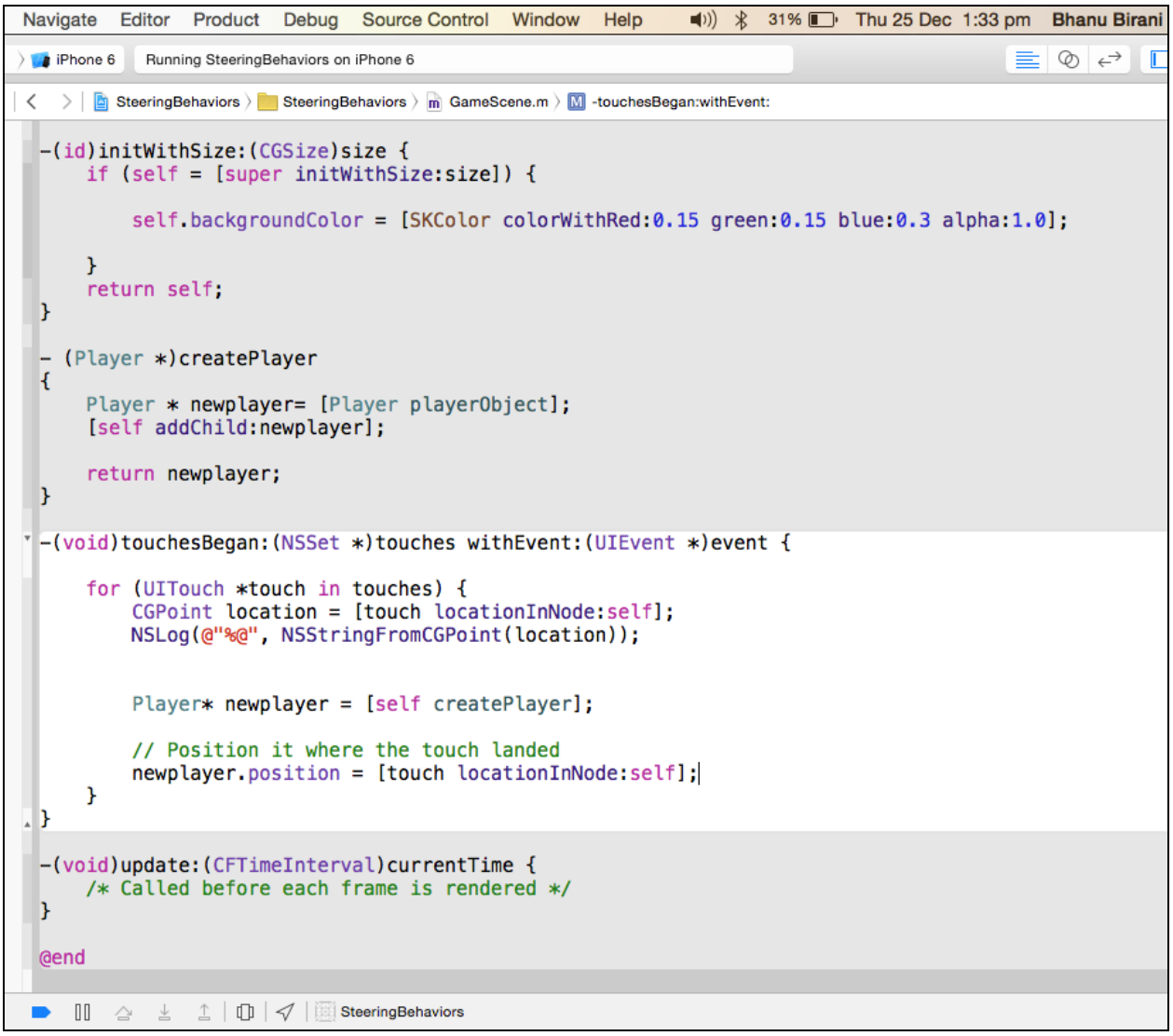

P
TP
H
T

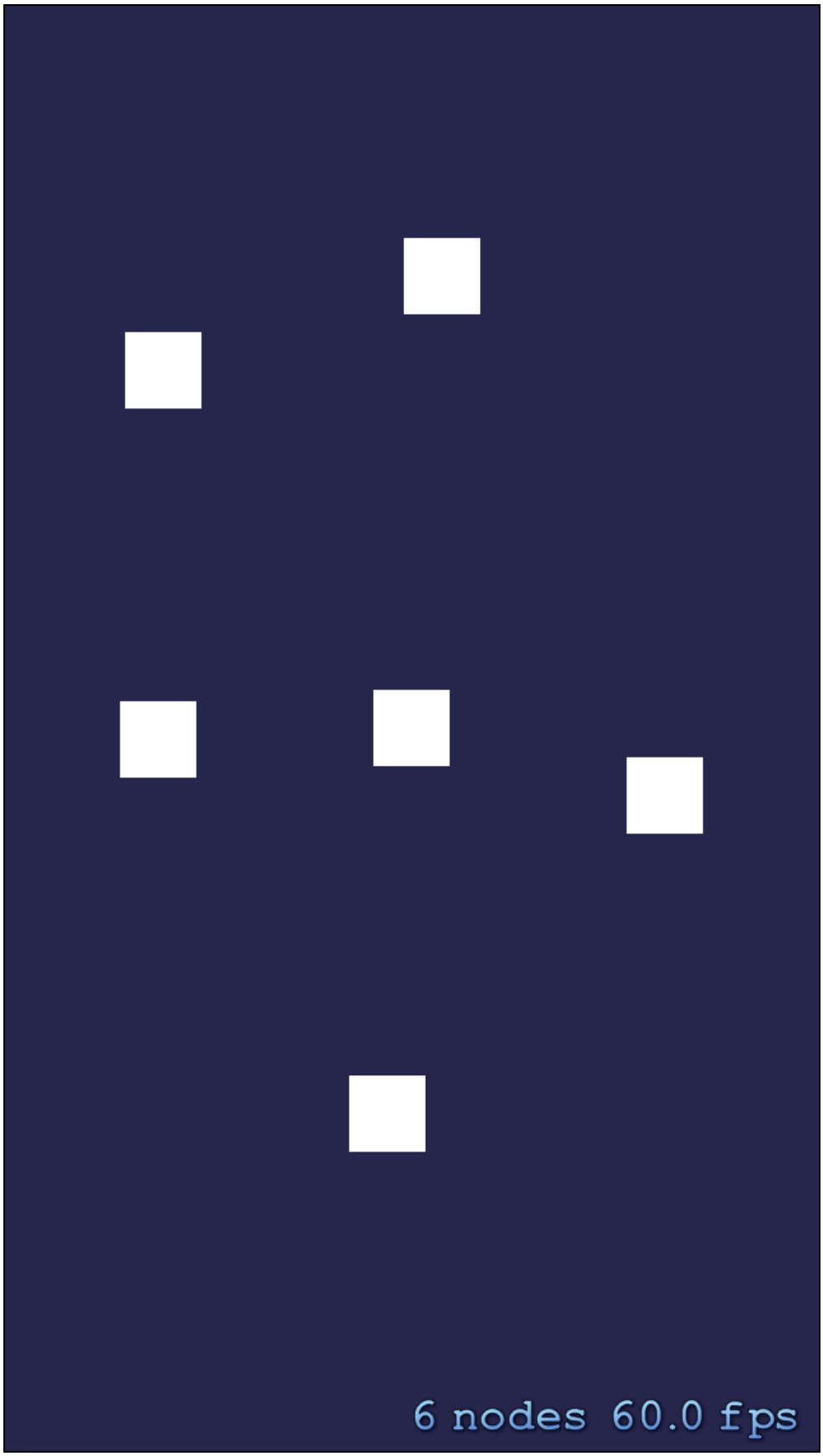
Chapter 9

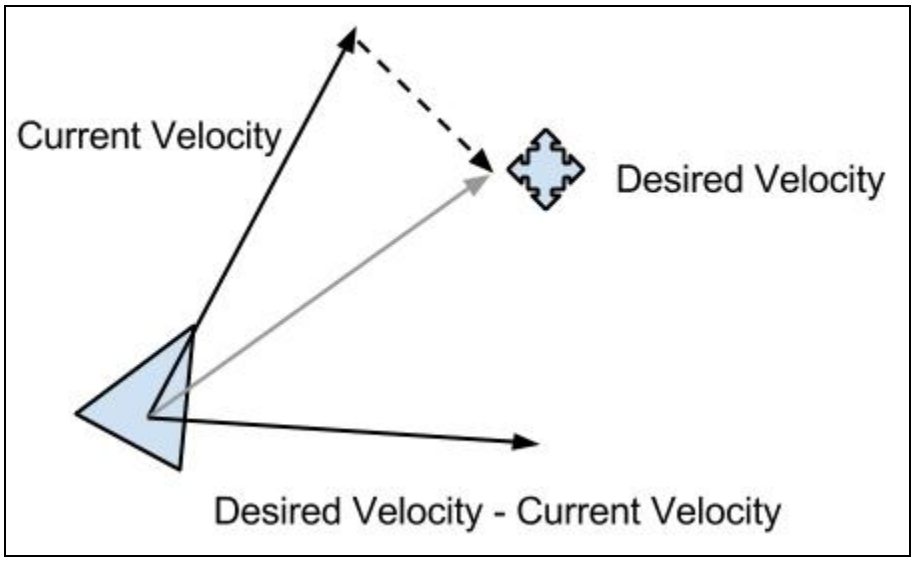

Navigate Editor Product Debug Source Control Window Help 31% Sat 13 Dec 1:40 am Bhanu Birani
iPhone 6
SteeringBehaviors: Ready | Today at 1:40 am
SteeringBehaviors
General Capabilities Info Build Settings Build Phases Build Rules
PROJECT
SteeringBehaviors
TARGETS
SteeringBehaviors
SteeringBehaviorsTests
Identity
Bundle Identifier com.mb.SteeringBehaviors
Version 1.0
Build 1
Team None
Deployment Info
Deployment Target 8.1
Devices iPhone
Main Interface Main
Device Orientation Portrait
Upside Down
Landscape Left
Landscape Right
Status Bar Style Default
Hide status bar
App Icons and Launch Images
App Icons Source AppIcon
Launch Images Source Use Asset Catalog
Launch Screen File LaunchScreen
Embedded Binaries
Add embedded binaries here
Quick Help
No Quick Help
View Controller - A controller that supports the fundamental view-management model in iOS.
Navigation Controller - A controller that manages navigation through a hierarchy of views.
Table View Controller - A controller that manages a table view.


0 nodes 51.2 fps


Navigate Editor Product Debug Source Control Window Help 40% Thu 25 Dec 1:14 pm Bhanu Birani
iPhone 6
Finished running SteeringBehaviors on iPhone 6
Choose options for your new file:
Class: Player
Subclass of: SKSpriteNode
Also create XIB file
iPhone
Language: Objective-C
Cancel
Previous
Next
alpha:1.0];
for (UITouch *touch in touches) {
CGPoint location = [touch locationInNode:self];
NSLog(@"%@", NSStringFromCGPoint(location));
}
}
-(void)update:(CFTimeInterval)currentTime {
/* Called before each frame is rendered */
}
@end


Navigate Editor Product Debug Source Control Window Help 31% Thu 25 Dec 1:33 pm Bhanu Birani
iPhone 6
Running SteeringBehaviors on iPhone 6
SteeringBehaviors SteeringBehaviors GameScene.m -touchesBegan:withEvent:
-(id)initWithSize:(CGSize)size {
if (self = [super initWithSize:size]) {
self.backgroundColor = [SKColor colorWithRed:0.15 green:0.15 blue:0.3 alpha:1.0];
}
return self;
}
- (Player *)createPlayer
{
Player * newplayer= [Player playerObject];
[self addChild:newplayer];
return newplayer;
}
-(void)touchesBegan:(NSSet *)touches withEvent:(UIEvent *)event {
for (UITouch *touch in touches) {
CGPoint location = [touch locationInNode:self];
NSLog(@"%@", NSStringFromCGPoint(location));
Player* newplayer = [self createPlayer];
// Position it where the touch landed
newplayer.position = [touch locationInNode:self];
}
}
-(void)update:(CFTimeInterval)currentTime {
/* Called before each frame is rendered */
}
@end
SteeringBehaviors


6 nodes 60.0 fps



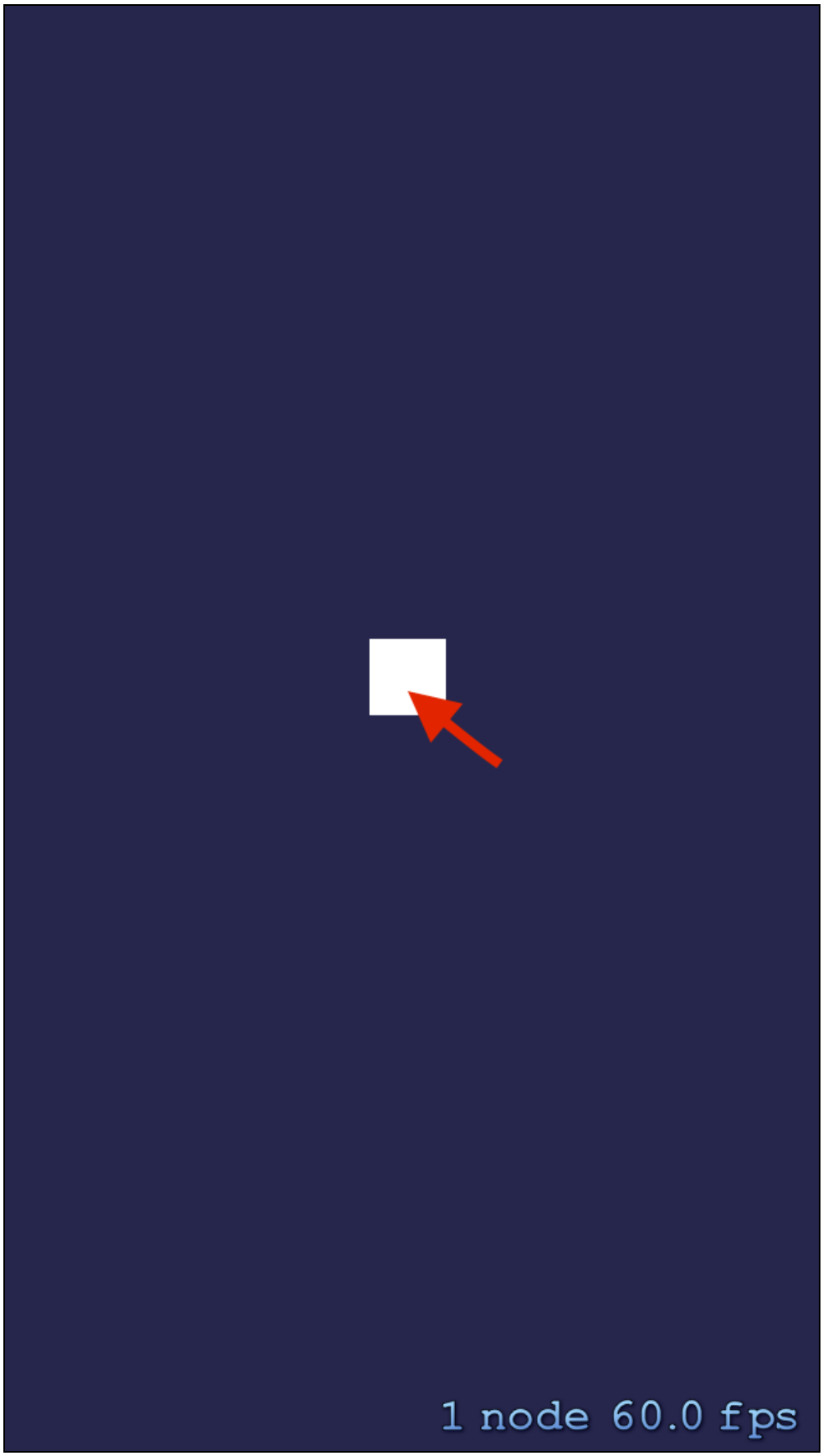
Navigate Editor Product Debug Source Control Window Help 88% Sat 27 Dec 5:16 pm Bhanu Birani

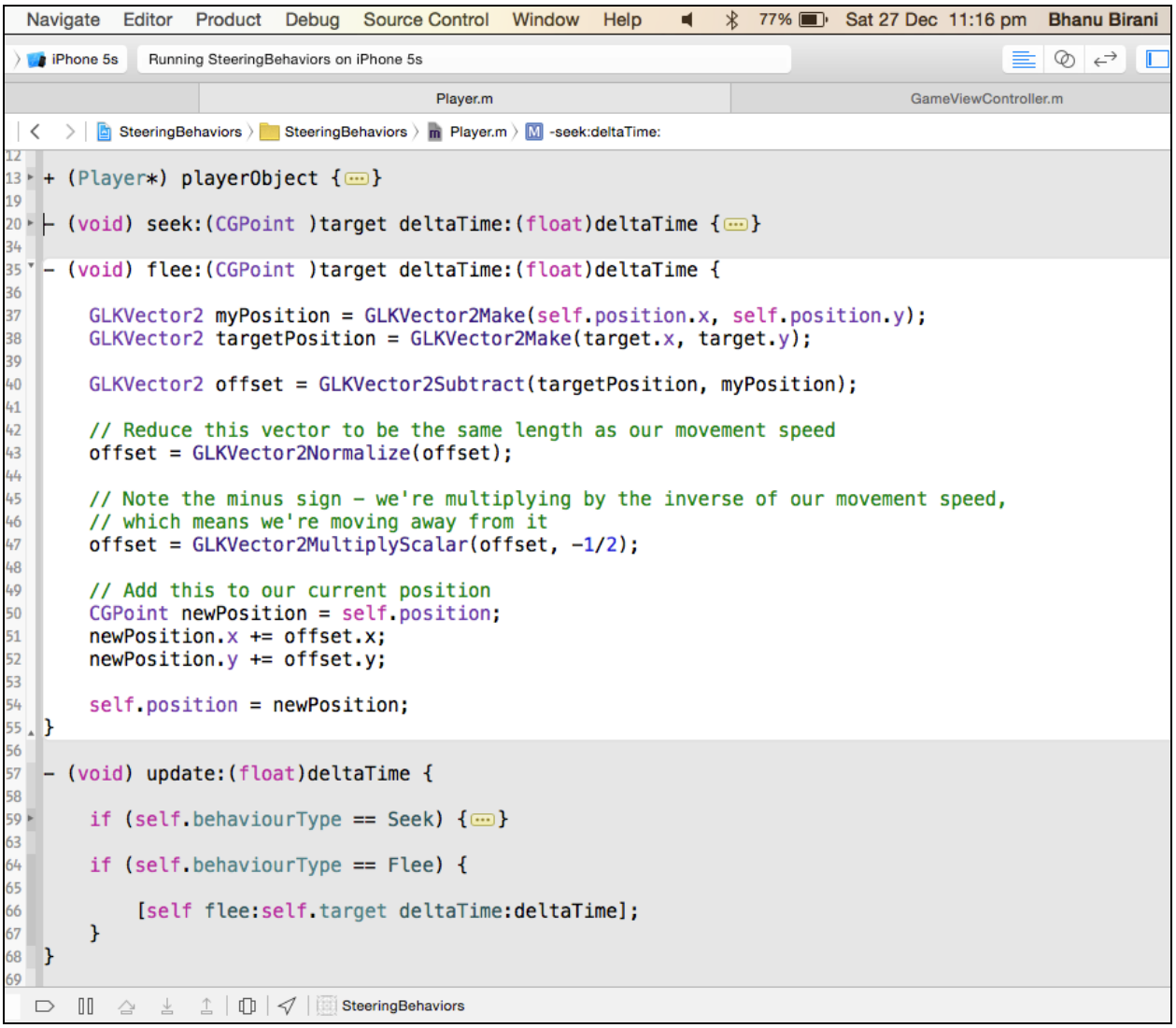
iPhone 5s | Finished running SteeringBehaviors on iPhone 5s

GameScene.m | GameViewController.m

SteeringBehaviors > SteeringBehaviors > GameScene.m > -initWithSize:

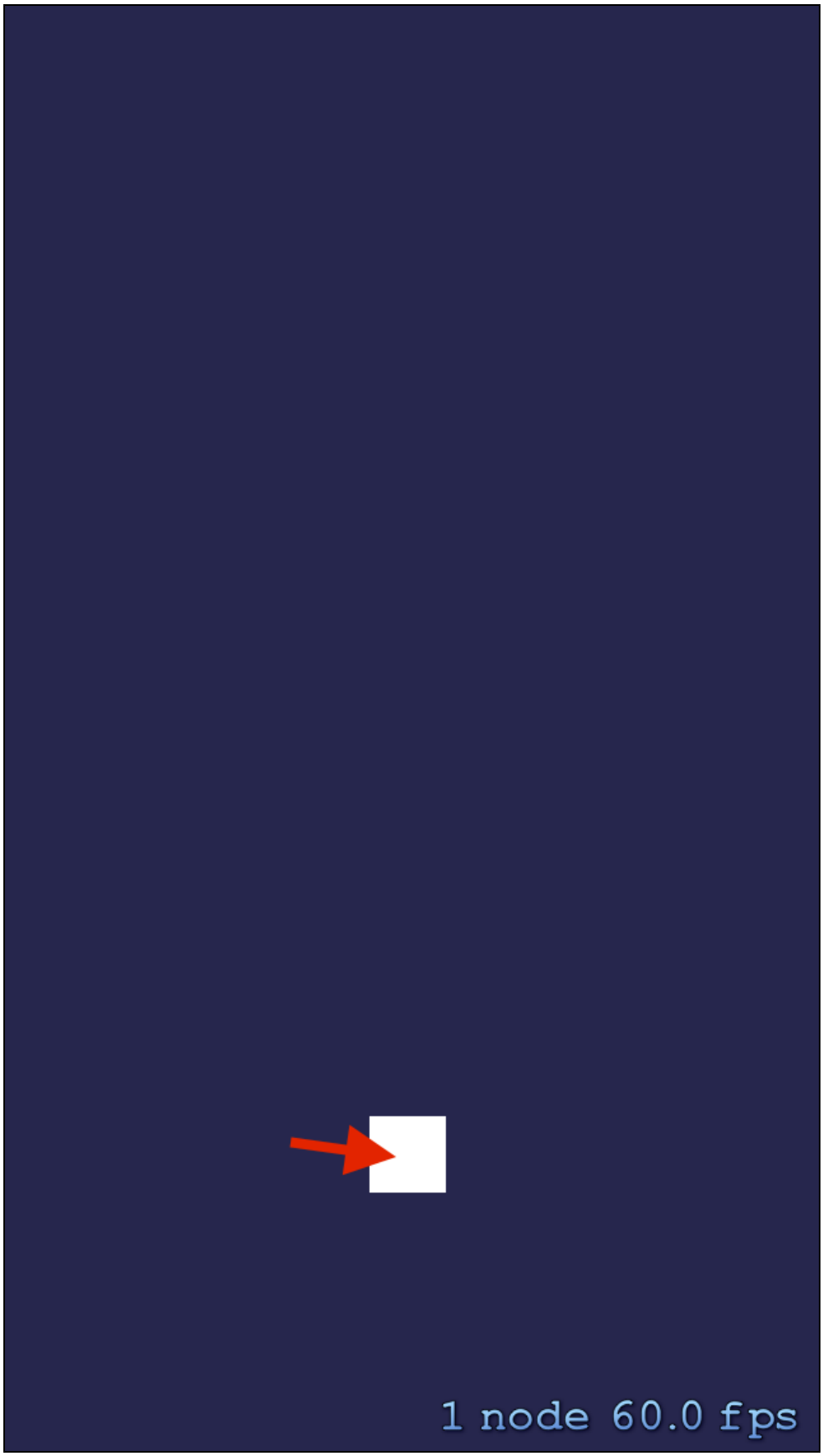
```
@implementation GameScene {
    float lastTime;
    Player * newplayer;
    SteeringBehaviorType behaviourType;
}

-(id)initWithSize:(CGSize)size {
    if (self = [super initWithSize:size]) {

        self.backgroundColor = [SKColor colorWithRed:0.15 green:0.15 blue:0.3 alpha:1.0];
        self.physicsWorld.gravity = CGVectorMake(0, 0);

        newplayer = [self createPlayer];
        newplayer.position = CGPointMake(size.width/2, size.height/2);

        behaviourType = Seek;
        newplayer.behaviourType = behaviourType;

        if (behaviourType == Seek) {
            newplayer.physicsBody = [SKPhysicsBody bodyWithRectangleOfSize:CGSizeMake(30, 30)];
            newplayer.physicsBody.friction = 1.0f;
            newplayer.physicsBody.linearDamping = 1.0f;
        }
    }
    return self;
}

- (Player *)createPlayer
{
    Player *plyr = [Player playerObject];
    [self addChild:plyr];

    return plyr;
}

-(void)touchesBegan:(NSSet *)touches withEvent:(UIEvent *)event {...}

-(void)update:(CFTimeInterval)currentTime {...}
```

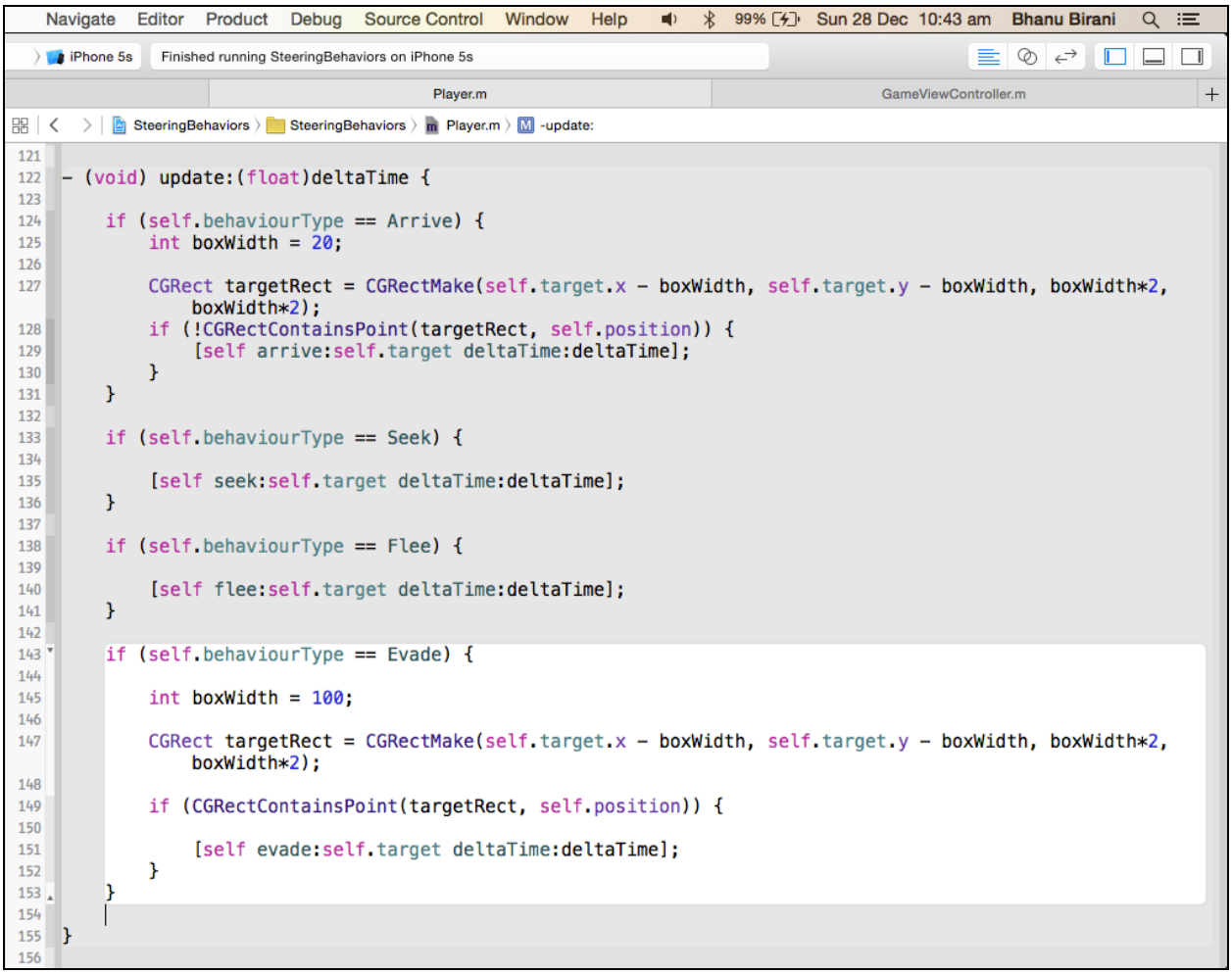

1 node 60.0 fps

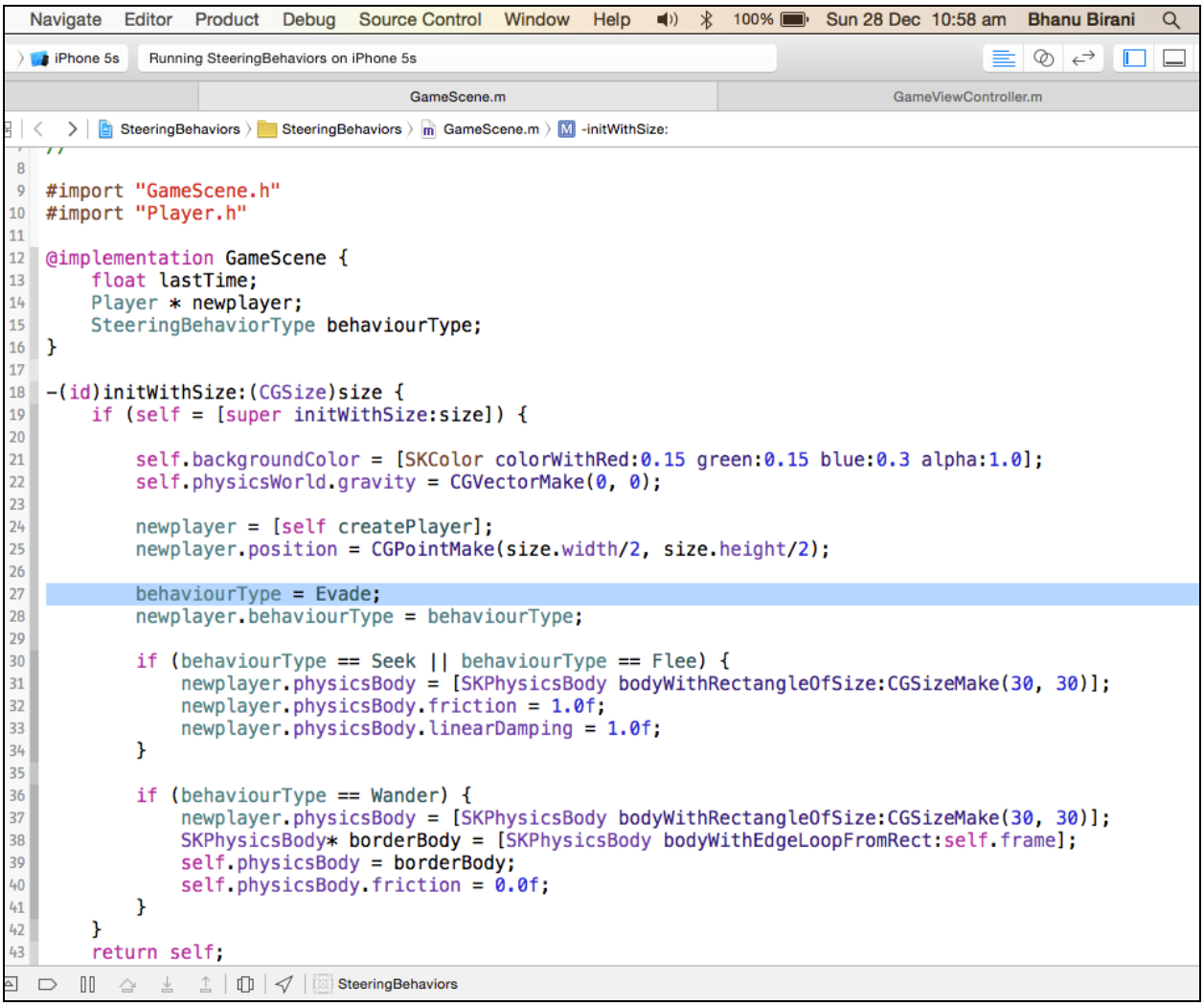

Navigate Editor Product Debug Source Control Window Help 77% Sat 27 Dec 11:16 pm Bhanu Birani
iPhone 5s
Running SteeringBehaviors on iPhone 5s
Player.m
GameViewController.m
SteeringBehaviors SteeringBehaviors Player.m -seek:deltaTime:
+ (Player*) playerObject {...}
- (void) seek:(CGPoint)target deltaTime:(float)deltaTime {...}
- (void) flee:(CGPoint)target deltaTime:(float)deltaTime {
GLKVector2 myPosition = GLKVector2Make(self.position.x, self.position.y);
GLKVector2 targetPosition = GLKVector2Make(target.x, target.y);
GLKVector2 offset = GLKVector2Subtract(targetPosition, myPosition);
// Reduce this vector to be the same length as our movement speed
offset = GLKVector2Normalize(offset);
// Note the minus sign - we're multiplying by the inverse of our movement speed,
// which means we're moving away from it
offset = GLKVector2MultiplyScalar(offset, -1/2);
// Add this to our current position
CGPoint newPosition = self.position;
newPosition.x += offset.x;
newPosition.y += offset.y;
self.position = newPosition;
}
- (void) update:(float)deltaTime {
if (self.behaviourType == Seek) {...}
if (self.behaviourType == Flee) {
[self flee:self.target deltaTime:deltaTime];
}
}
SteeringBehaviors

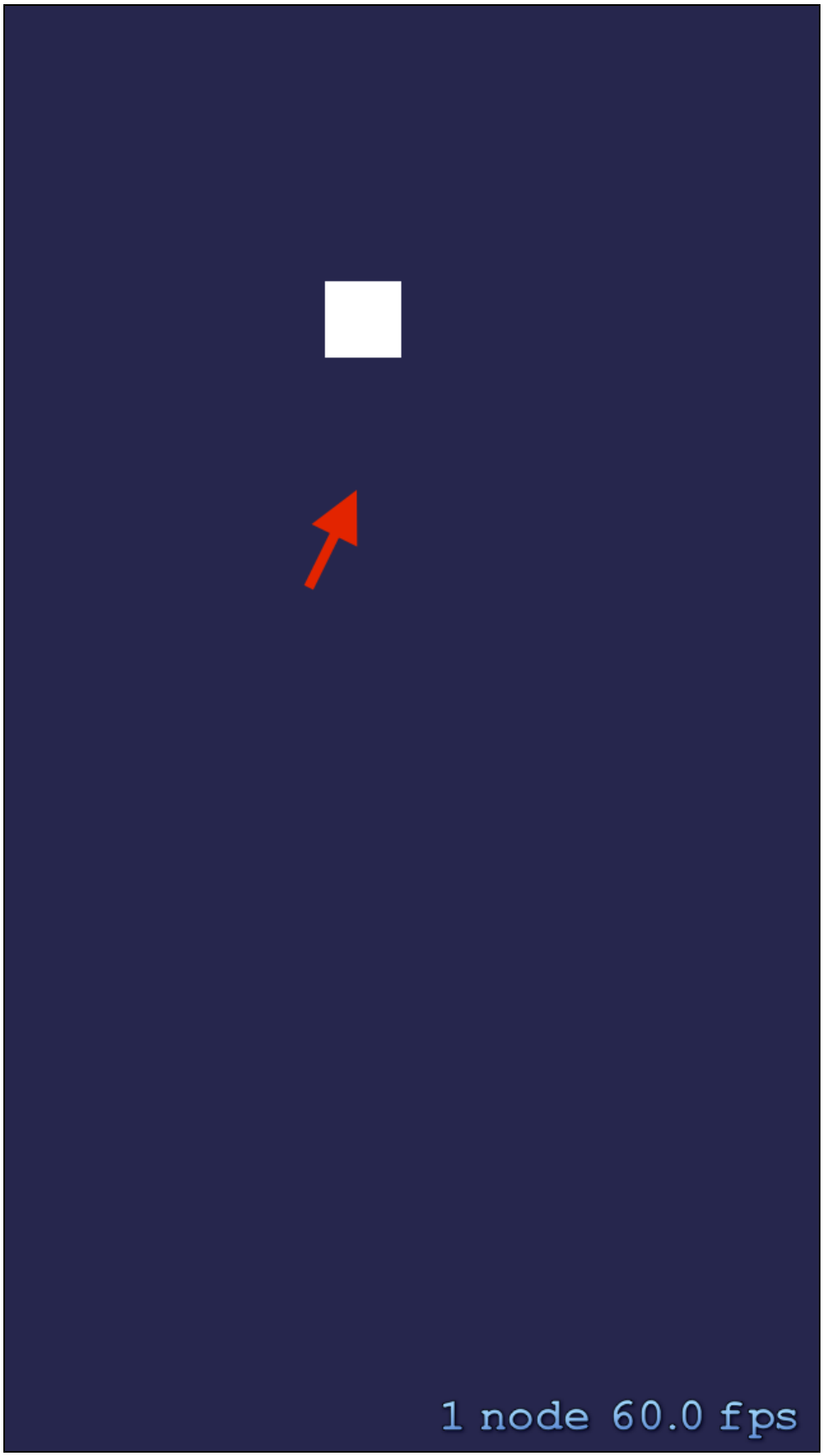
```
-(id)initWithSize:(CGSize)size {
    if (self = [super initWithSize:size]) {

        self.backgroundColor = [SKColor colorWithRed:0.15 green:0.15 blue:0.3 alpha:1.0];
        self.physicsWorld.gravity = CGVectorMake(0, 0);

        newplayer = [self createPlayer];
        newplayer.position = CGPointMake(size.width/2, size.height/2);

        behaviourType = Flee;
        newplayer.behaviourType = behaviourType;

        if (behaviourType == Seek || behaviourType == Flee) {
            newplayer.physicsBody = [SKPhysicsBody bodyWithRectangleOfSize:CGSizeMake(30, 30)];
            newplayer.physicsBody.friction = 1.0f;
            newplayer.physicsBody.linearDamping = 1.0f;
        }

        if (behaviourType == Wander) {
            newplayer.physicsBody = [SKPhysicsBody bodyWithRectangleOfSize:CGSizeMake(30, 30)];
            SKPhysicsBody* borderBody = [SKPhysicsBody bodyWithEdgeLoopFromRect:self.frame];
            self.physicsBody = borderBody;
            self.physicsBody.friction = 0.0f;
        }
    }
    return self;
}
```

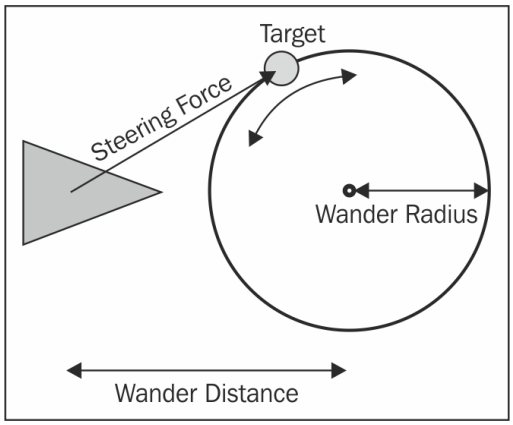
```
- (void) update:(float)deltaTime {

    if (self.behaviourType == Arrive) {
        int boxWidth = 20;

        CGRect targetRect = CGRectMake(self.target.x - boxWidth, self.target.y - boxWidth, boxWidth*2,
            boxWidth*2);

        if (!CGRectContainsPoint(targetRect, self.position)) {
            [self arrive:self.target deltaTime:deltaTime];
        }
    }

    if (self.behaviourType == Seek) {

        [self seek:self.target deltaTime:deltaTime];
    }

    if (self.behaviourType == Flee) {

        [self flee:self.target deltaTime:deltaTime];
    }
}
```


1 node 60.0 fps


Navigate Editor Product Debug Source Control Window Help 99% Sun 28 Dec 10:43 am Bhanu Birani
iPhone 5s
Finished running SteeringBehaviors on iPhone 5s
Player.m
GameViewController.m
SteeringBehaviors SteeringBehaviors Player.m -update:
121
122 - (void) update:(float)deltaTime {
123
124 if (self.behaviourType == Arrive) {
125 int boxWidth = 20;
126
127 CGRect targetRect = CGRectMake(self.target.x - boxWidth, self.target.y - boxWidth, boxWidth*2,
boxWidth*2);
128 if (!CGRectContainsPoint(targetRect, self.position)) {
129 [self arrive:self.target deltaTime:deltaTime];
130 }
131 }
132
133 if (self.behaviourType == Seek) {
134
135 [self seek:self.target deltaTime:deltaTime];
136 }
137
138 if (self.behaviourType == Flee) {
139
140 [self flee:self.target deltaTime:deltaTime];
141 }
142
143 if (self.behaviourType == Evade) {
144
145 int boxWidth = 100;
146
147 CGRect targetRect = CGRectMake(self.target.x - boxWidth, self.target.y - boxWidth, boxWidth*2,
boxWidth*2);
148
149 if (CGRectContainsPoint(targetRect, self.position)) {
150
151 [self evade:self.target deltaTime:deltaTime];
152 }
153 }
154
155 }
156

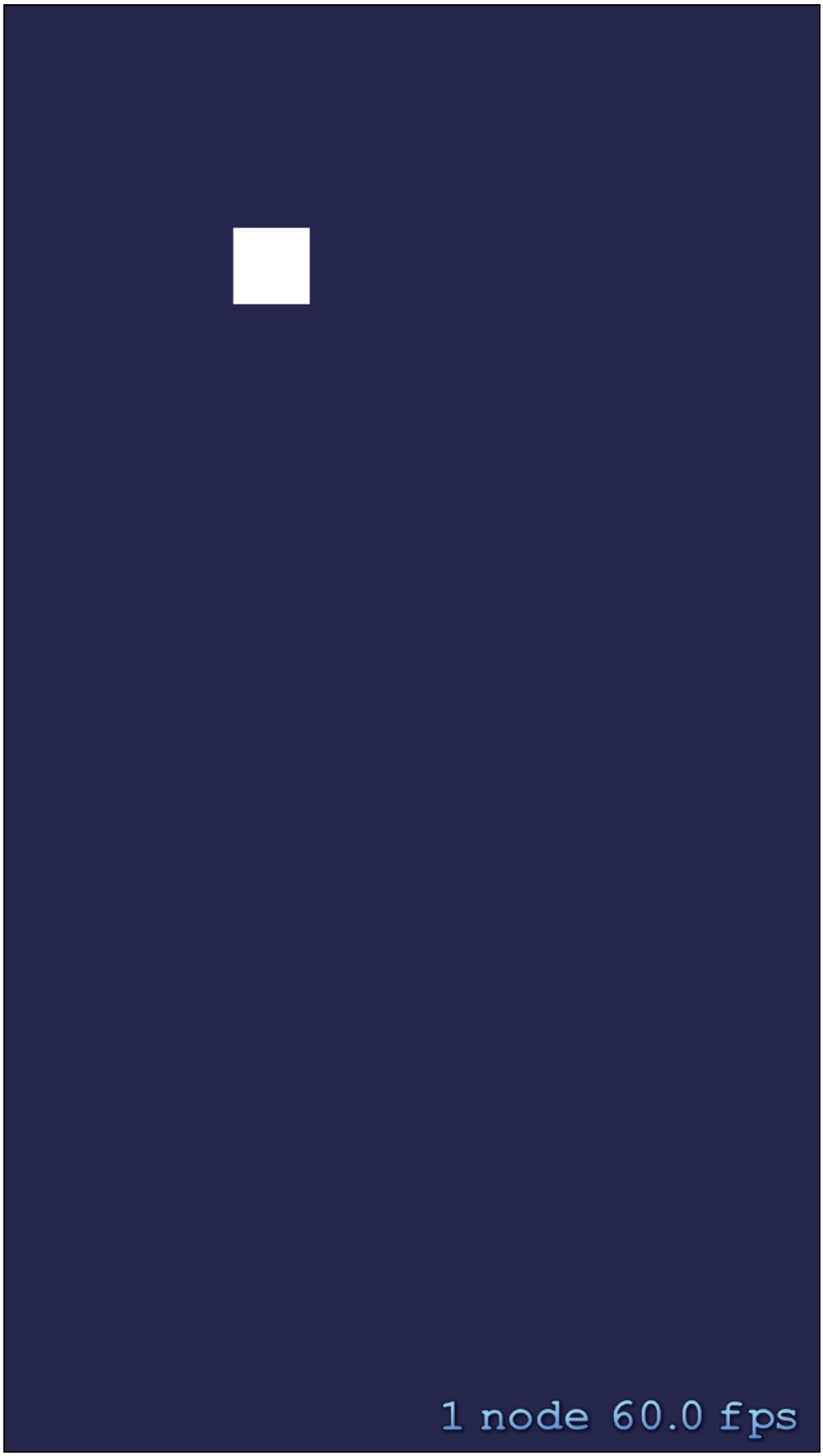

Navigate Editor Product Debug Source Control Window Help 100% Sun 28 Dec 10:58 am Bhanu Birani
iPhone 5s
Running SteeringBehaviors on iPhone 5s
GameScene.m
GameViewController.m
SteeringBehaviors SteeringBehaviors GameScene.m -initWithSize:
//
#import "GameScene.h"
#import "Player.h"
@implementation GameScene {
float lastTime;
Player * newplayer;
SteeringBehaviorType behaviourType;
}
-(id)initWithSize:(CGSize)size {
if (self = [super initWithSize:size]) {
self.backgroundColor = [SKColor colorWithRed:0.15 green:0.15 blue:0.3 alpha:1.0];
self.physicsWorld.gravity = CGVectorMake(0, 0);
newplayer = [self createPlayer];
newplayer.position = CGPointMake(size.width/2, size.height/2);
behaviourType = Evade;
newplayer.behaviourType = behaviourType;
if (behaviourType == Seek || behaviourType == Flee) {
newplayer.physicsBody = [SKPhysicsBody bodyWithRectangleOfSize:CGSizeMake(30, 30)];
newplayer.physicsBody.friction = 1.0f;
newplayer.physicsBody.linearDamping = 1.0f;
}
if (behaviourType == Wander) {
newplayer.physicsBody = [SKPhysicsBody bodyWithRectangleOfSize:CGSizeMake(30, 30)];
SKPhysicsBody* borderBody = [SKPhysicsBody bodyWithEdgeLoopFromRect:self.frame];
self.physicsBody = borderBody;
self.physicsBody.friction = 0.0f;
}
}
return self;
SteeringBehaviors

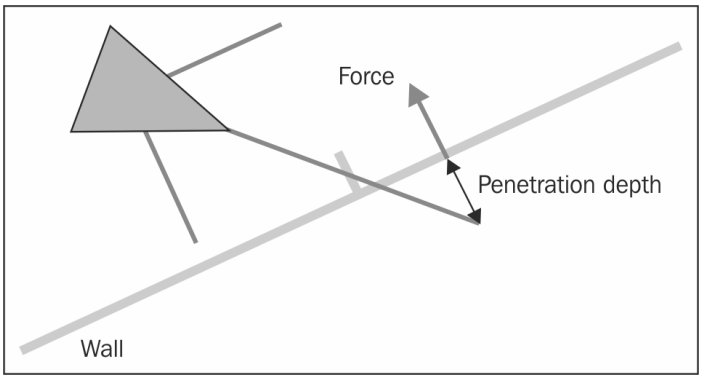

1 node 60.0 fps

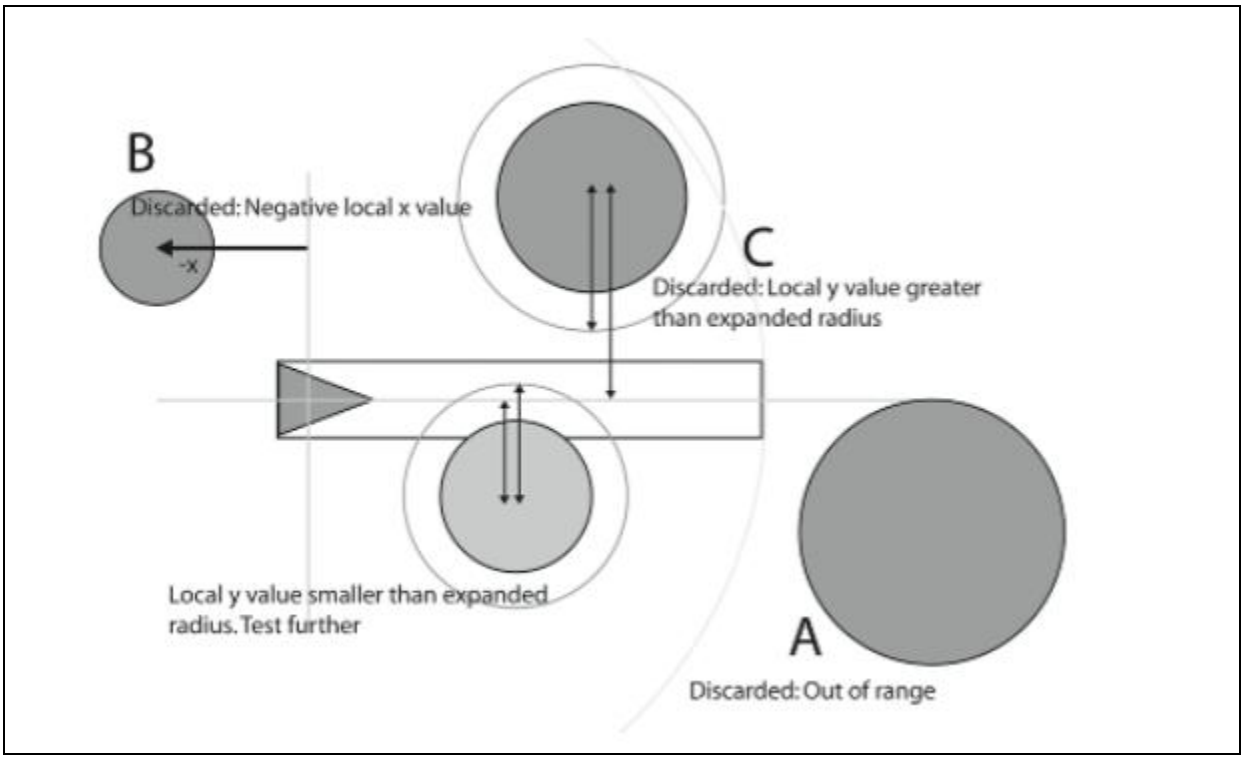



```
- (void) update:(float)deltaTime {

    if (self.behaviourType == Arrive) {
        int boxWidth = 20;

        CGRect targetRect = CGRectMake(self.target.x - boxWidth, self.target.y - boxWidth, boxWidth*2,
            boxWidth*2);
        if (!CGRectContainsPoint(targetRect, self.position)) {
            [self arrive:self.target deltaTime:deltaTime];
        }
    }

    if (self.behaviourType == Seek) {

        [self seek:self.target deltaTime:deltaTime];
    }

    if (self.behaviourType == Flee) {

        [self flee:self.target deltaTime:deltaTime];
    }

    if (self.behaviourType == Evade) {
        int boxWidth = 100;
        CGRect targetRect = CGRectMake(self.target.x - boxWidth, self.target.y - boxWidth, boxWidth*2,
            boxWidth*2);
        if (CGRectContainsPoint(targetRect, self.position)) {

            [self evade:self.target deltaTime:deltaTime];
        }
    }

    if (self.behaviourType == Wander) {

        [self wanderWithDeltaTime:deltaTime];
    }
}
```

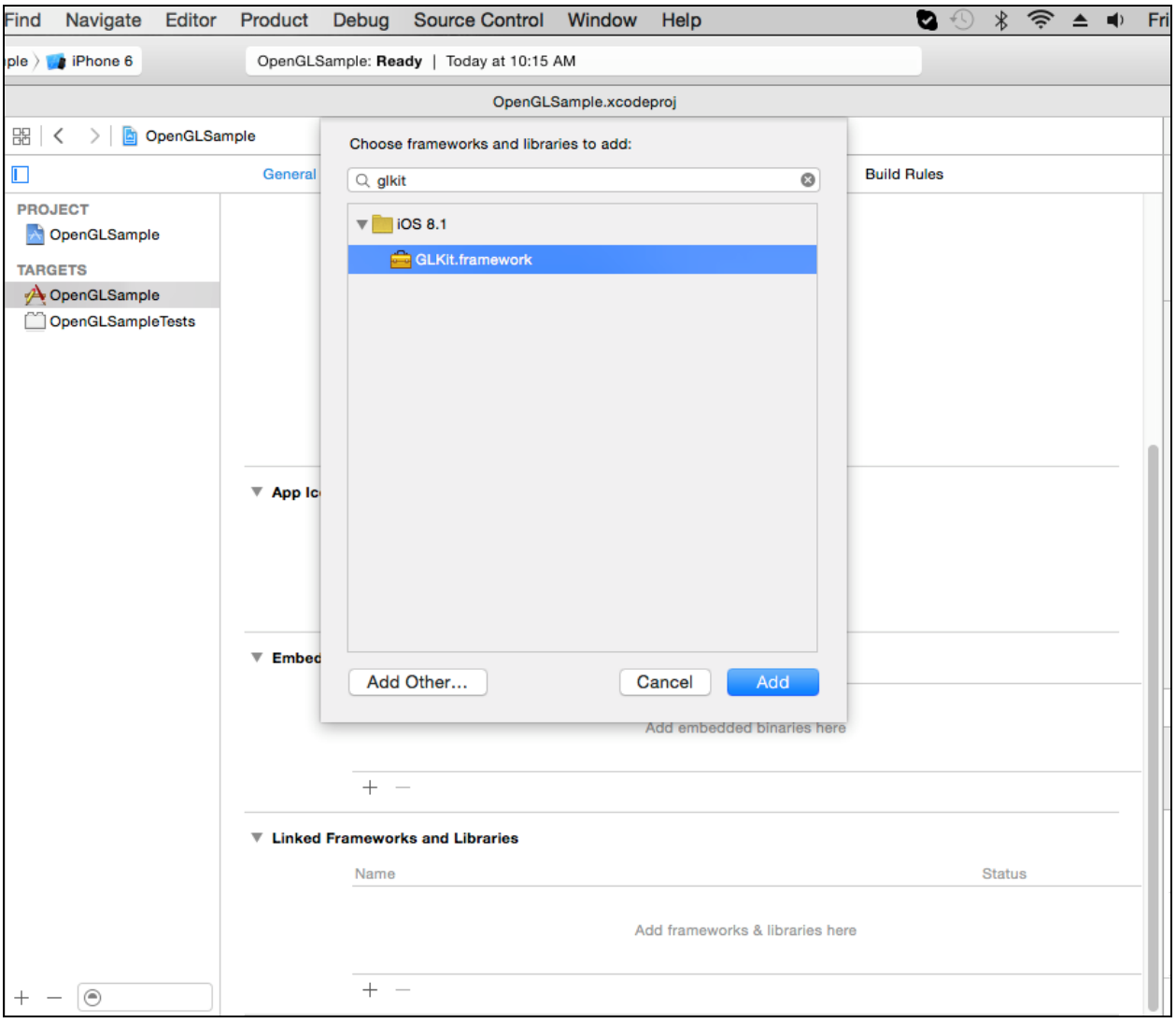
```
-(id)initWithSize:(CGSize)size {
    if (self = [super initWithSize:size]) {

        self.backgroundColor = [SKColor colorWithRed:0.15 green:0.15 blue:0.3 alpha:1.0];
        self.physicsWorld.gravity = CGVectorMake(0, 0);

        newplayer = [self createPlayer];
        newplayer.position = CGPointMake(size.width/2, size.height/2);

        behaviourType = Wander;
        newplayer.behaviourType = behaviourType;

        if (behaviourType == Seek || behaviourType == Flee) {
            newplayer.physicsBody = [SKPhysicsBody bodyWithRectangleOfSize:CGSizeMake(30, 30)];
            newplayer.physicsBody.friction = 1.0f;
            newplayer.physicsBody.linearDamping = 1.0f;
        }

        if (behaviourType == Wander) {
            newplayer.physicsBody = [SKPhysicsBody bodyWithRectangleOfSize:CGSizeMake(30, 30)];
            SKPhysicsBody* borderBody = [SKPhysicsBody bodyWithEdgeLoopFromRect:self.frame];
            self.physicsBody = borderBody;
            self.physicsBody.friction = 0.0f;
            newplayer.physicsBody.friction = 1.0f;
            newplayer.physicsBody.linearDamping = 1.0f;
        }
    }
    return self;
}
```

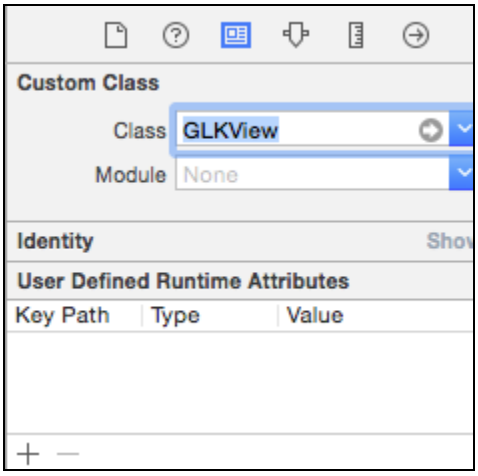

1 node 60.0 fps

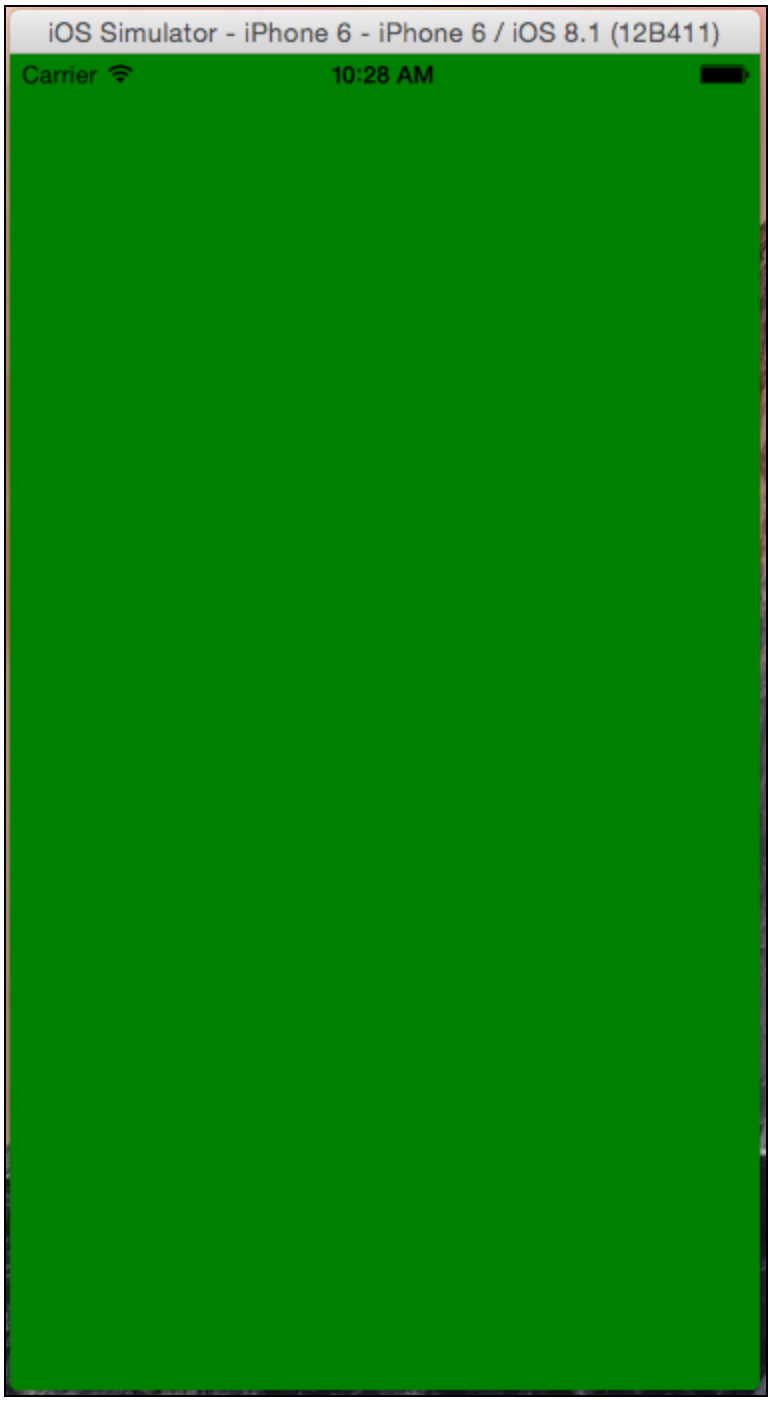

Force
Penetration depth
Wall

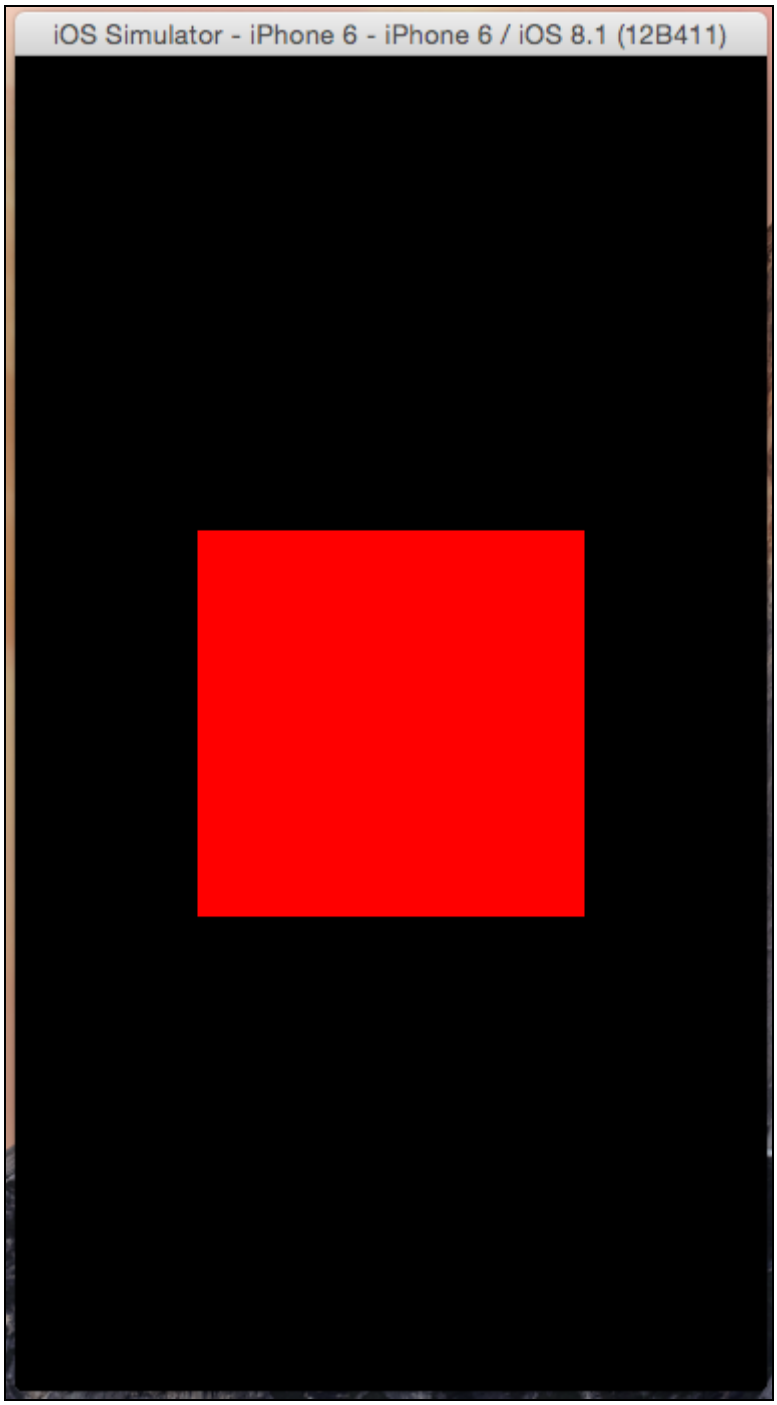

B
Discarded: Negative local x value
-x
C
Discarded: Local y value greater than expanded radius
Local y value smaller than expanded radius. Test further
A
Discarded: Out of range

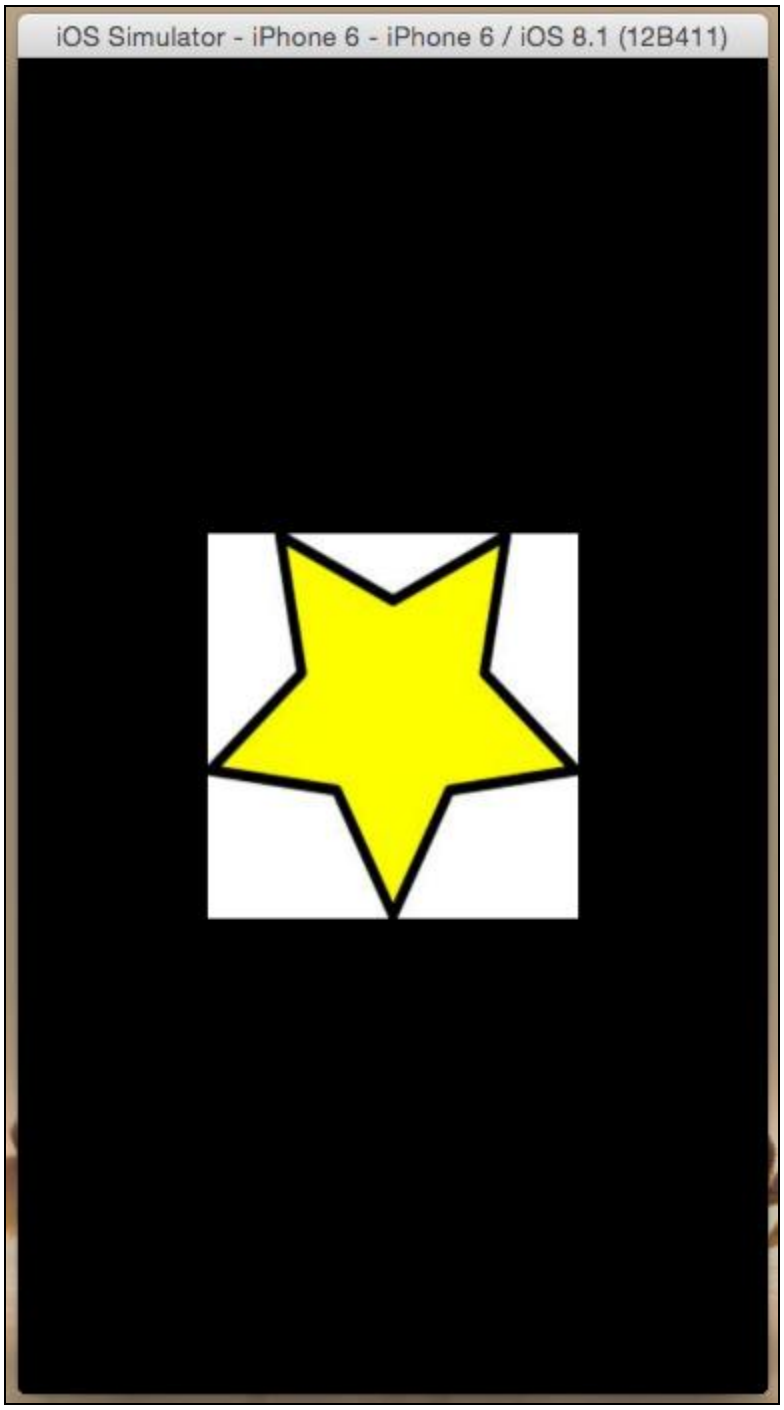
Chapter 10

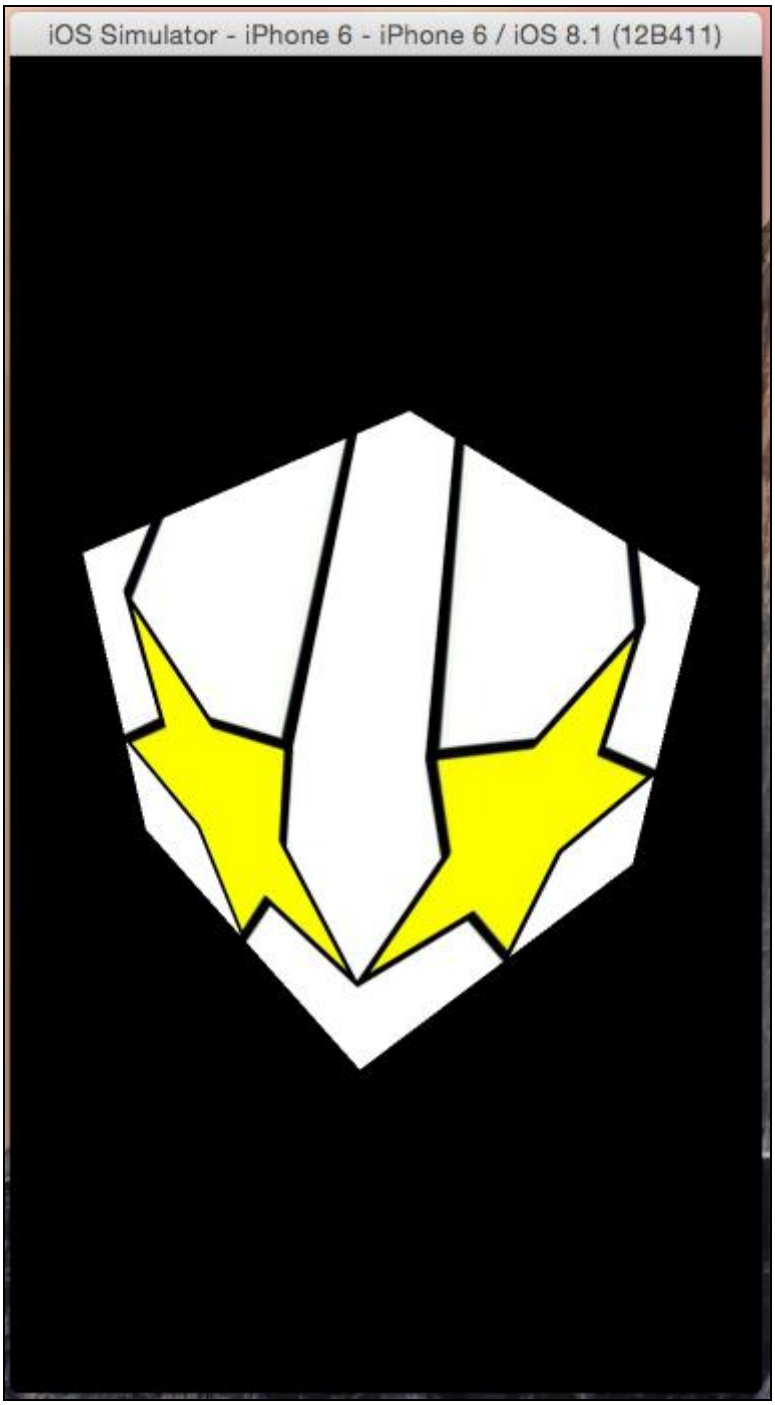

Find Navigate Editor Product Debug Source Control Window Help
iPhone 6
OpenGLSample: Ready | Today at 10:15 AM
OpenGLSample.xcodeproj
OpenGLSample
General
Build Rules
PROJECT
OpenGLSample
TARGETS
OpenGLSample
OpenGLSampleTests
Choose frameworks and libraries to add:
glkit
iOS 8.1
GLKit.framework
Add Other...
Cancel
Add
Add embedded binaries here
Linked Frameworks and Libraries
Name
Status
Add frameworks & libraries here


Custom Class
Class GLKView
Module None
Identity
User Defined Runtime Attributes
Key Path
Type
Value

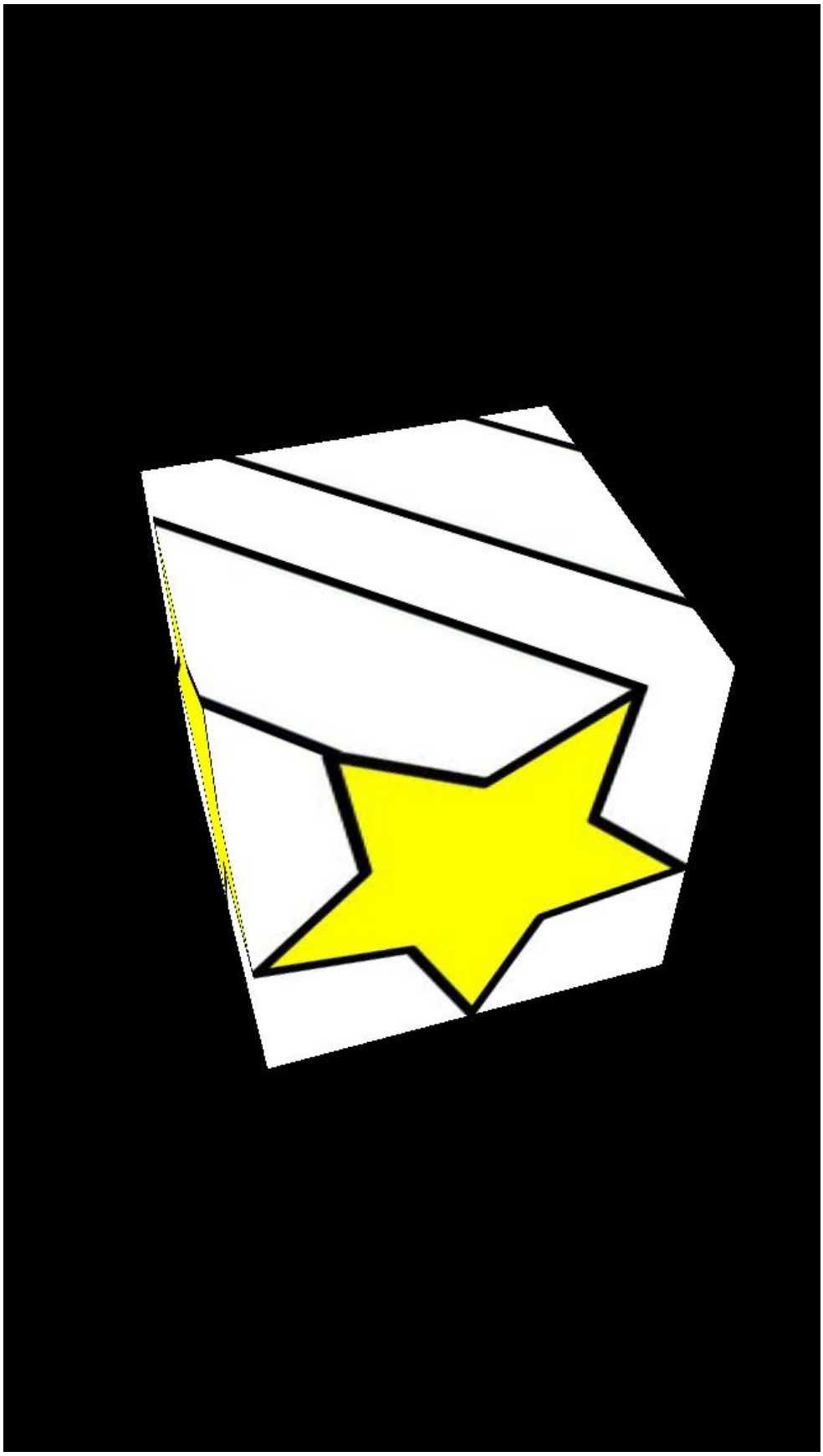

iOS Simulator - iPhone 6 - iPhone 6 / iOS 8.1 (12B411)
Carrier
10:28 AM


iOS Simulator - iPhone 6 - iPhone 6 / iOS 8.1 (12B411)

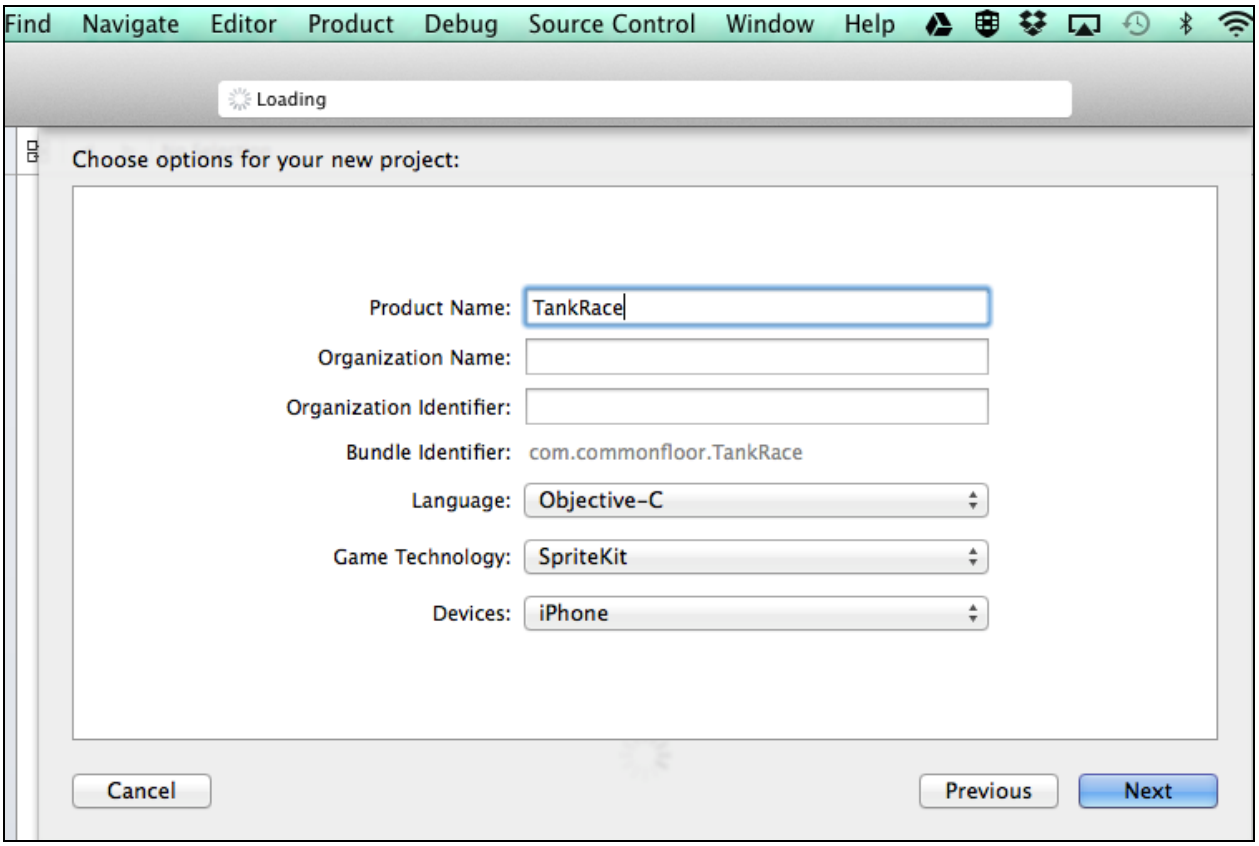

iOS Simulator - iPhone 6 - iPhone 6 / iOS 8.1 (12B411)

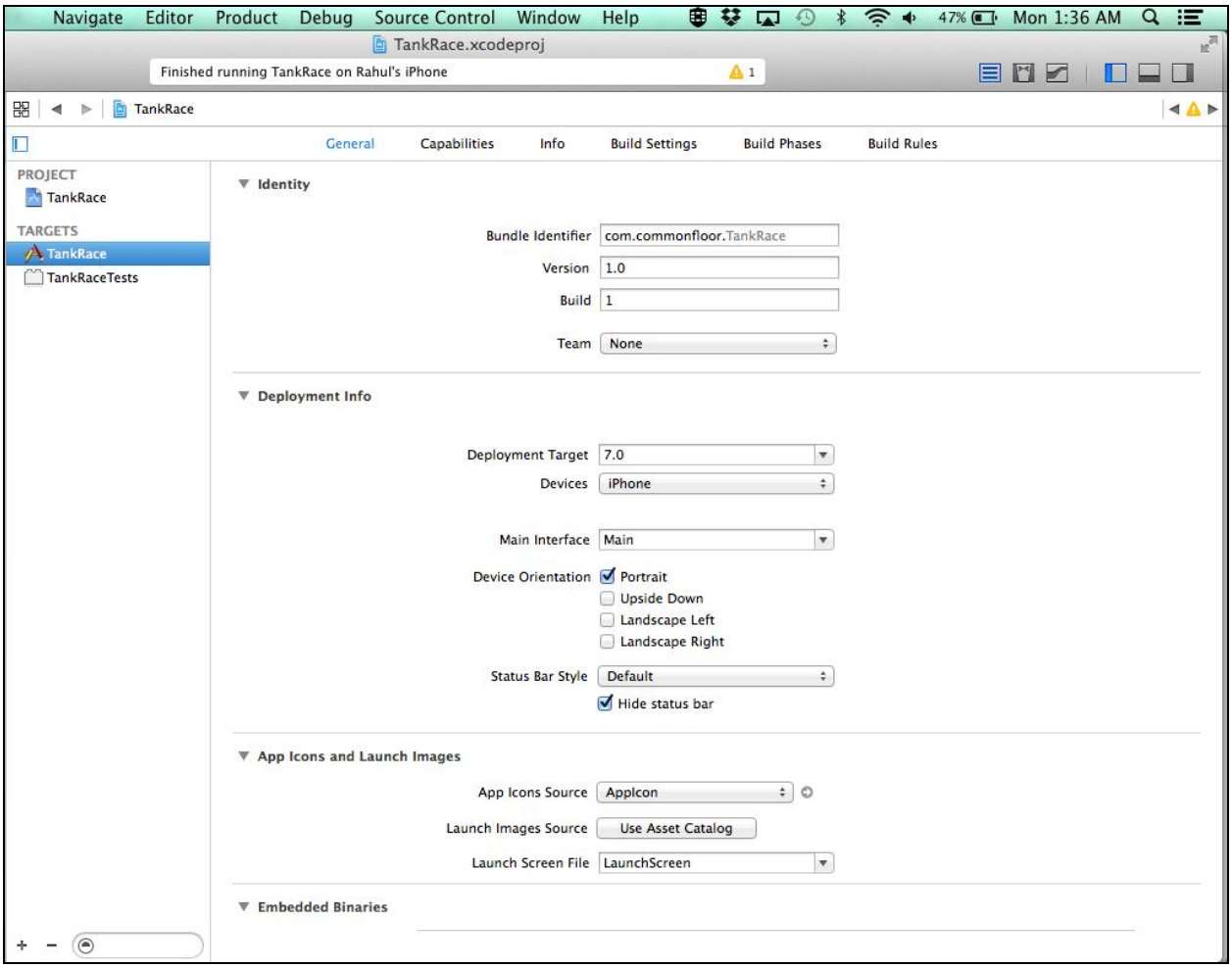


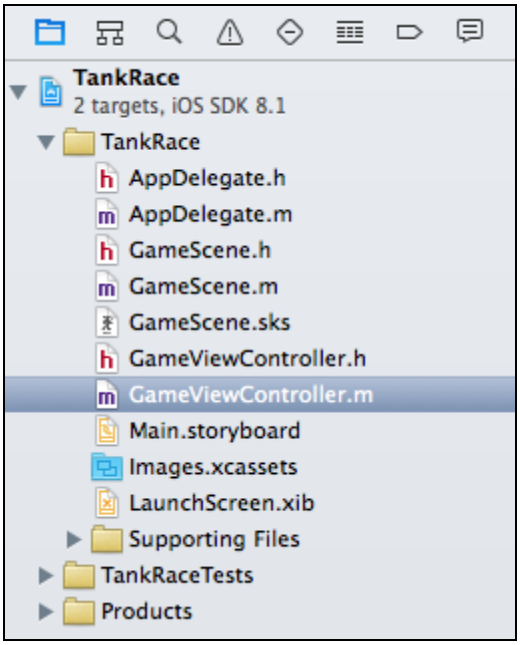

```
- (void) update {

    NSTimeInterval timeInterval = self.timeSinceLastUpdate;
    float rotationSpeed = 15 * timeInterval;
    rotation += rotationSpeed;
    GLKMatrix4 modelViewMatrix = GLKMatrix4MakeTranslation(0.0f, 0.0f, -6.0f);
    modelViewMatrix = GLKMatrix4RotateX(modelViewMatrix, GLKMathDegreesToRadians(45));
    modelViewMatrix = GLKMatrix4RotateY(modelViewMatrix, GLKMathDegreesToRadians(rotation));

    _squareEffect.transform.modelviewMatrix = modelViewMatrix;
}
```

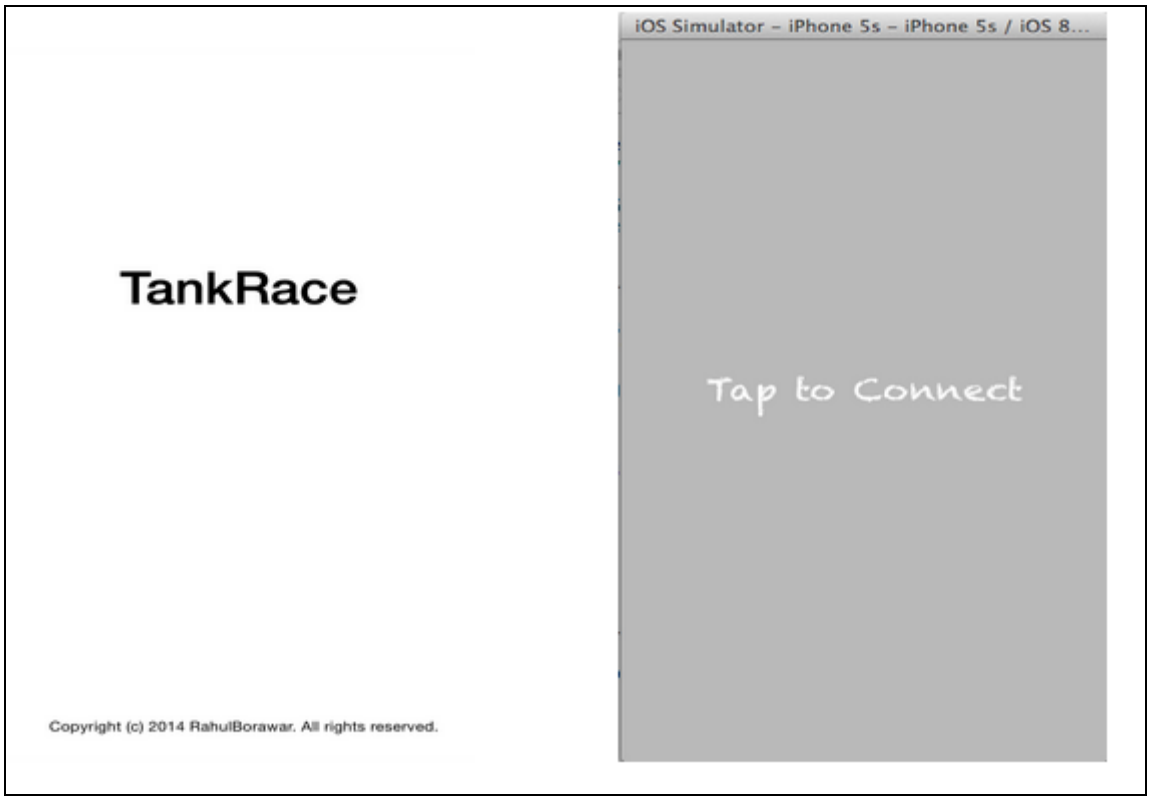


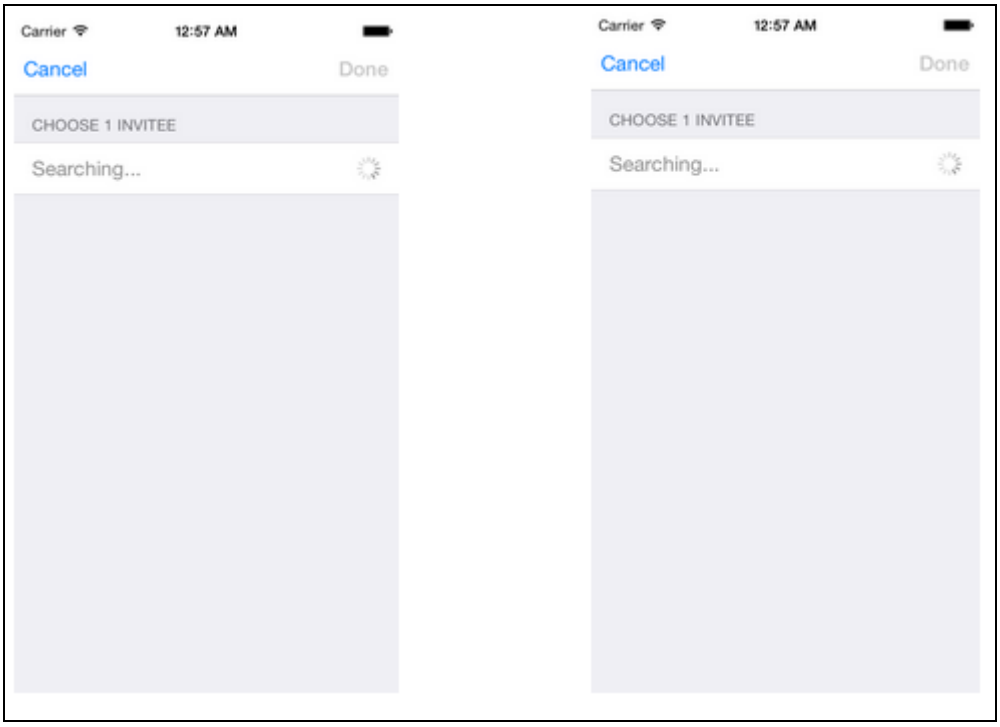
Chapter 11

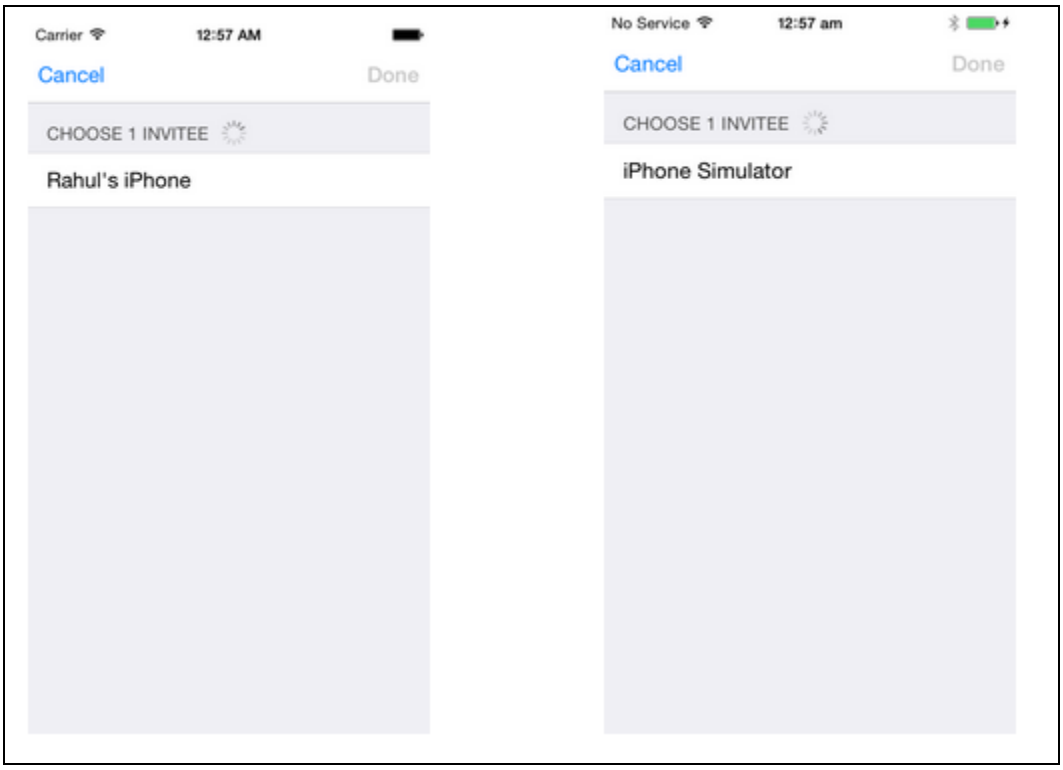

Find Navigate Editor Product Debug Source Control Window Help
Loading
Choose options for your new project:
Product Name: TankRace
Organization Name:
Organization Identifier:
Bundle Identifier: com.commonfloor.TankRace
Language: Objective-C
Game Technology: SpriteKit
Devices: iPhone
Cancel
Previous
Next

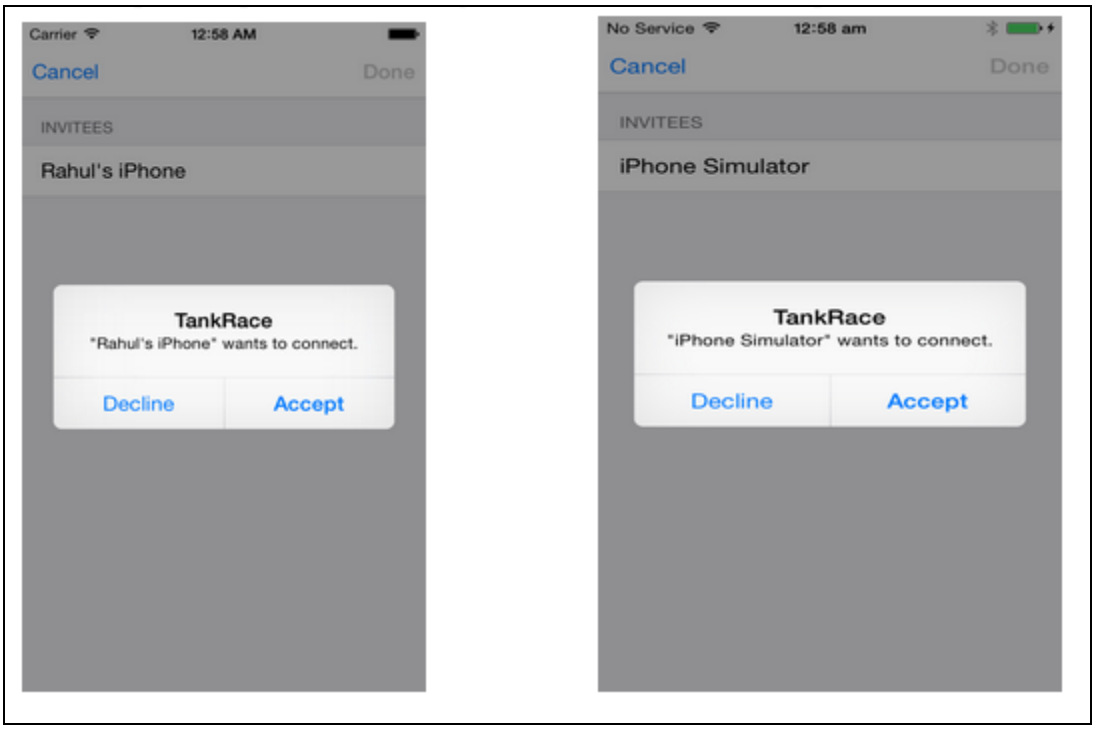

Navigate Editor Product Debug Source Control Window Help
47% Mon 1:36 AM
TankRace.xcodeproj
Finished running TankRace on Rahul's iPhone
TankRace
General Capabilities Info Build Settings Build Phases Build Rules
PROJECT
TankRace
TARGETS
TankRace
TankRaceTests
Identity
Bundle Identifier com.commonfloor.TankRace
Version 1.0
Build 1
Team None
Deployment Info
Deployment Target 7.0
Devices iPhone
Main Interface Main
Device Orientation Portrait
Upside Down
Landscape Left
Landscape Right
Status Bar Style Default
Hide status bar
App Icons and Launch Images
App Icons Source AppIcon
Launch Images Source Use Asset Catalog
Launch Screen File LaunchScreen
Embedded Binaries

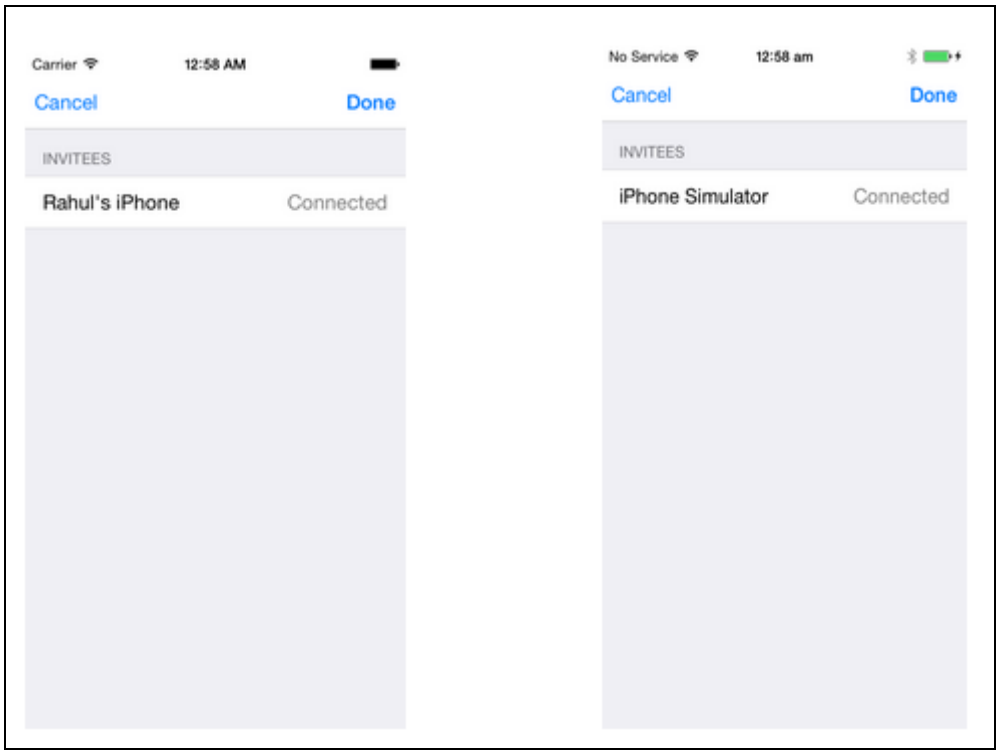

TankRace
2 targets, iOS SDK 8.1
TankRace
AppDelegate.h
AppDelegate.m
GameScene.h
GameScene.m
GameScene.sks
GameViewController.h
GameViewController.m
Main.storyboard
Images.xcassets
LaunchScreen.xib
Supporting Files
TankRaceTests
Products

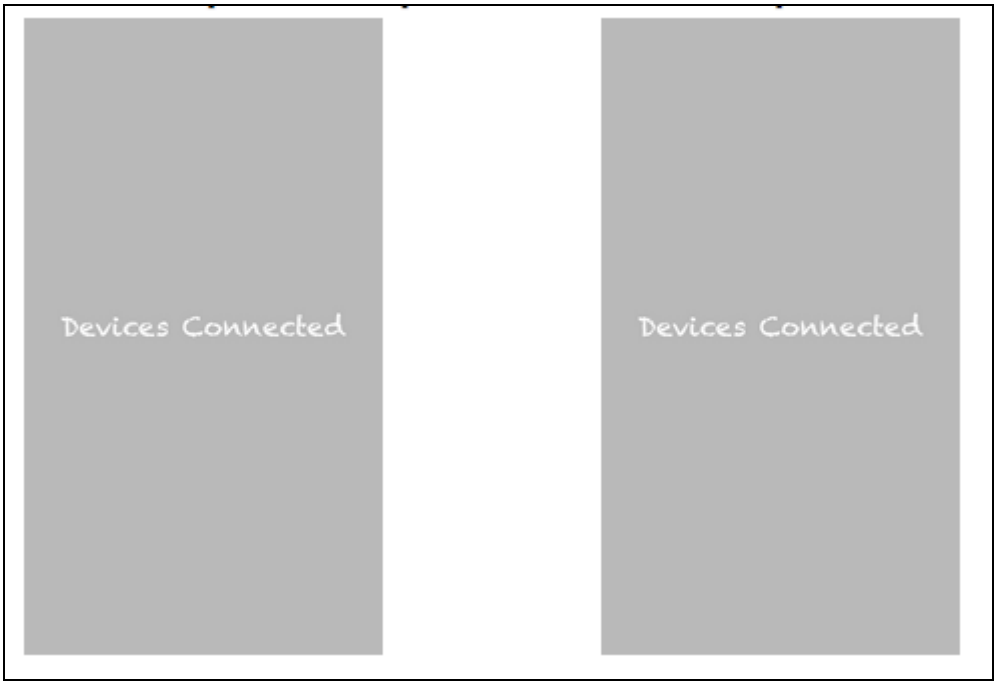

TankRace
Copyright (c) 2014 RahulBorawar. All rights reserved.
iOS Simulator – iPhone 5s – iPhone 5s / iOS 8...
Tap to Connect

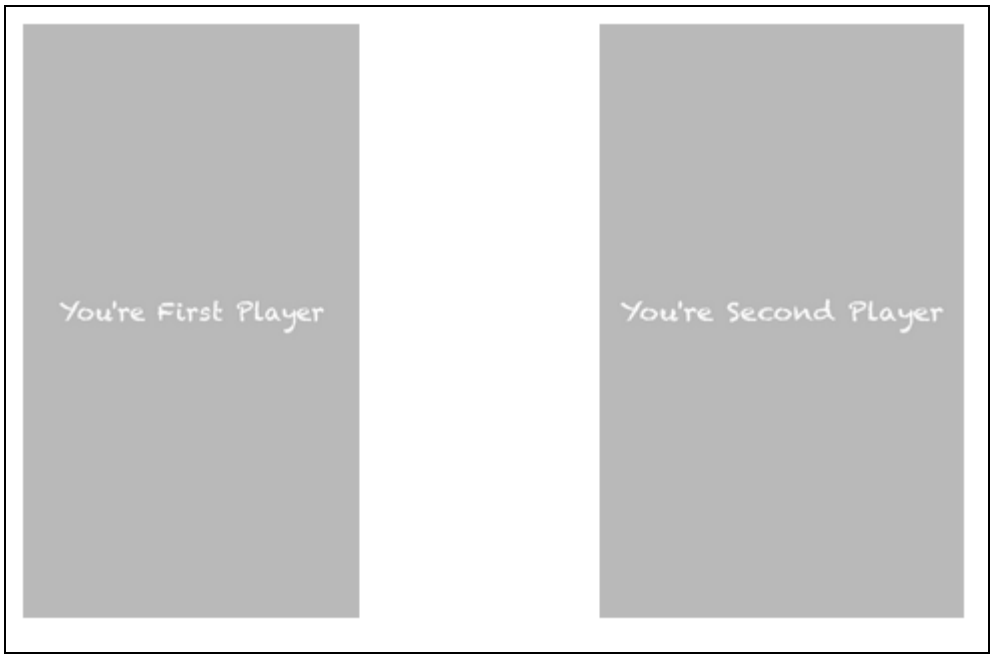

Carrier
12:57 AM
Cancel
Done
CHOOSE 1 INVITEE
Searching...
Carrier
12:57 AM
Cancel
Done
CHOOSE 1 INVITEE
Searching...


Carrier
12:57 AM
Cancel
Done
CHOOSE 1 INVITEE
Rahul's iPhone
No Service
12:57 am
Cancel
Done
CHOOSE 1 INVITEE
iPhone Simulator

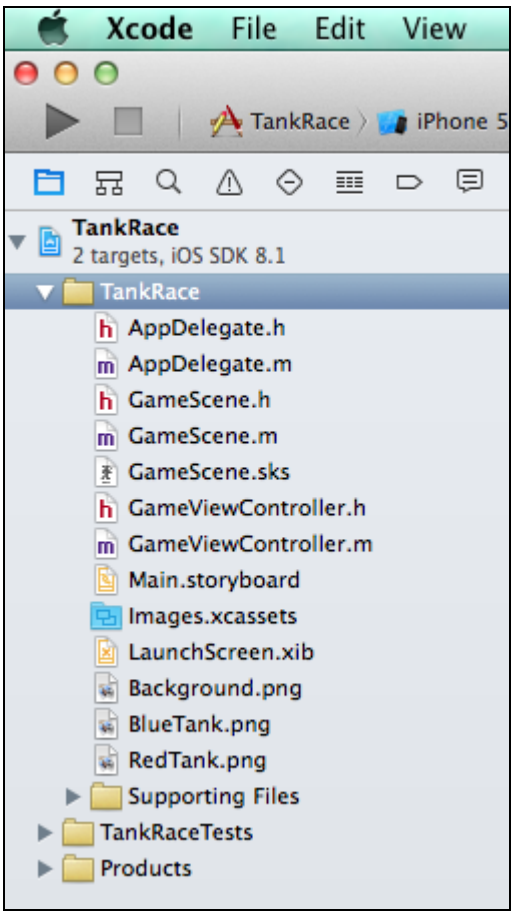

Carrier
12:58 AM
Cancel
Done
INVITEES
Rahul's iPhone
TankRace
"Rahul's iPhone" wants to connect.
Decline
Accept
No Service
12:58 am
Cancel
Done
INVITEES
iPhone Simulator
TankRace
"iPhone Simulator" wants to connect.
Decline
Accept

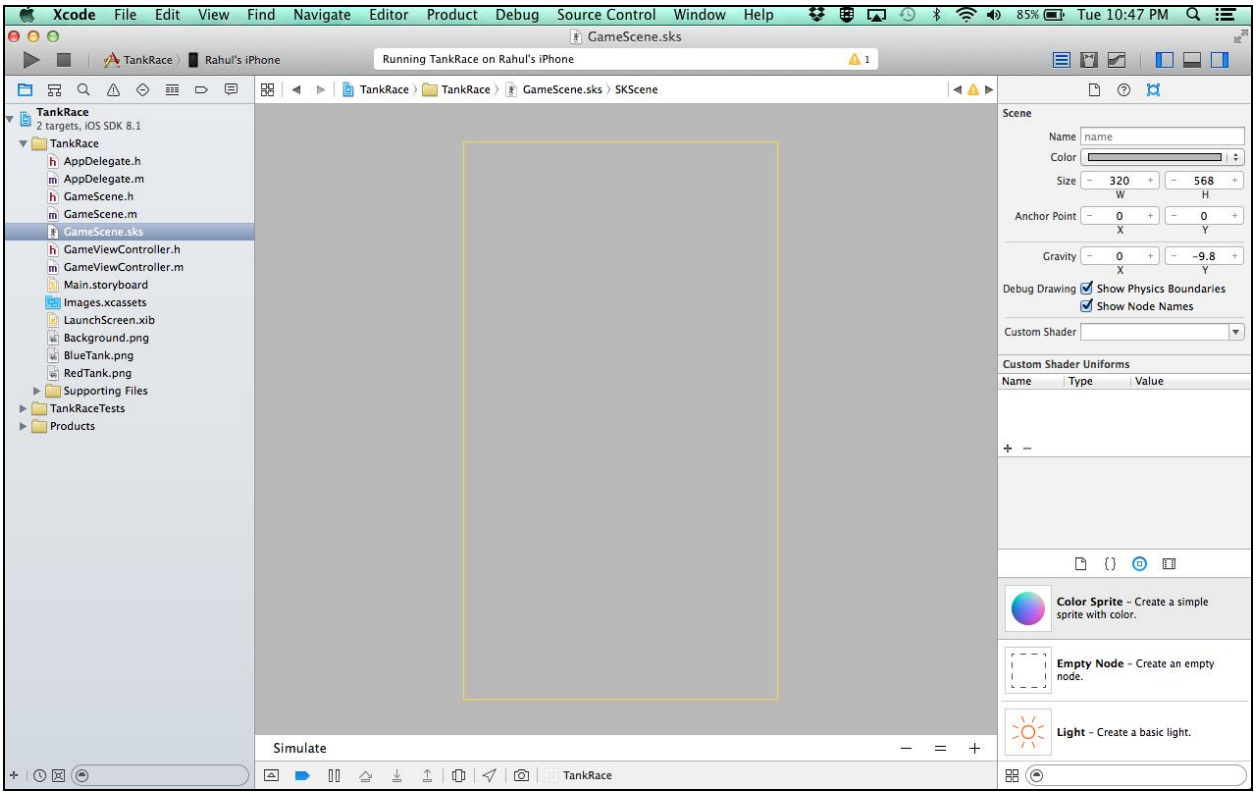

Carrier
12:58 AM
Cancel
Done
INVITEES
Rahul's iPhone
Connected
No Service
12:58 am
Cancel
Done
INVITEES
iPhone Simulator
Connected

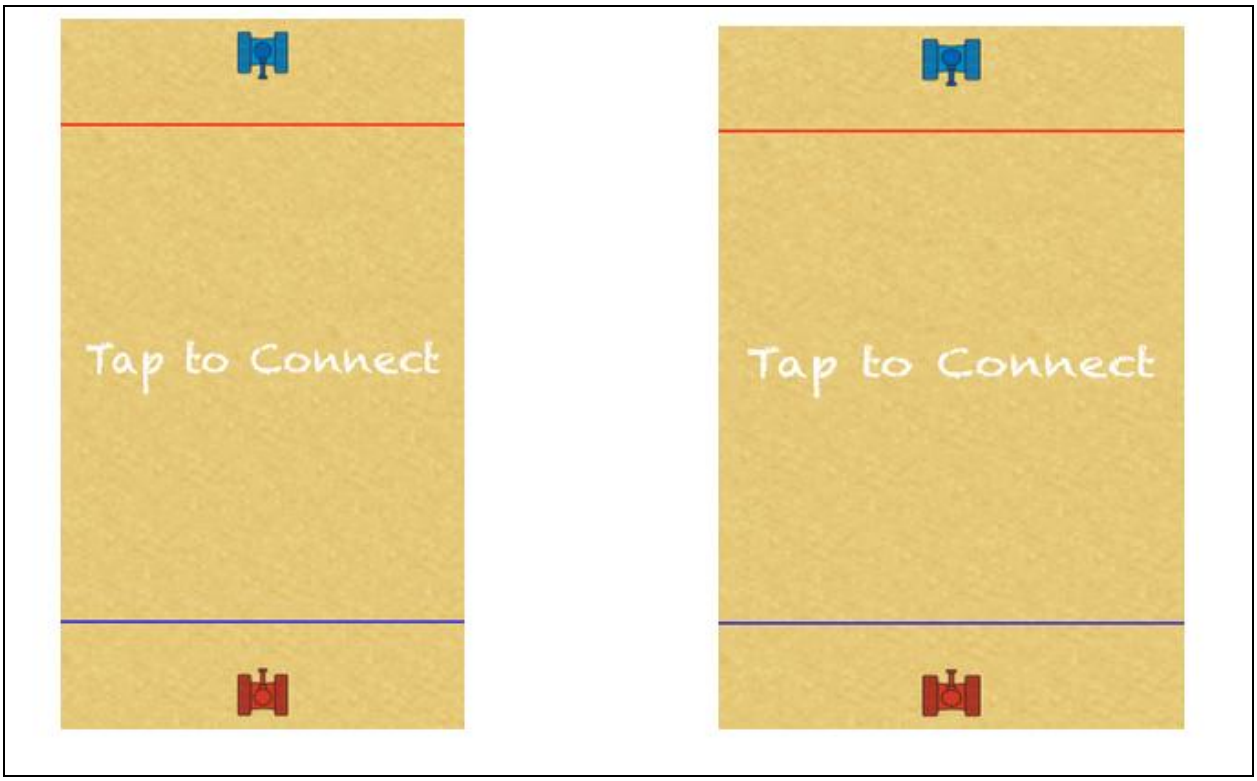

Devices Connected
Devices Connected


You're First Player
You're Second Player

Chapter 12

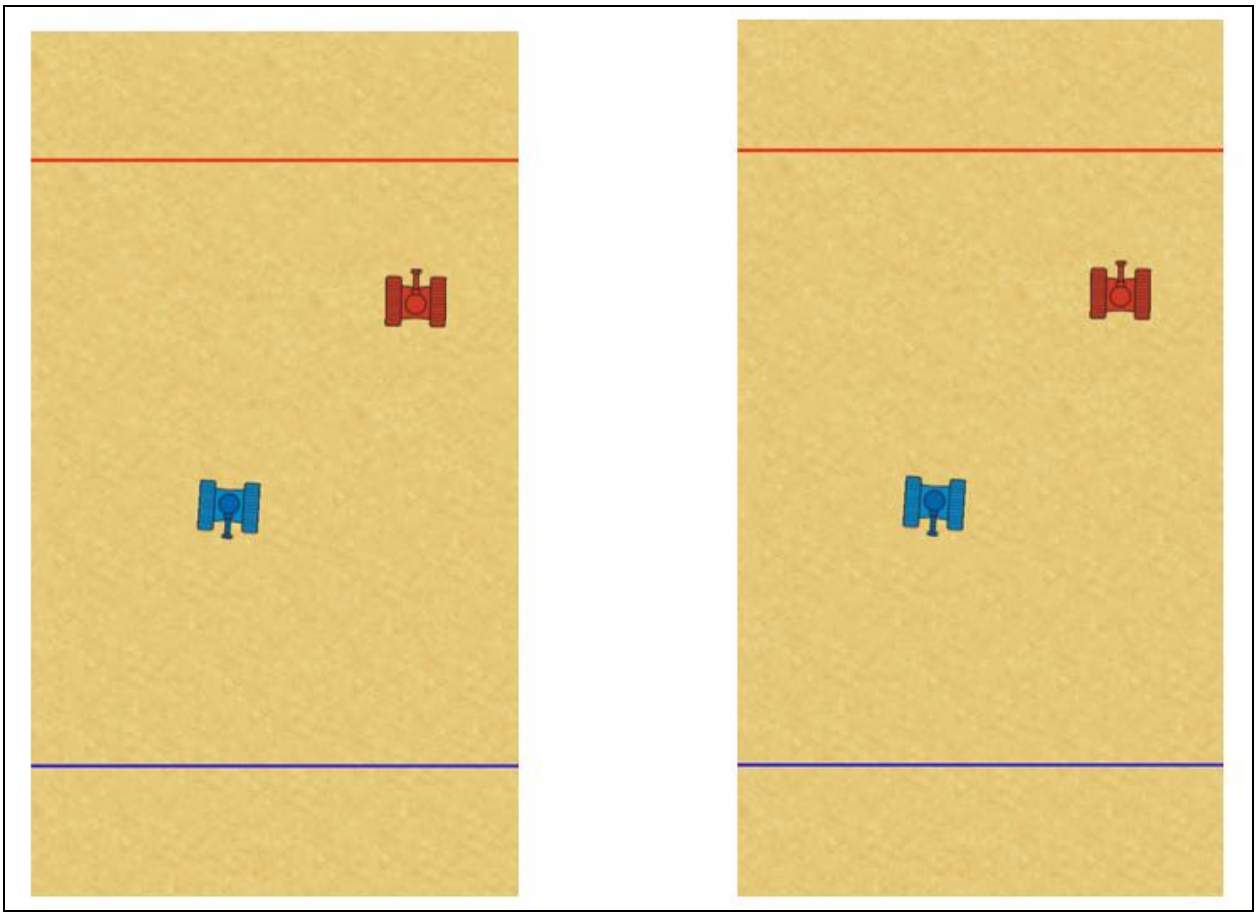

Xcode
File
Edit
View
TankRace
iPhone 5
TankRace
2 targets, iOS SDK 8.1
TankRace
AppDelegate.h
AppDelegate.m
GameScene.h
GameScene.m
GameScene.sks
GameViewController.h
GameViewController.m
Main.storyboard
Images.xcassets
LaunchScreen.xib
Background.png
BlueTank.png
RedTank.png
Supporting Files
TankRaceTests
Products

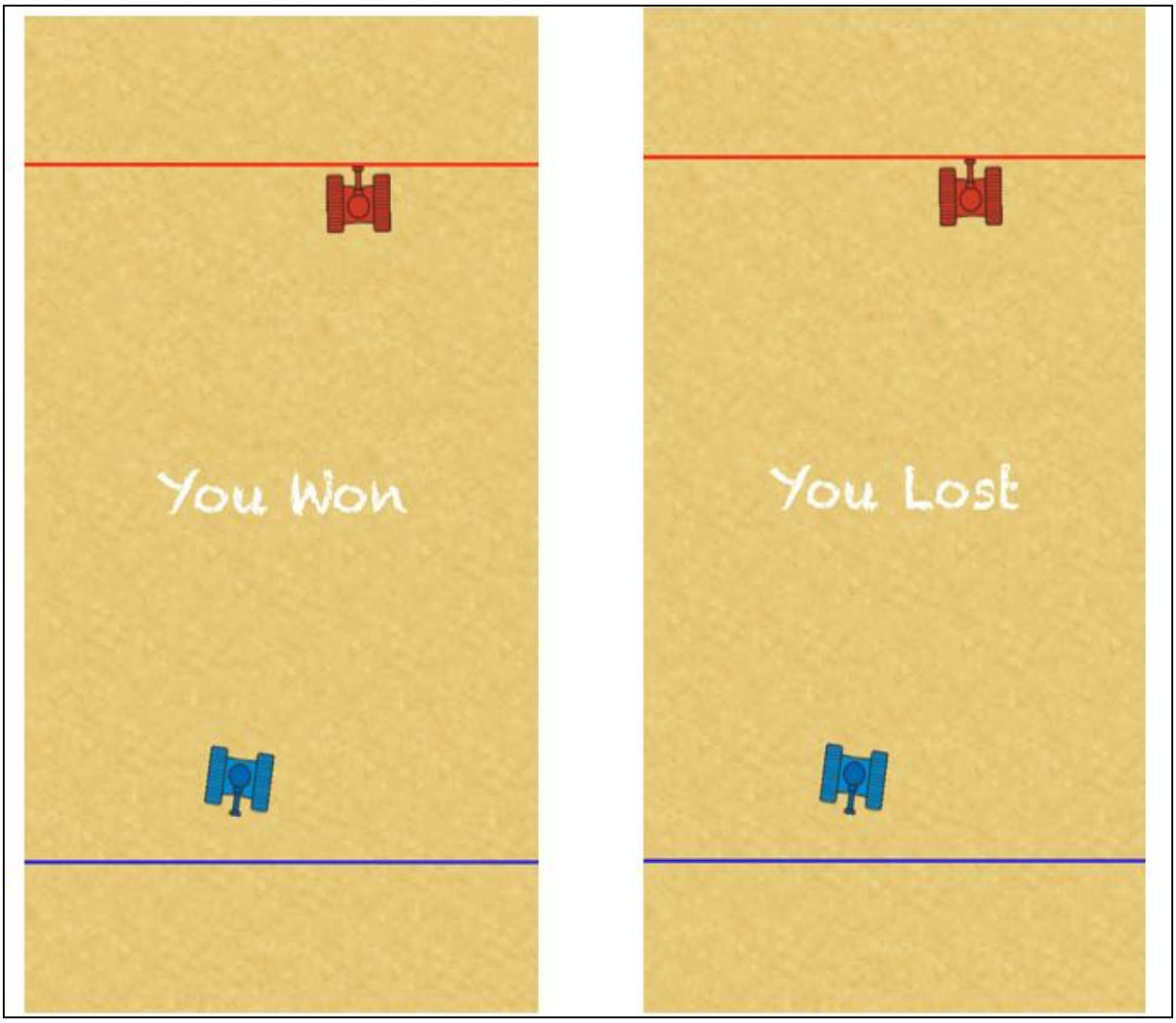

Xcode File Edit View Find Navigate Editor Product Debug Source Control Window Help
Tue 10:47 PM
GameScene.sks
TankRace
Rahul's iPhone
Running TankRace on Rahul's iPhone
TankRace
2 targets, iOS SDK 8.1
TankRace
AppDelegate.h
AppDelegate.m
GameScene.h
GameScene.m
GameScene.sks
GameViewController.h
GameViewController.m
Main.storyboard
Images.xcassets
LaunchScreen.xib
Background.png
BlueTank.png
RedTank.png
Supporting Files
TankRaceTests
Products
TankRace › TankRace › GameScene.sks › SKScene
Scene
Name
Color
Size
320
568
Anchor Point
Gravity
-9.8
Debug Drawing
Show Physics Boundaries
Show Node Names
Custom Shader
Custom Shader Uniforms
Name
Type
Value
Color Sprite – Create a simple sprite with color.
Empty Node – Create an empty node.
Light – Create a basic light.
Simulate
TankRace


Tap to Connect
Tap to Connect

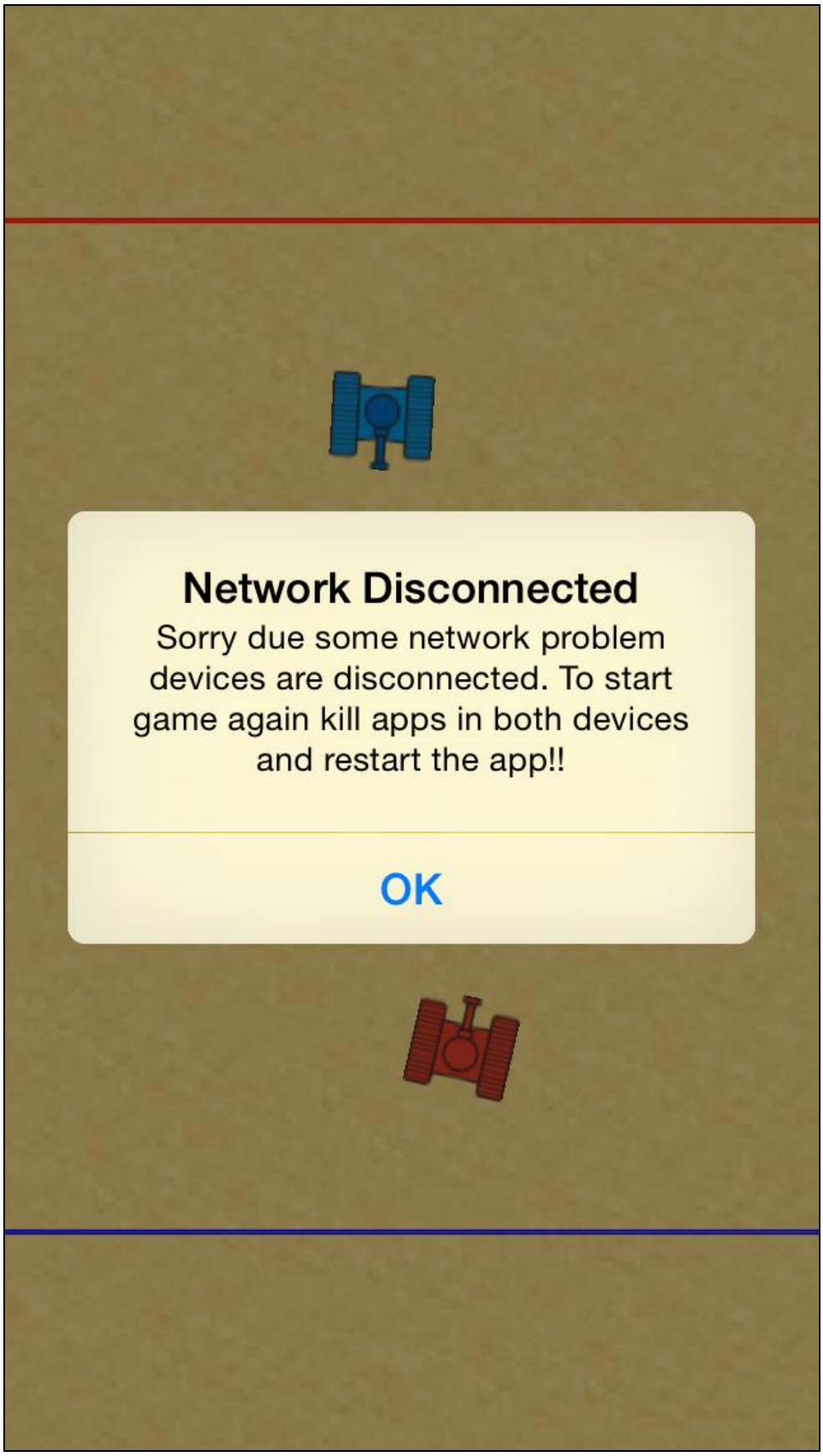

You're Blue


You're Red




You Won
You Lost

Tap to Connect


Network Disconnected
Sorry due some network problem devices are disconnected. To start game again kill apps in both devices and restart the app!!
OK