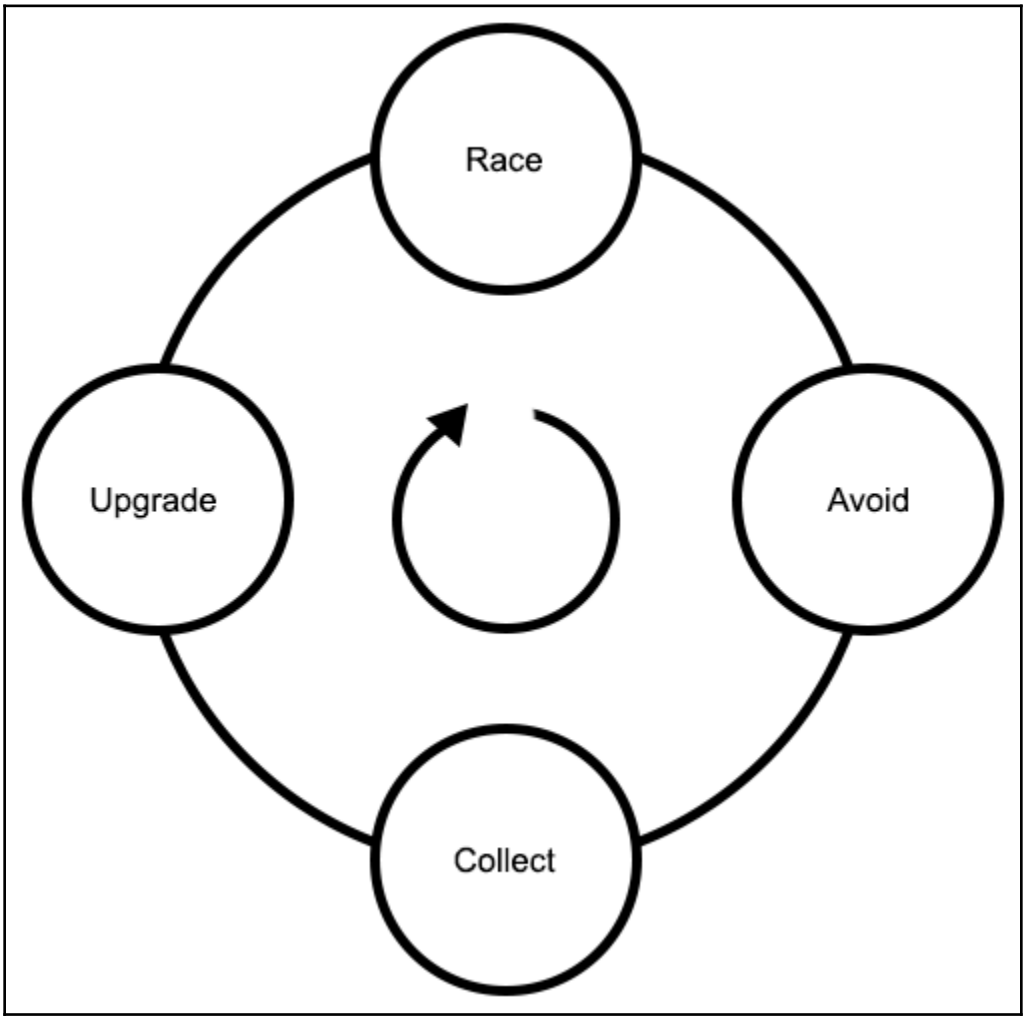
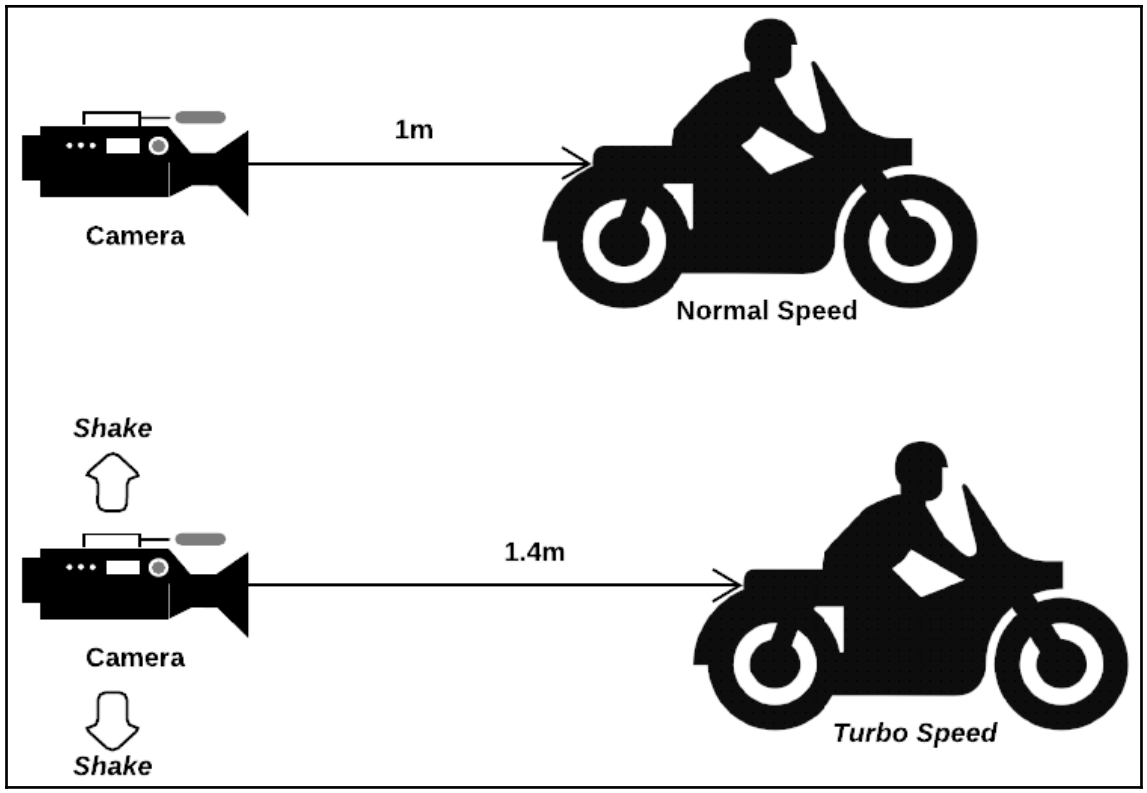
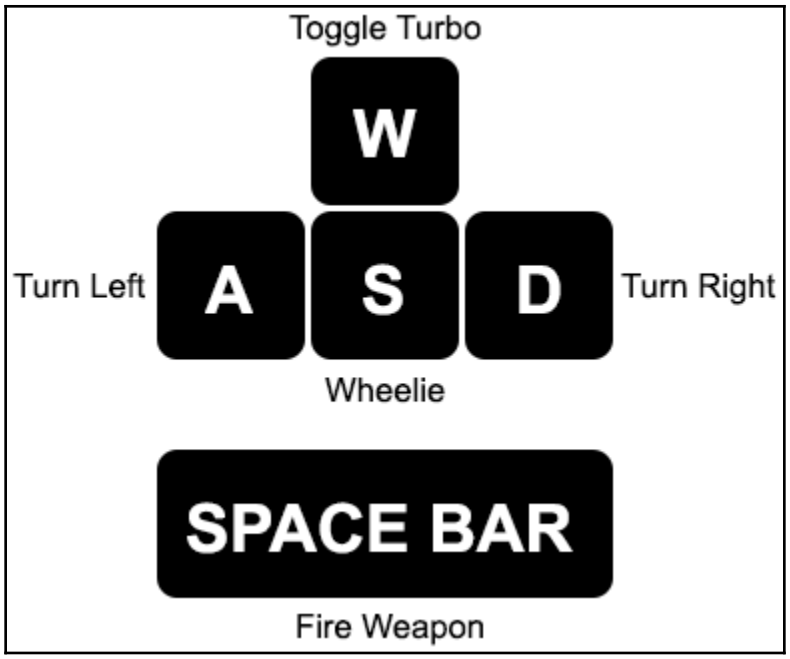
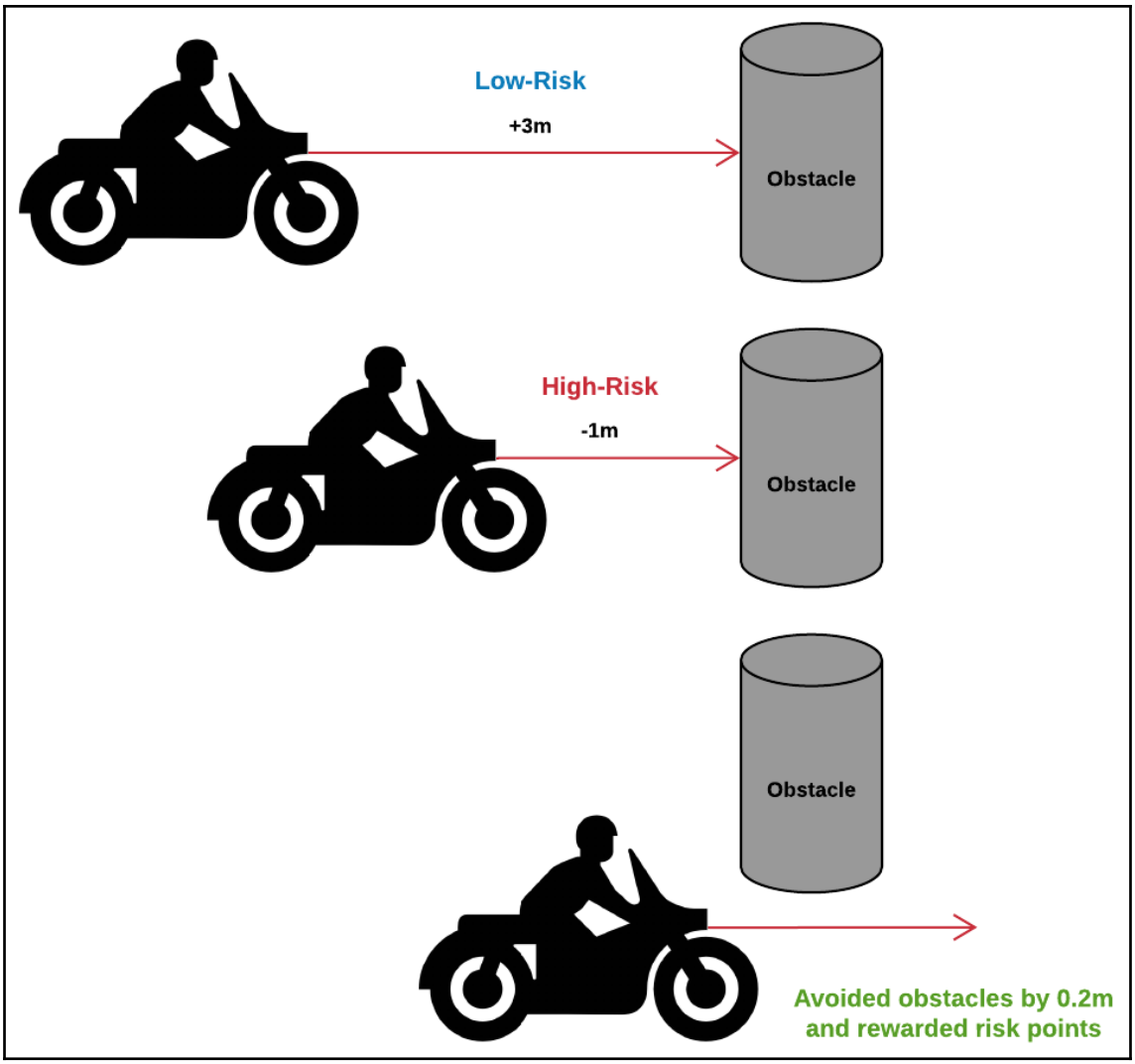
Chapter 2: The Game Design Document

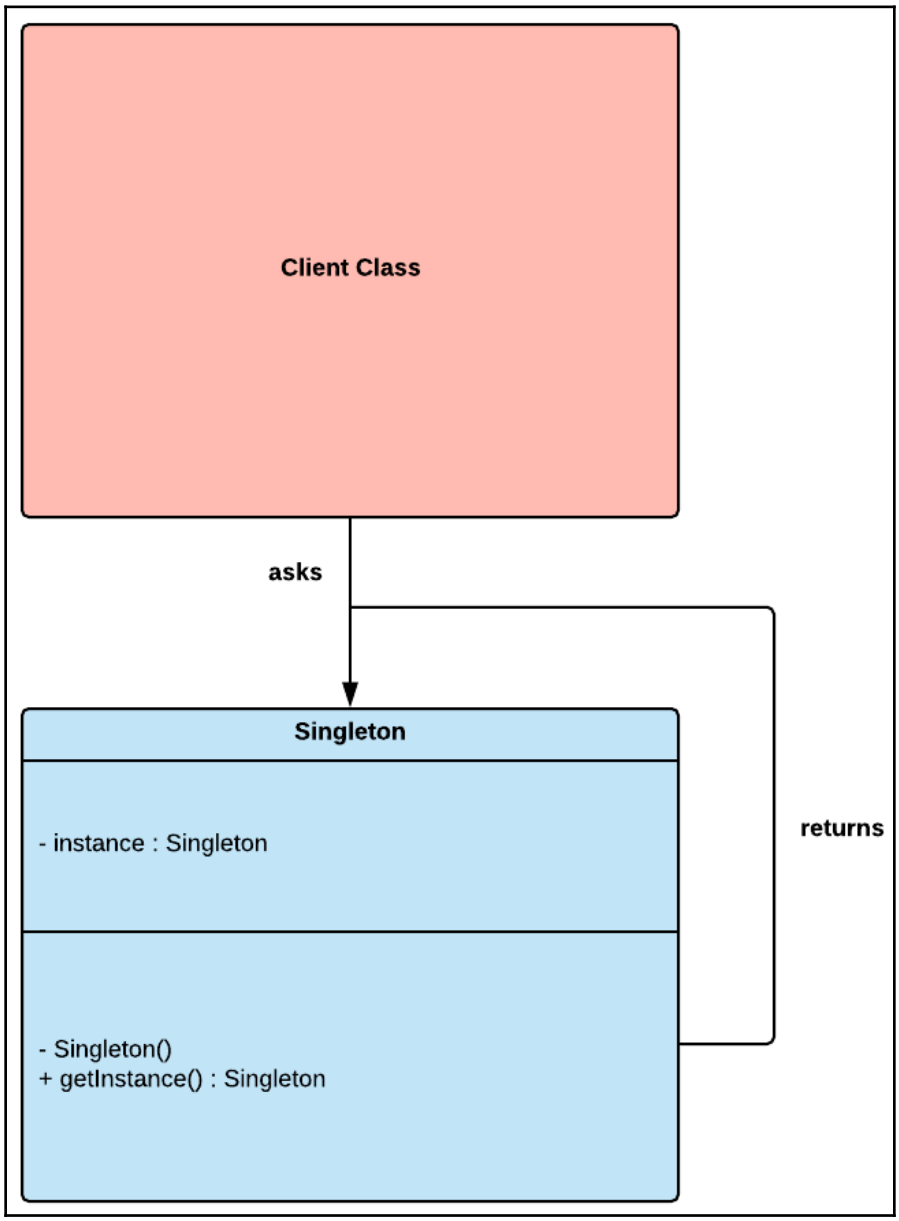


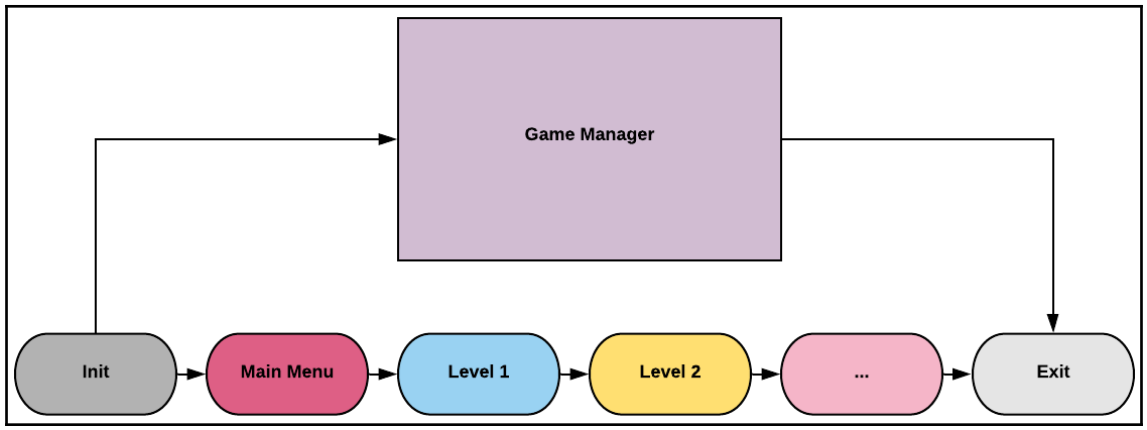

1m
Camera
Normal Speed
Shake
1.4m
Camera
Turbo Speed
Shake

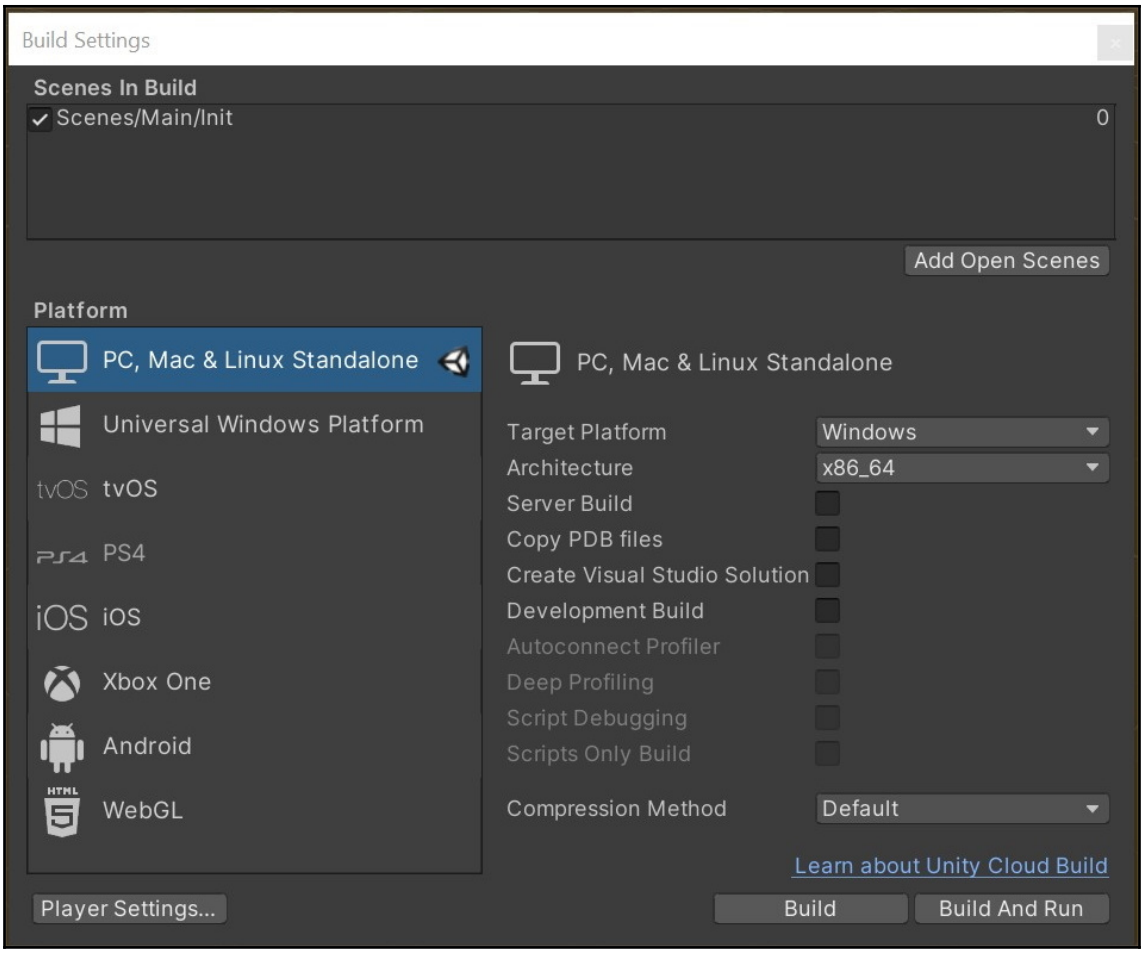

Toggle Turbo
W
Turn Left
A
S
D
Turn Right
Wheelie
SPACE BAR
Fire Weapon

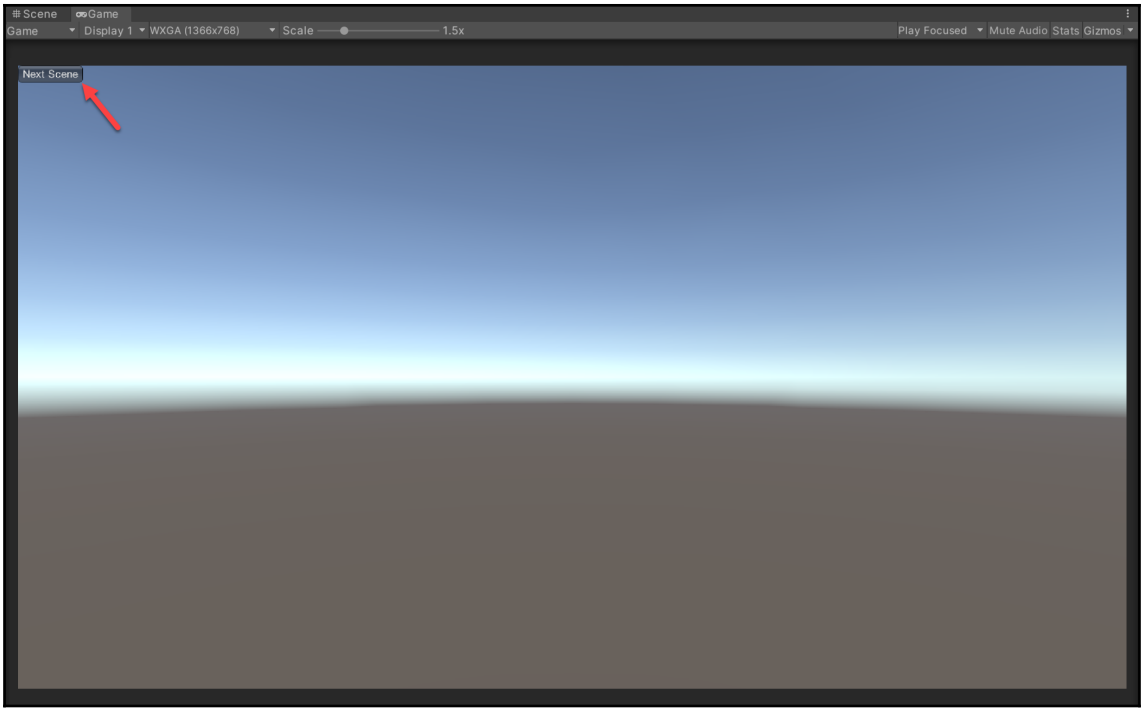

Low-Risk
+3m
Obstacle
High-Risk
-1m
Obstacle
Obstacle
Avoided obstacles by 0.2m
and rewarded risk points

Chapter 4: Implementing a Game Manager with the Singleton

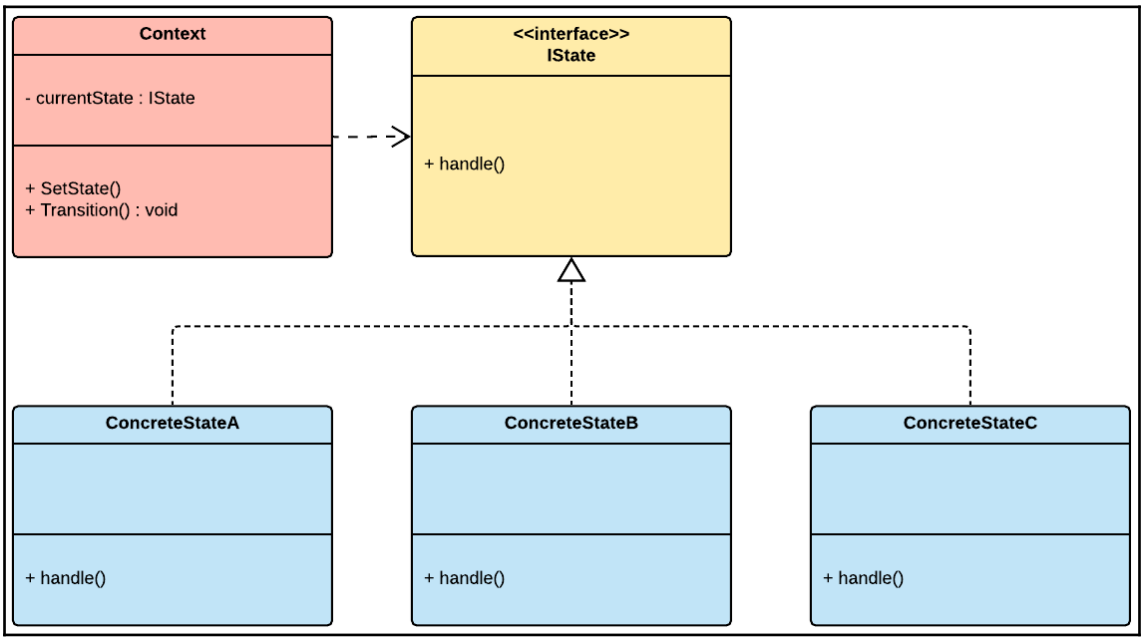


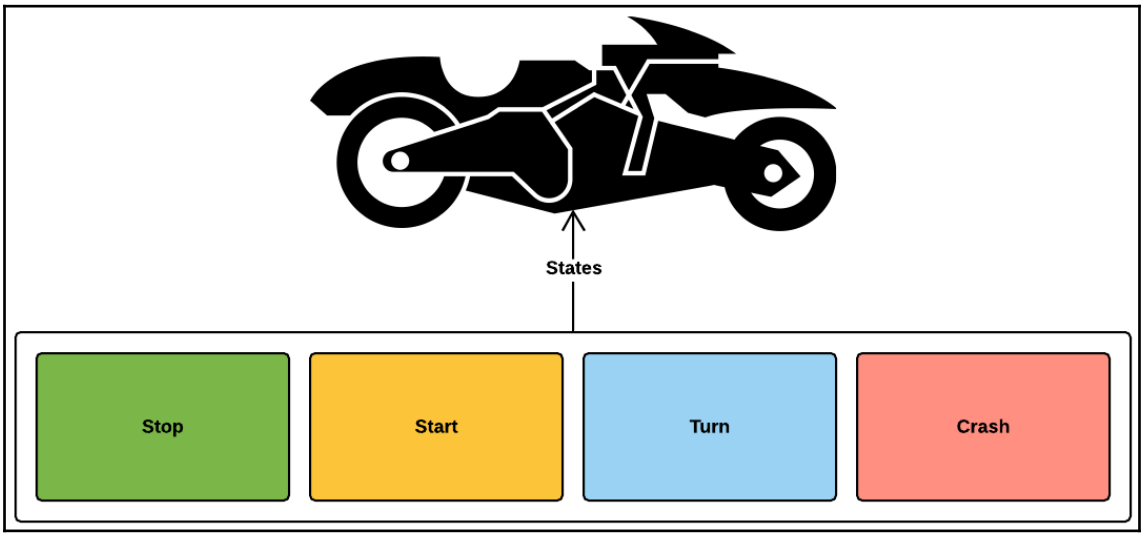

Game Manager
Init
Main Menu
Level 1
Level 2
...
Exit

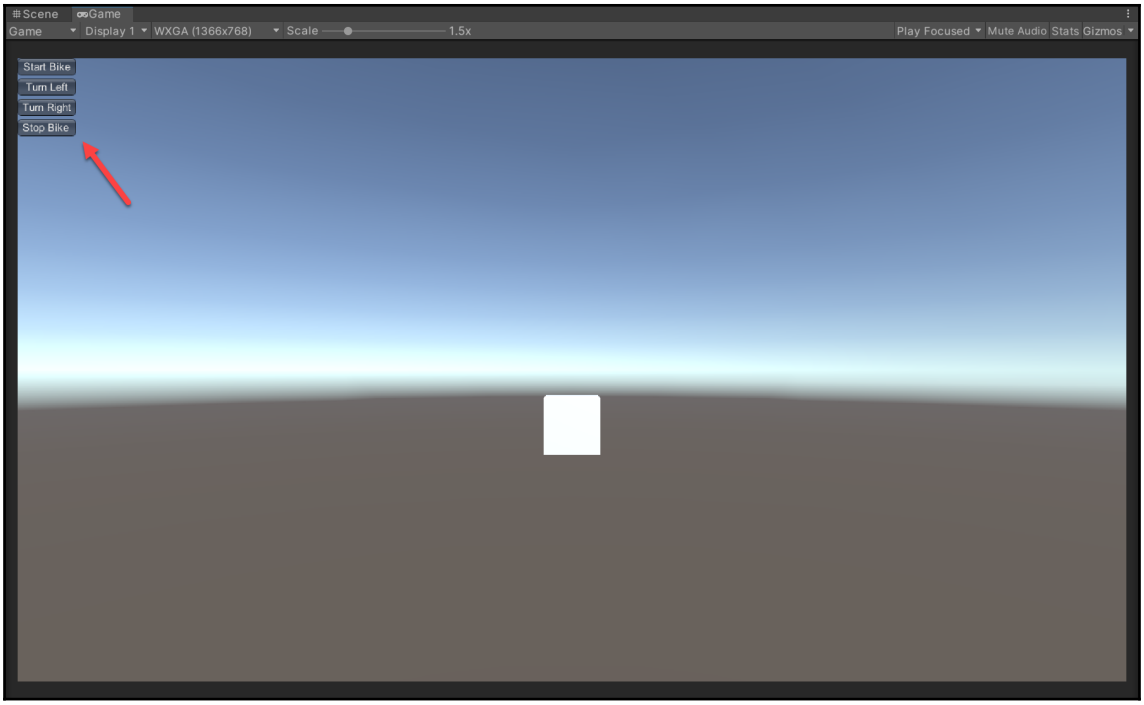

Build Settings
Scenes In Build
Scenes/Main/Init
0
Add Open Scenes
Platform
PC, Mac & Linux Standalone
Universal Windows Platform
tvOS
PS4
iOS
Xbox One
Android
WebGL
PC, Mac & Linux Standalone
Target Platform
Windows
Architecture
x86_64
Server Build
Copy PDB files
Create Visual Studio Solution
Development Build
Autoconnect Profiler
Deep Profiling
Script Debugging
Scripts Only Build
Compression Method
Default
Learn about Unity Cloud Build
Player Settings...
Build
Build And Run

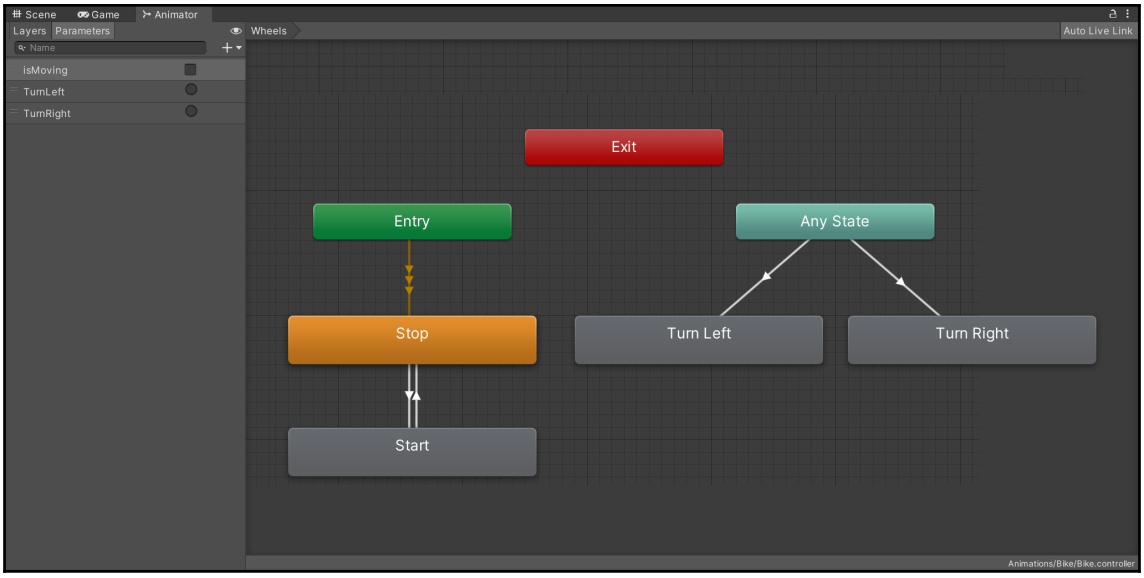

Scene
Game
Game
Display 1
WXGA (1366x768)
Scale
1.5x
Play Focused
Mute Audio
Stats
Gizmos
Next Scene

Chapter 5: Managing Character States with the State Pattern

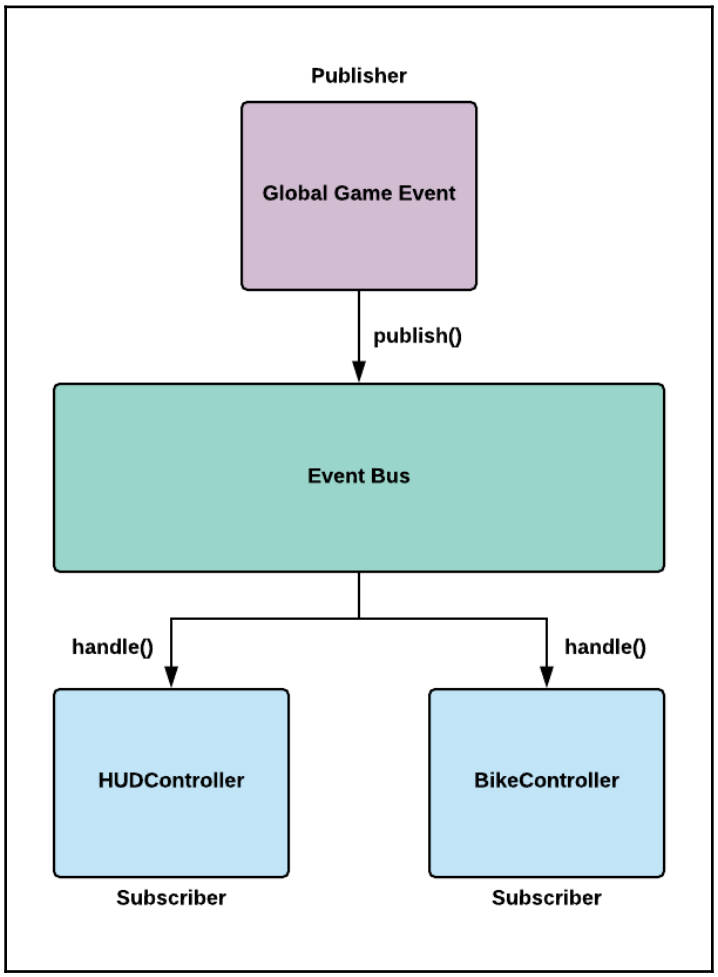




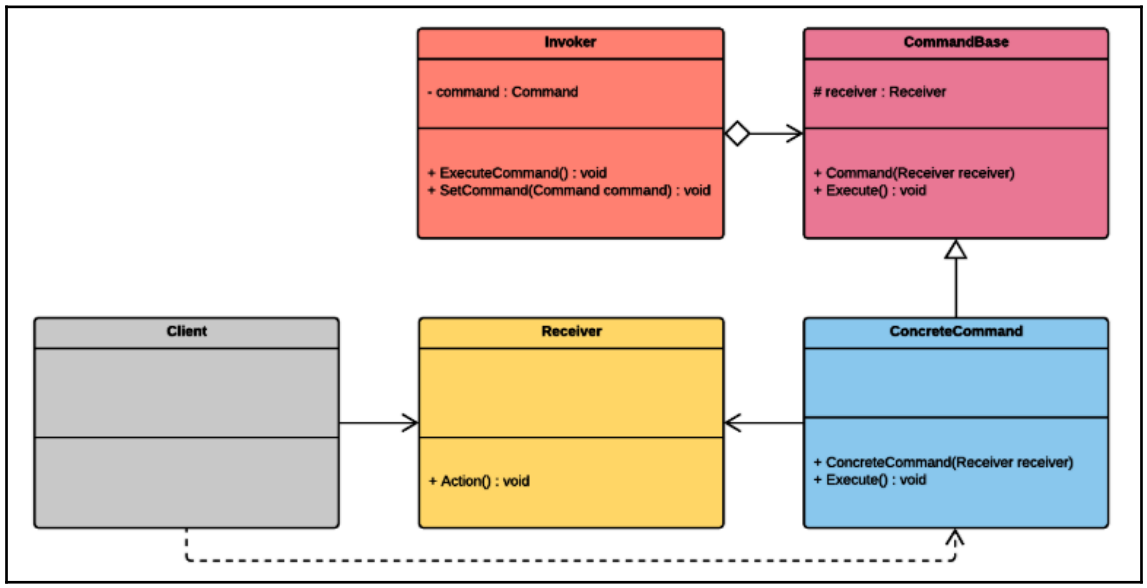

Scene
Game
Game
Display 1
WXGA (1366x768)
Scale
1.5x
Play Focused
Mute Audio
Stats
Gizmos
Start Bike
Turn Left
Turn Right
Stop Bike

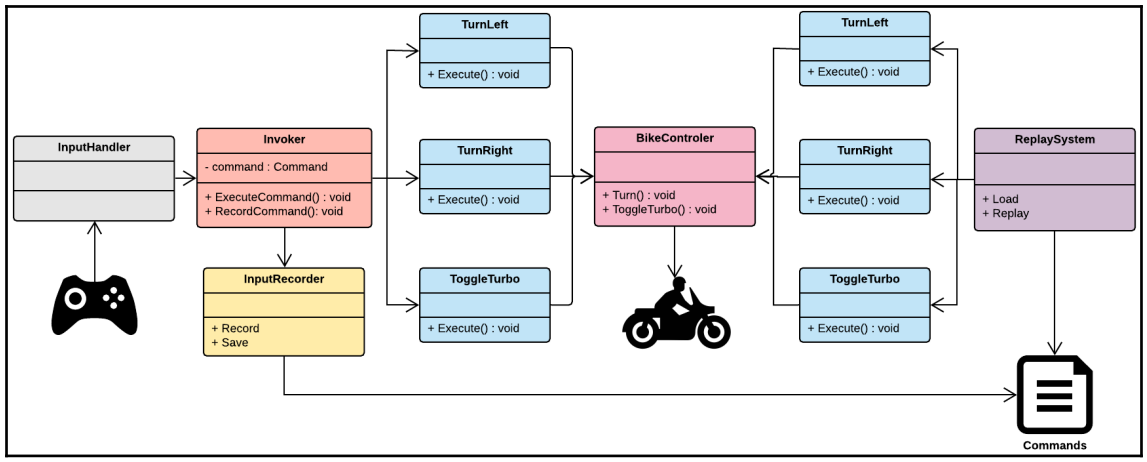

Scene
Game
Animator
Layers
Parameters
Name
isMoving
TurnLeft
TurnRight
Wheels
Auto Live Link
Exit
Entry
Any State
Stop
Turn Left
Turn Right
Start
Animations/Bike/Bike.controller

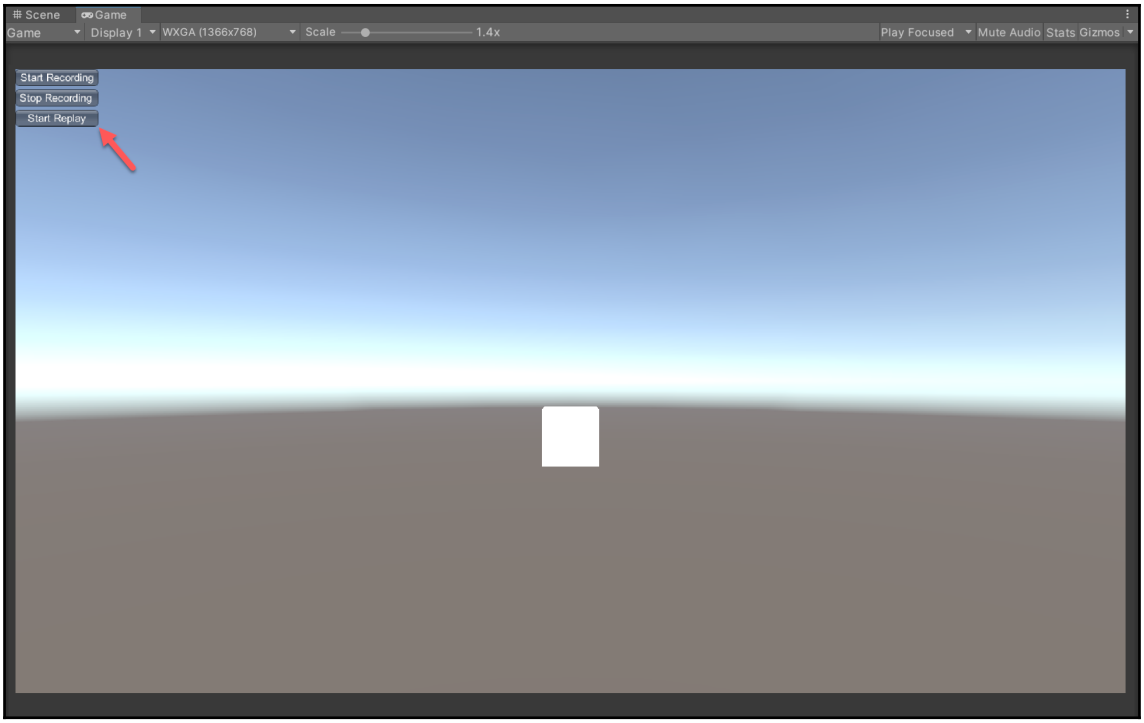
Chapter 6: Managing Game Events with the Event Bus



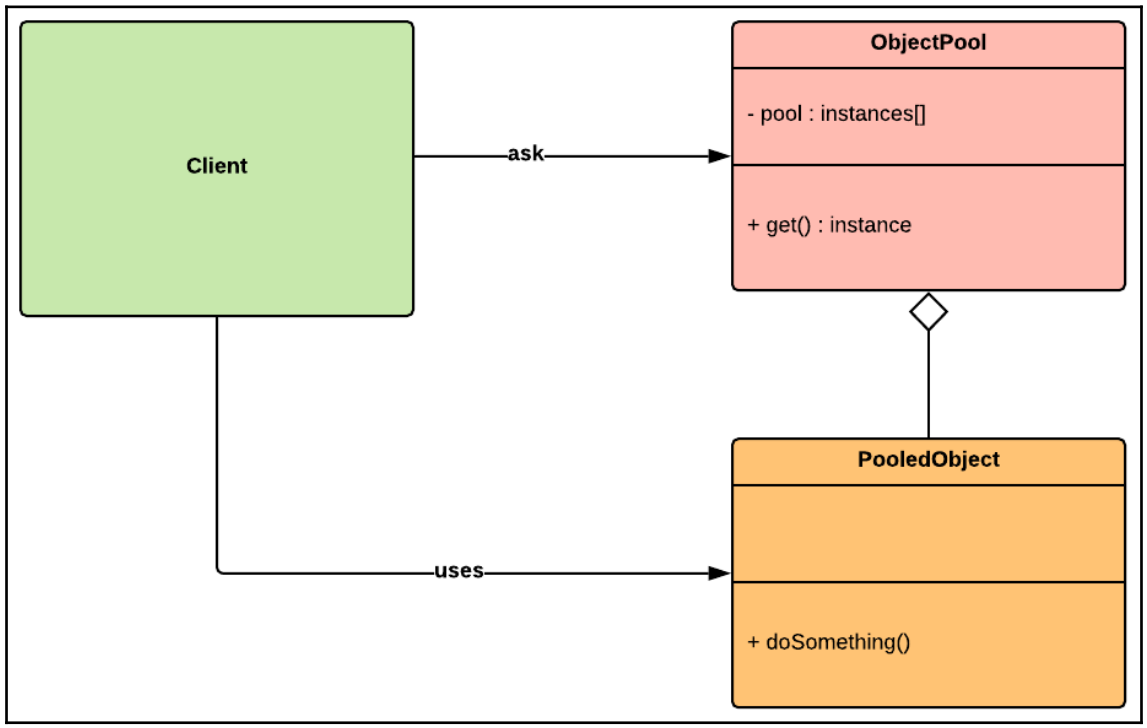
Chapter 7: Implement a Replay System with the Command Pattern

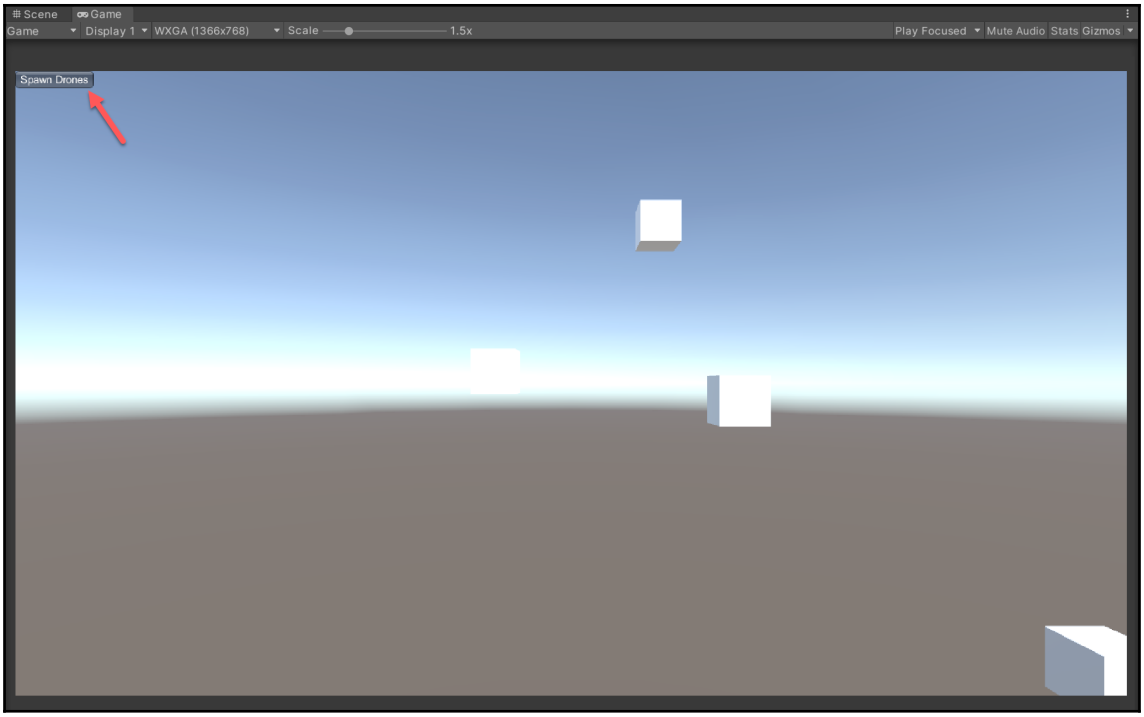




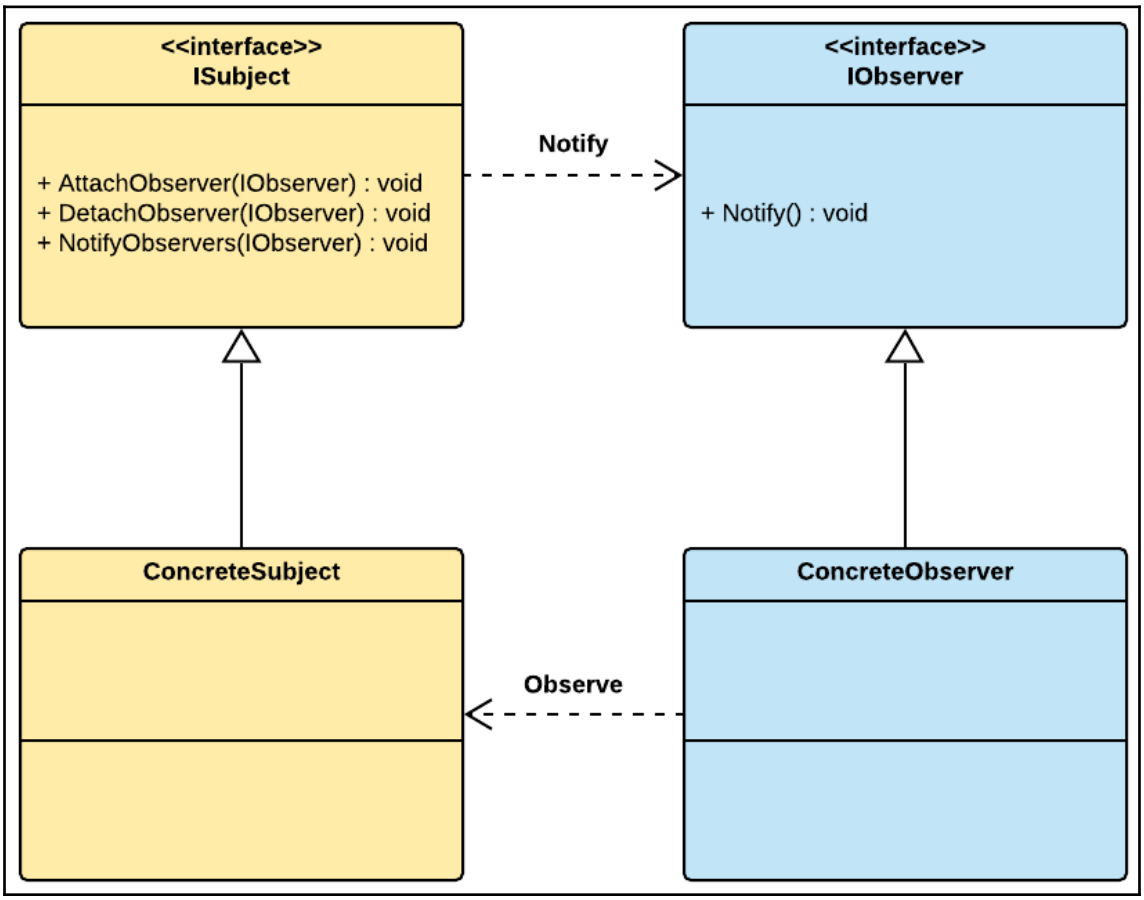

Scene
Game
Game
Display 1
WXGA (1366x768)
Scale
1.4x
Play Focused
Mute Audio
Stats
Gizmos
Start Recording
Stop Recording
Start Replay

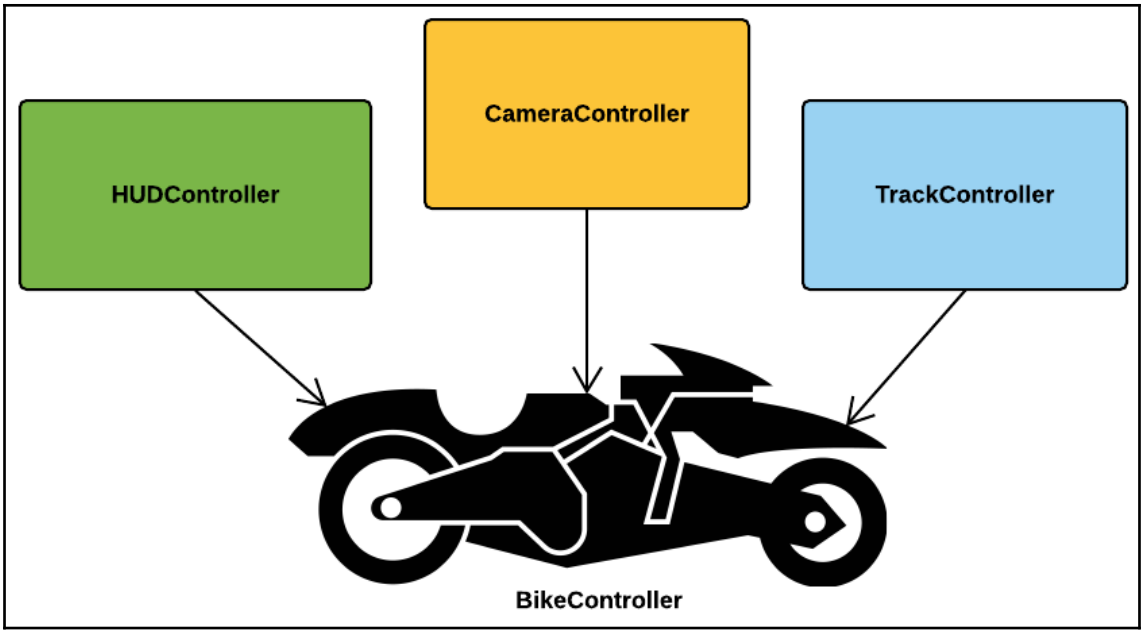
Chapter 8: Optimizing with the Object Pool Pattern

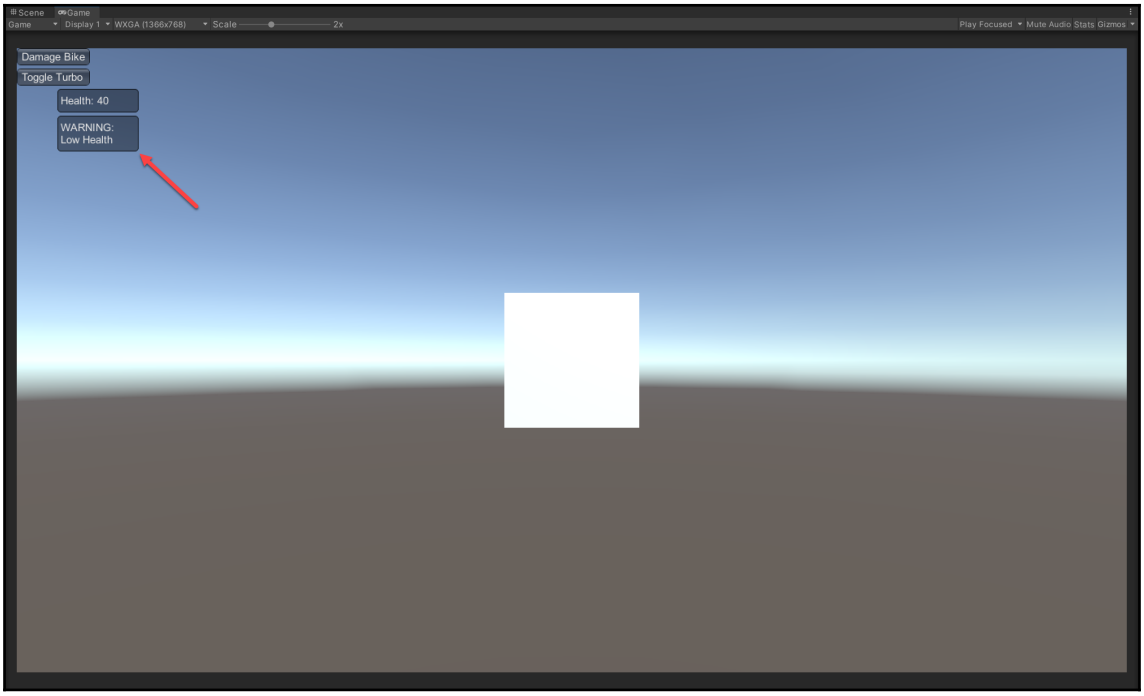



Scene
Game
Game
Display 1
WXGA (1366x768)
Scale
1.5x
Play Focused
Mute Audio
Stats
Gizmos
Spawn Drones

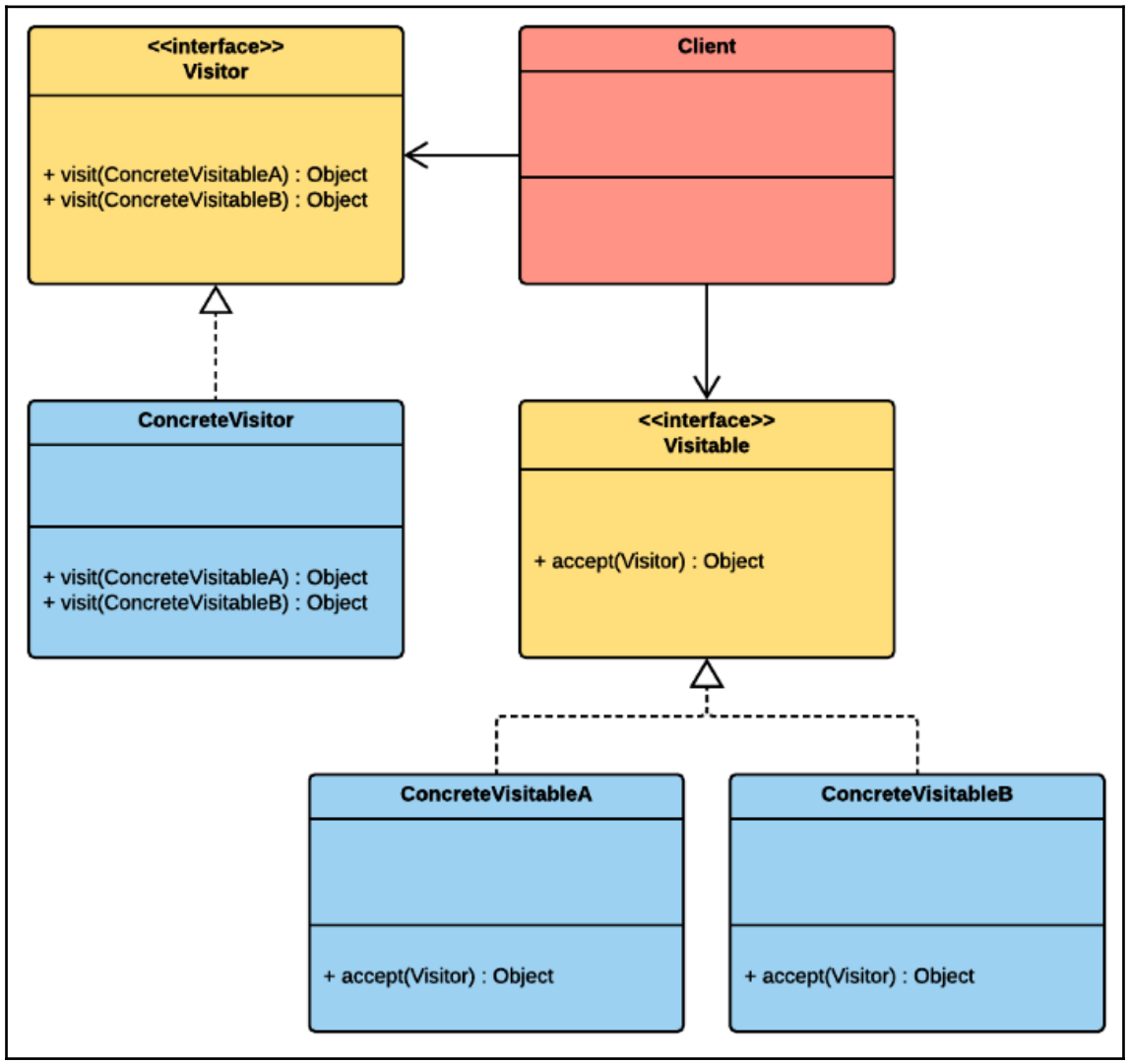
Chapter 9: Decoupling Components with the Observer Pattern

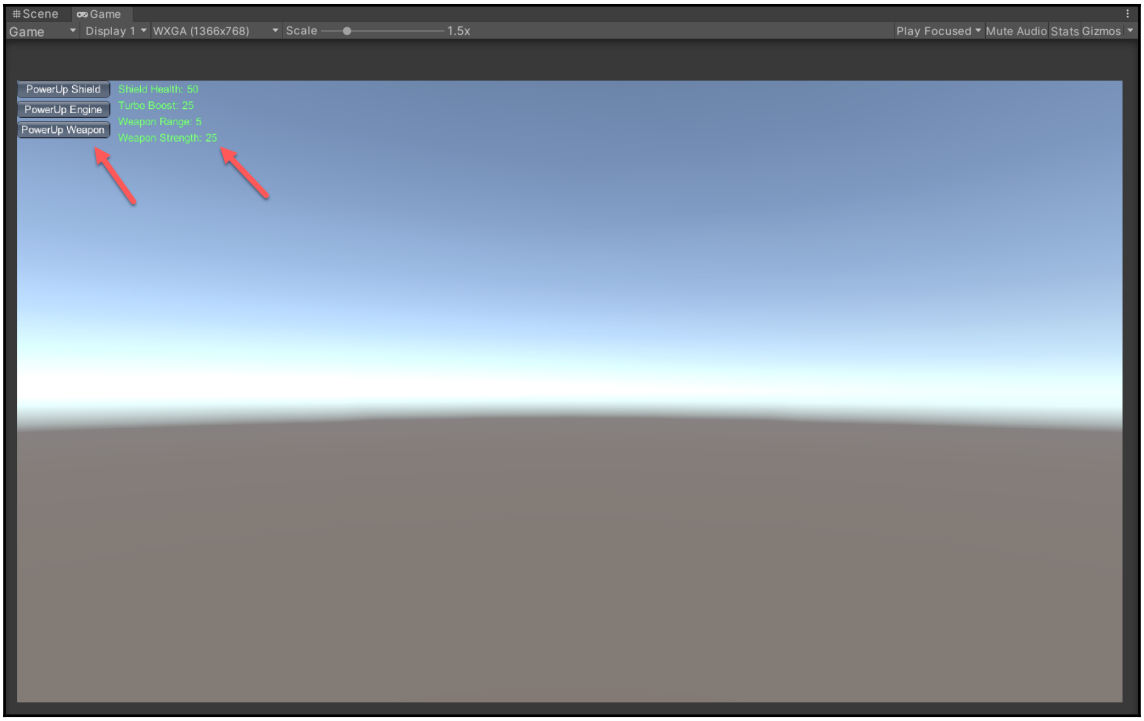



HUDController
CameraController
TrackController
BikeController

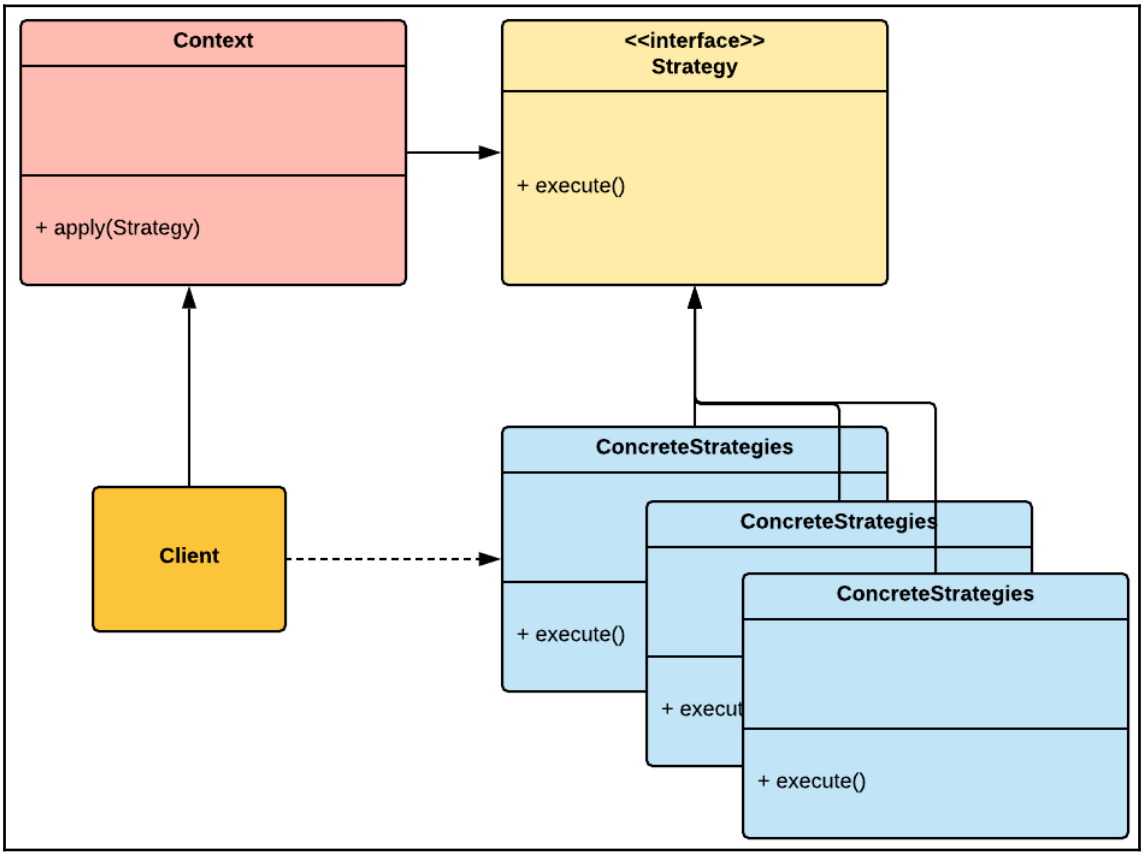

Damage Bike
Toggle Turbo
Health: 40
WARNING:
Low Health

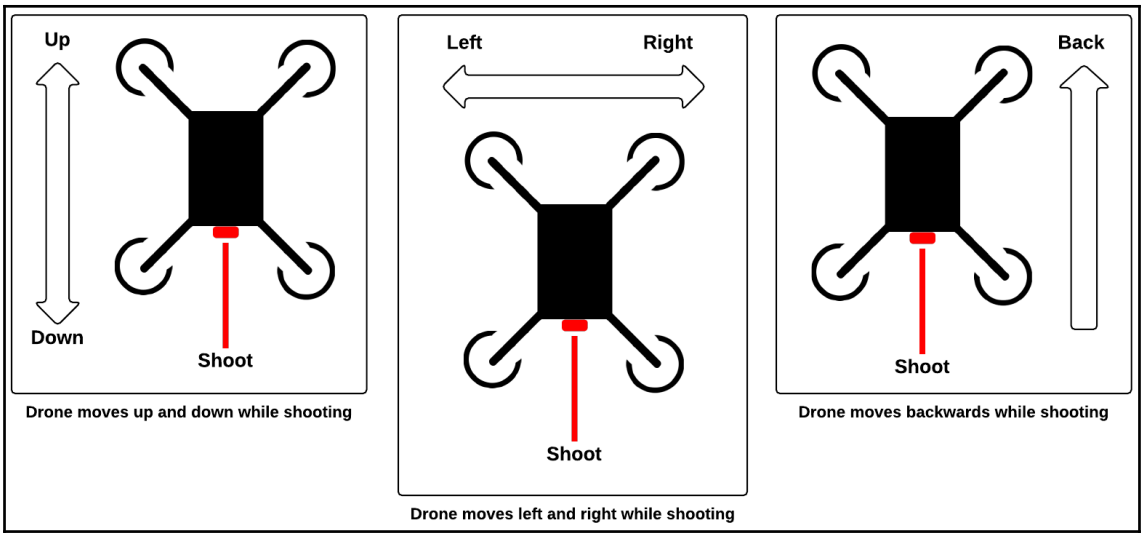
Chapter 10: Implementing Power-Ups with the Visitor Pattern

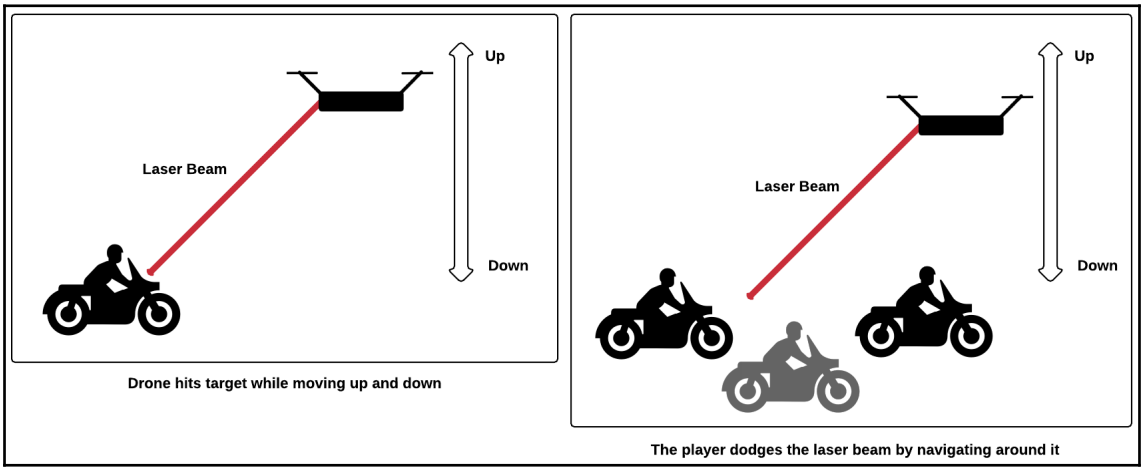


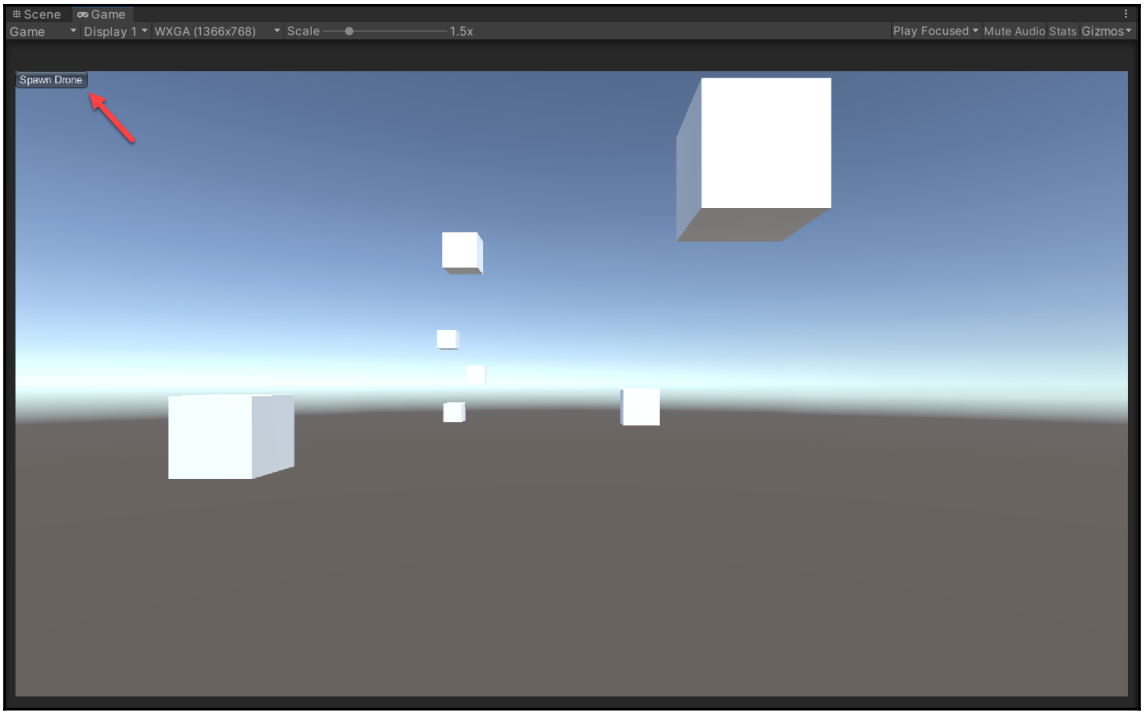

Scene
Game
Game
Display 1
WXGA (1366x768)
Scale
1.5x
Play Focused
Mute Audio
Stats
Gizmos
PowerUp Shield
PowerUp Engine
PowerUp Weapon
Shield Health: 50
Turbo Boost: 25
Weapon Range: 5
Weapon Strength: 25

Chapter 11: Implementing a Drone with the Strategy Pattern

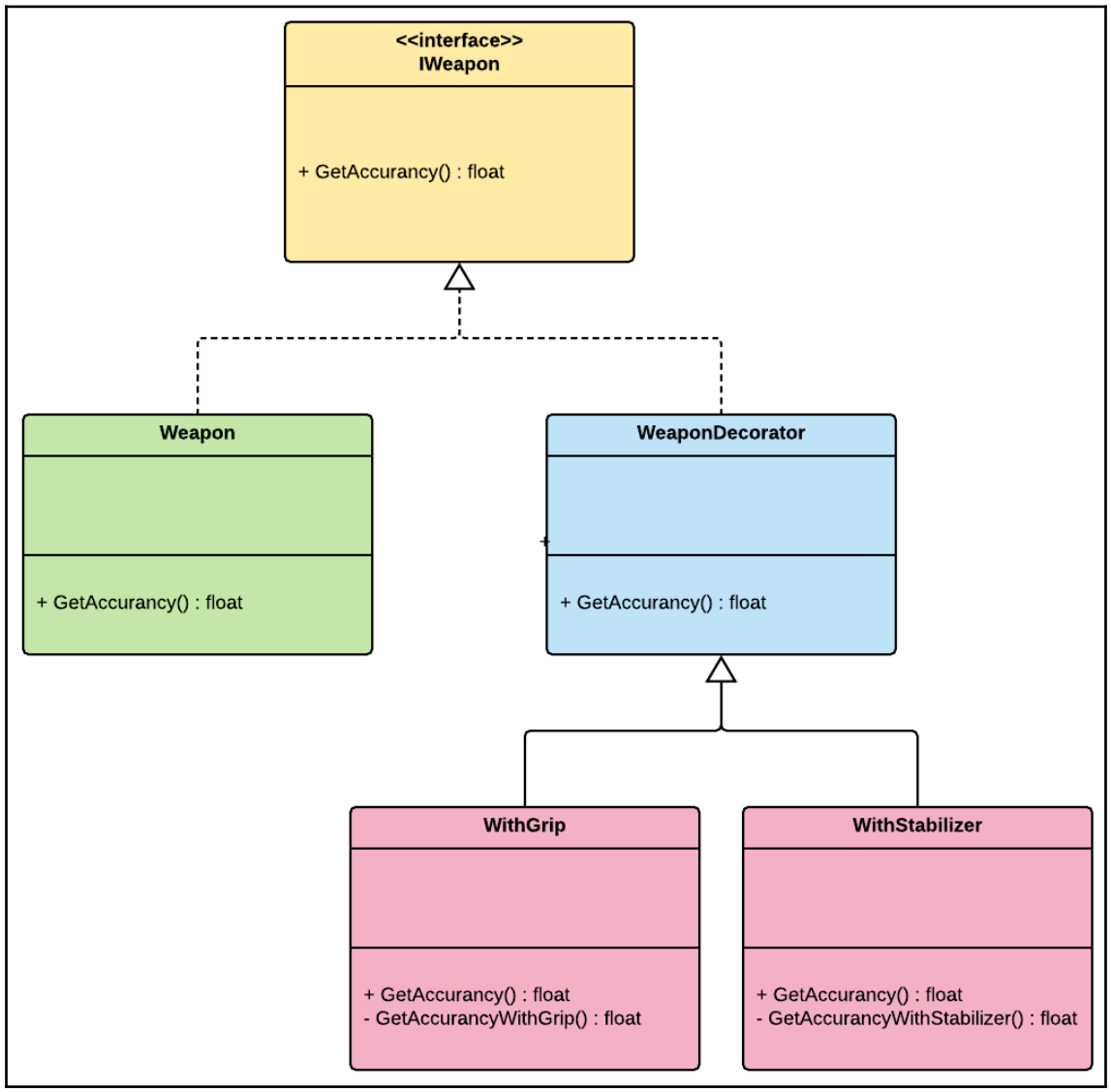


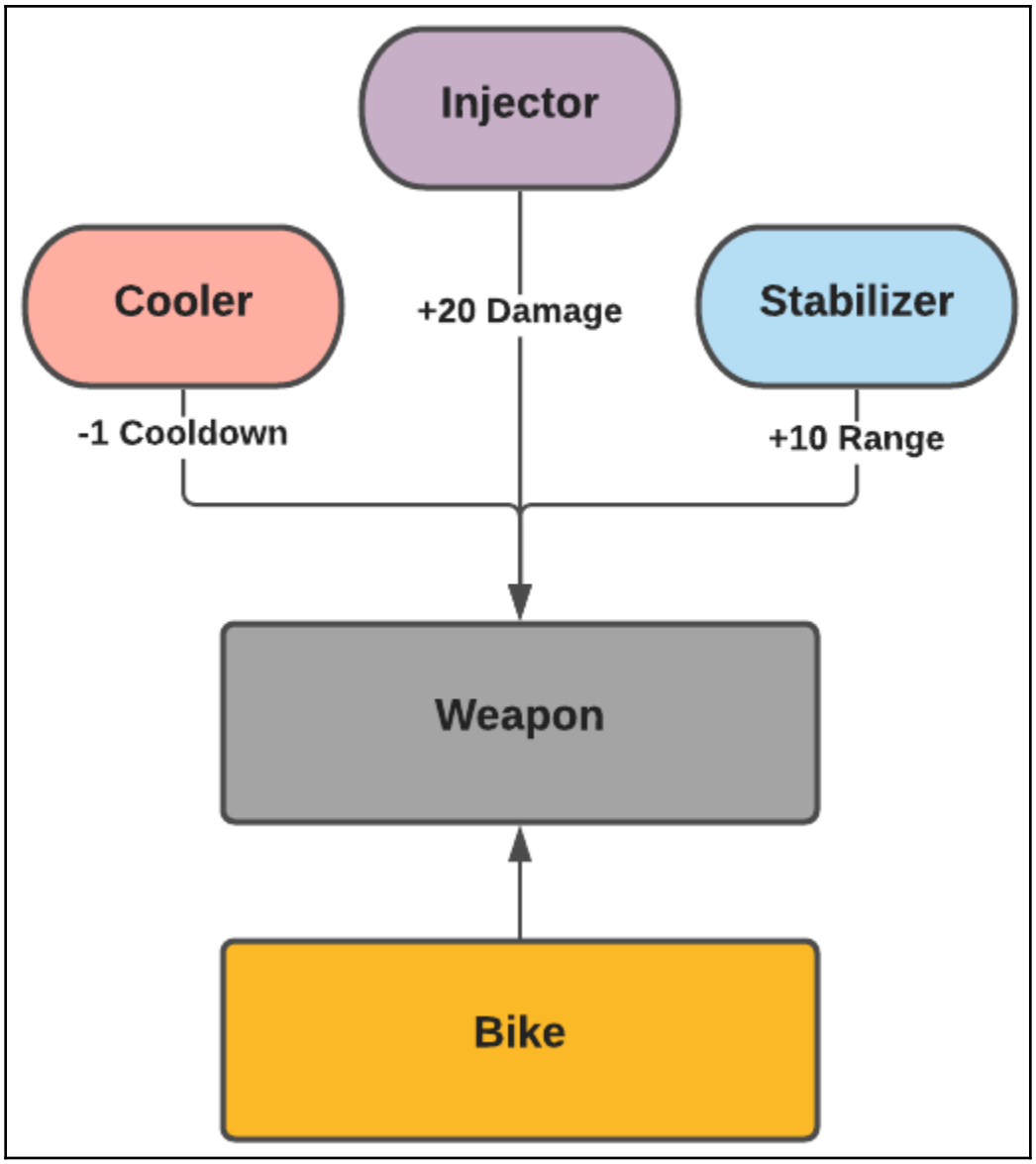

Up
Down
Shoot
Drone moves up and down while shooting
Left
Right
Shoot
Drone moves left and right while shooting
Back
Shoot
Drone moves backwards while shooting

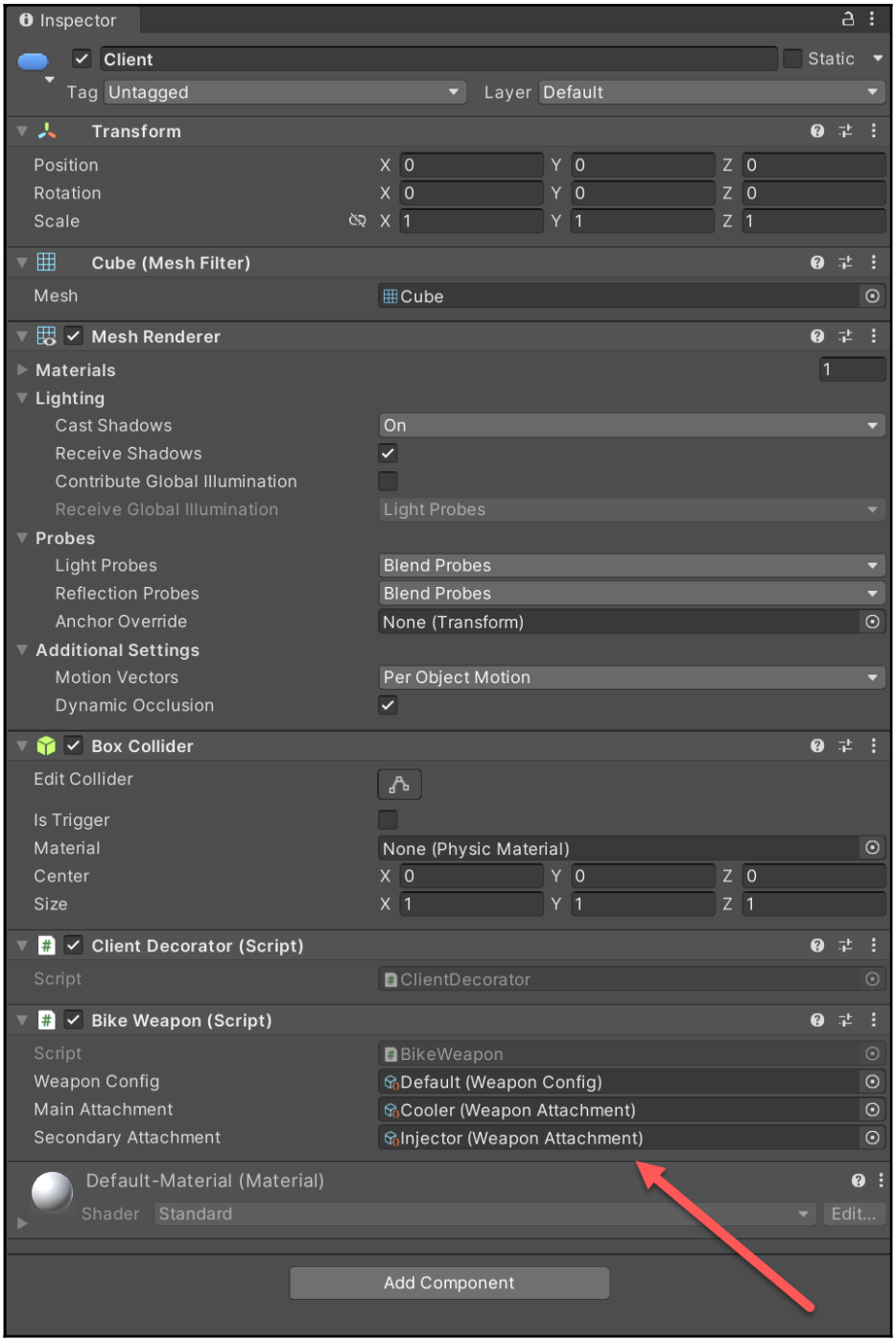

Laser Beam
Up
Down
Drone hits target while moving up and down
Laser Beam
Up
Down
The player dodges the laser beam by navigating around it

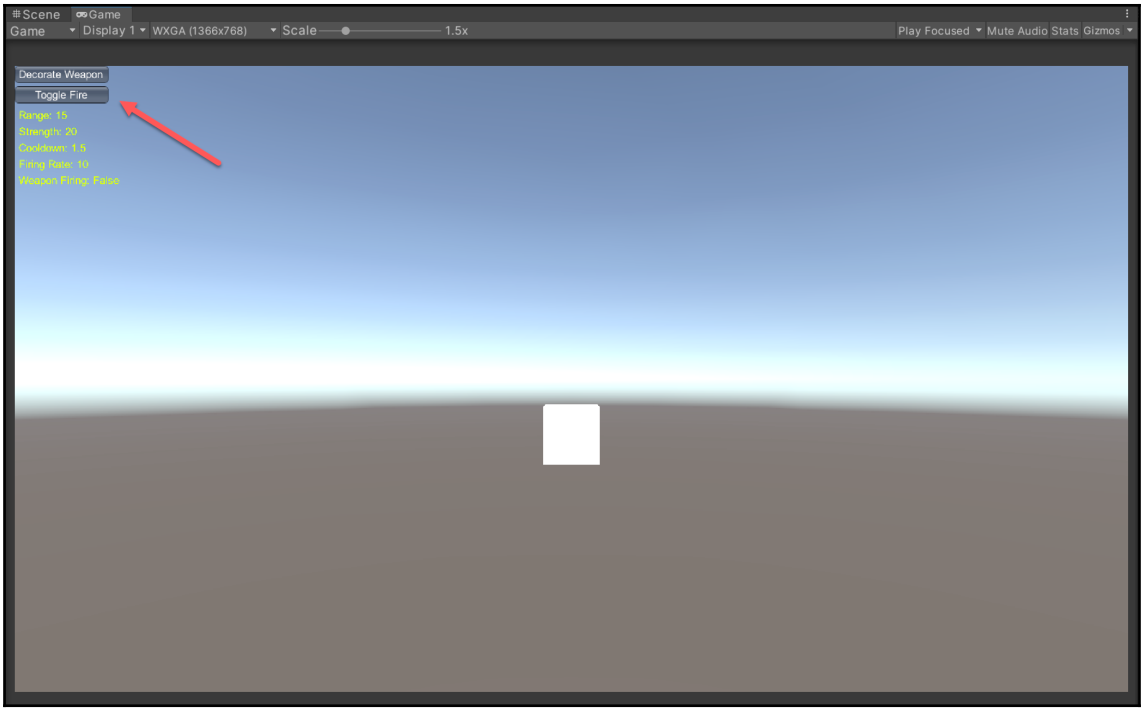

Scene
Game
Game
Display 1
WXGA (1366x768)
Scale
1.5x
Play Focused
Mute Audio
Stats
Gizmos
Spawn Drone

Chapter 12: Using the Decorator to Implement a Weapon System

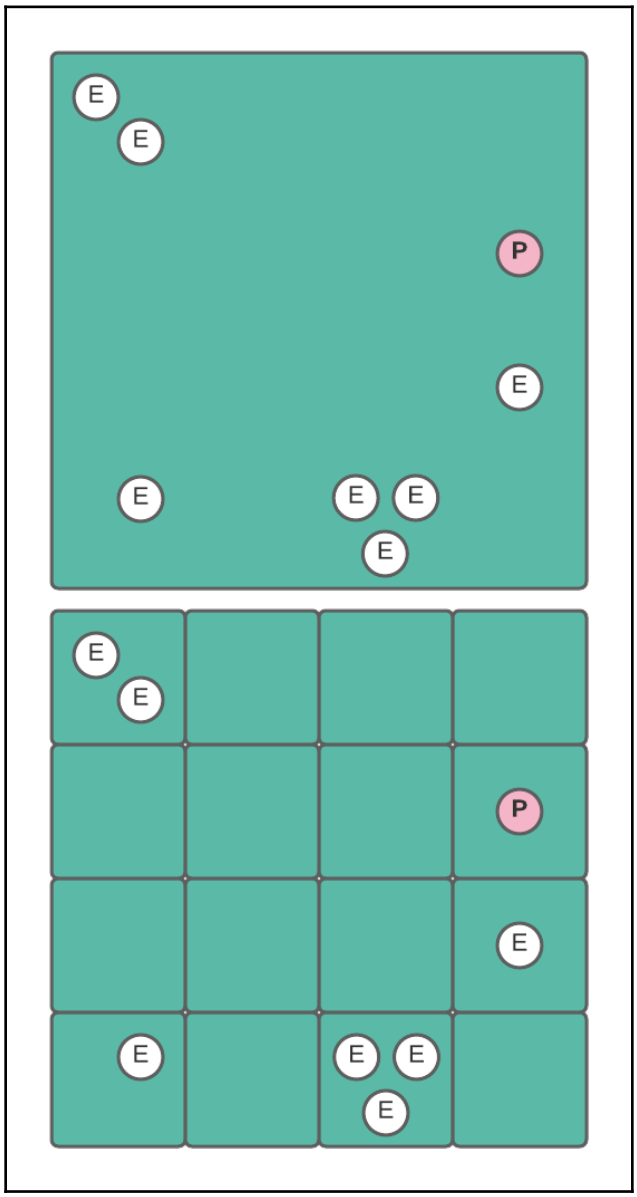


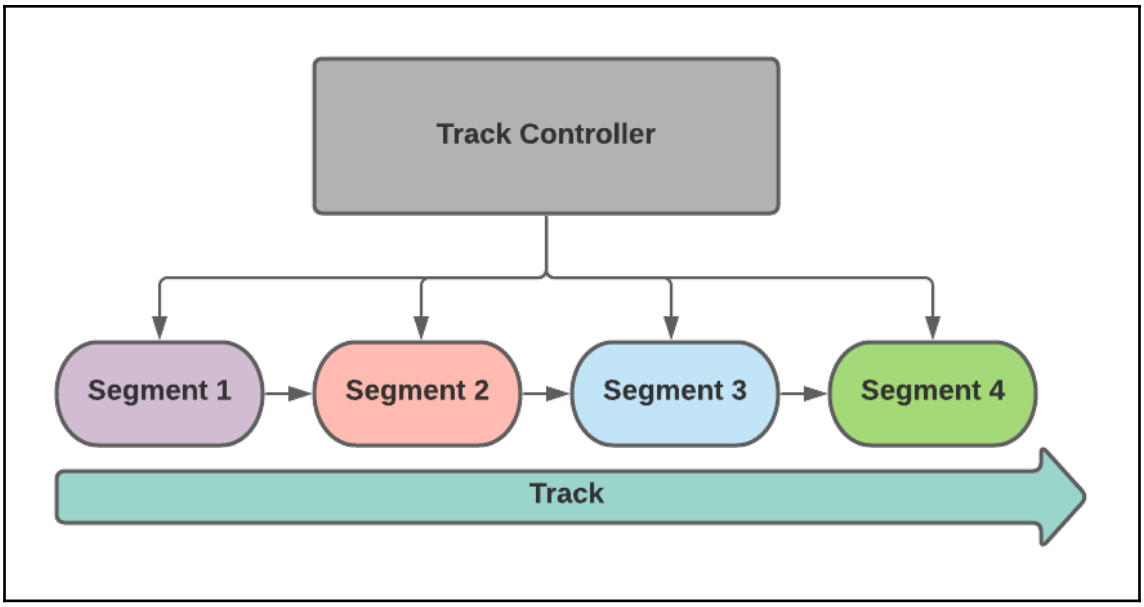

Injector
Cooler
+20 Damage
Stabilizer
-1 Cooldown
+10 Range
Weapon
Bike

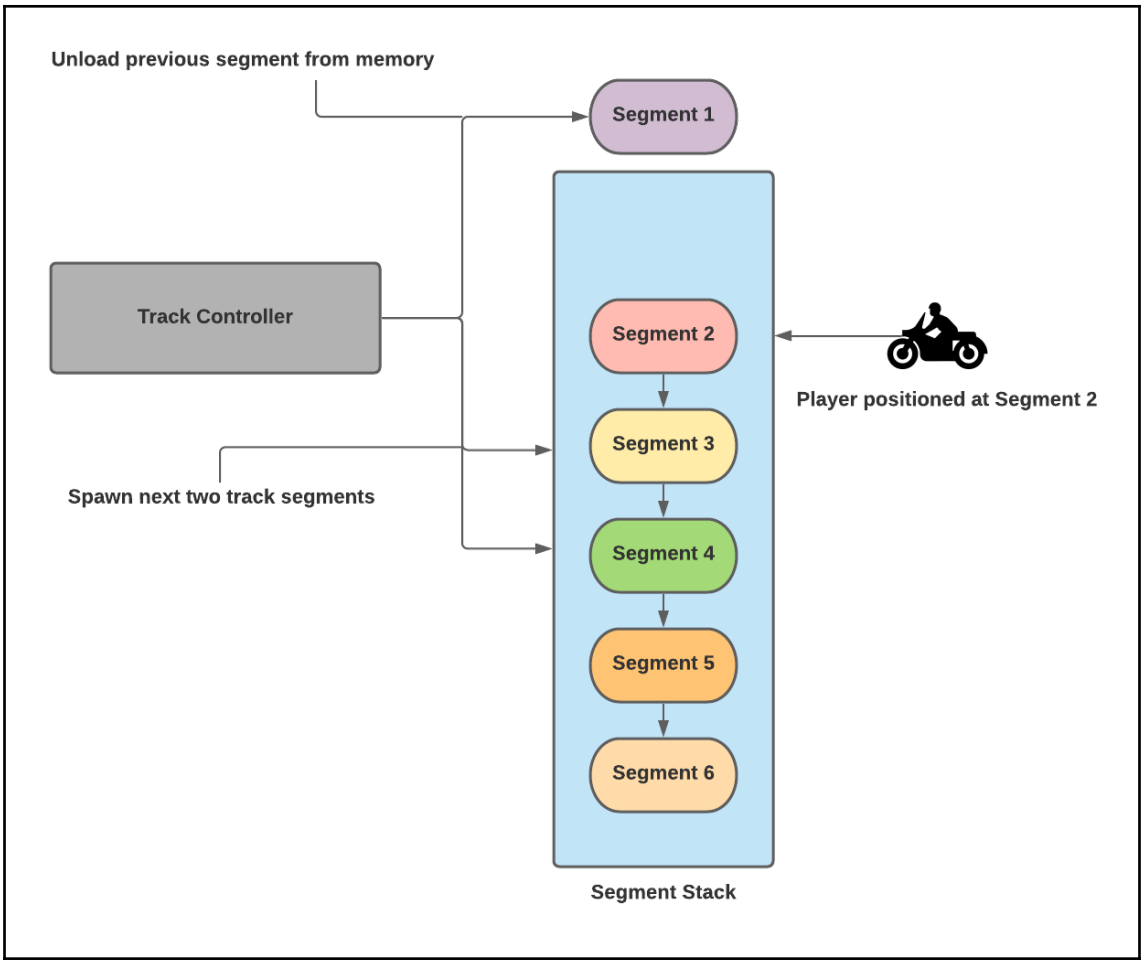

Inspector
Client
Static
Tag Untagged
Layer Default
Transform
Position X 0 Y 0 Z 0
Rotation X 0 Y 0 Z 0
Scale X 1 Y 1 Z 1
Cube (Mesh Filter)
Mesh Cube
Mesh Renderer
Materials 1
Lighting
Cast Shadows On
Receive Shadows
Contribute Global Illumination
Receive Global Illumination Light Probes
Probes
Light Probes Blend Probes
Reflection Probes Blend Probes
Anchor Override None (Transform)
Additional Settings
Motion Vectors Per Object Motion
Dynamic Occlusion
Box Collider
Edit Collider
Is Trigger
Material None (Physic Material)
Center X 0 Y 0 Z 0
Size X 1 Y 1 Z 1
Client Decorator (Script)
Script ClientDecorator
Bike Weapon (Script)
Script BikeWeapon
Weapon Config Default (Weapon Config)
Main Attachment Cooler (Weapon Attachment)
Secondary Attachment Injector (Weapon Attachment)
Default-Material (Material)
Shader Standard
Edit...
Add Component


Scene
Game
Game
Display 1
WXGA (1366x768)
Scale
1.5x
Play Focused
Mute Audio
Stats
Gizmos
Decorate Weapon
Toggle Fire
Range: 15
Strength: 20
Cooldown: 1.5
Firing Rate: 10
Weapon Firing: False

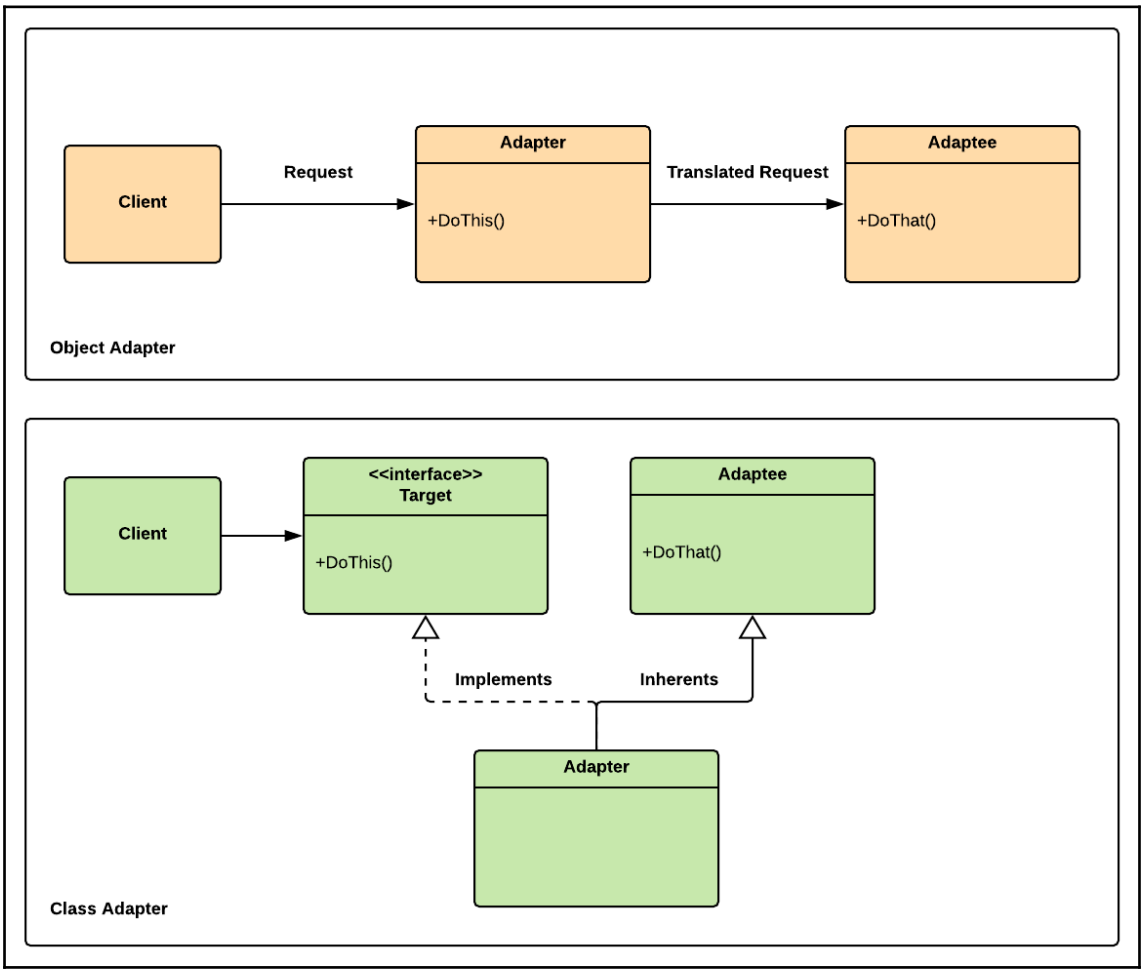
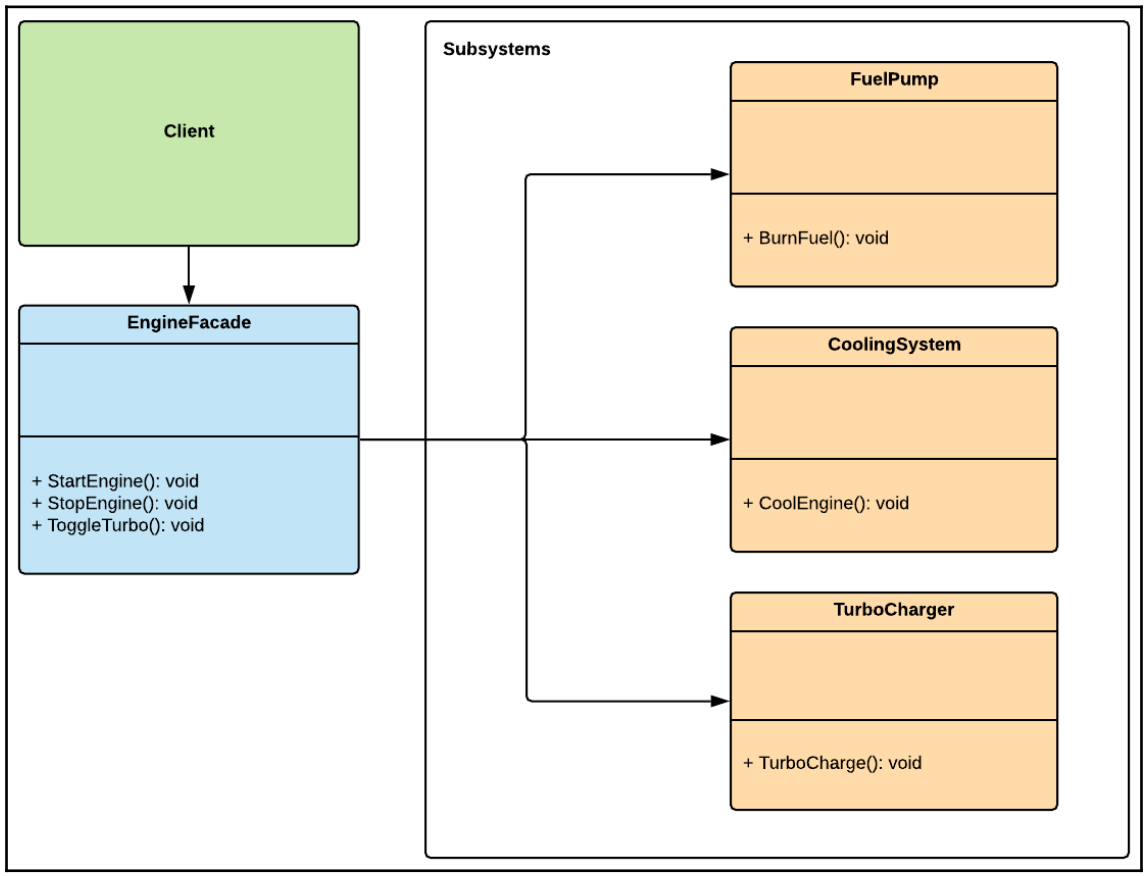
Chapter 13: Implementing a Level Editor with Spatial Partition




Track Controller
Segment 1
Segment 2
Segment 3
Segment 4
Track


Unload previous segment from memory
Segment 1
Track Controller
Segment 2
Player positioned at Segment 2
Segment 3
Spawn next two track segments
Segment 4
Segment 5
Segment 6
Segment Stack

Chapter 14: Adapting Systems with an Adapter



Chapter 15: Concealing Complexity with a Facade Pattern