C Game Programming Cookbook For Unity 3d

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Game Programming with Unity and C#
Unity 5.x Game AI Programming Cookbook
Unity 5
Game Development Patterns and Best Practices
C# Game Programming Cookbook for Unity 3D
VISUAL C# .NET: A Step By Step, Project-Based Guide to Develop Desktop Applications
AndEngine for Android Game Development Cookbook
Unreal Engine 4.x Scripting with C++ Cookbook
C++ Game Animation Programming
Unity 5. X Game AI Programming Cookbook
SDL Game Development
Learning C# Programming with Unity 3D, second edition
Game Programming with Unity and C#
Unity 2017 Mobile Game Development
Hands-On C++ Game Animation Programming
C++ Game Development Cookbook
Programmieren in Lua
Unreal Engine 4.x Scripting with C++ Cookbook
C# and Game Programming
Unity 5. X Game Development Blueprints
iOS Swift Game Development Cookbook
UnrealScript Game Programming Cookbook

JORDYN MCCULLOUGH

Android NDK Game Development Cookbook Packt Publishing Ltd

In chapter one, you will learn to know the properties and events of each control in a Windows Visual C# application. You need to learn and know in order to be more familiar when applying them to some applications in this book. In chapter two, you will build a project so that children can practice basic skills in addition, subtraction, multiplication, and division operations. This Math Game project can be used to choose the types of questions and what factors you want to use. This project has three timing options. Random math problems using values from 0 to 9 will be presented. Timing options are provided to measure accuracy and speed. There are many controls used. Two label controls are used for title information, two for displaying scores. There is a wide label in the middle of the form to display math questions. And, long skinny label is used as separator. Two button controls are used to start and stop question and one button to exit the project. There are three group control boxes. The first group box holds four check box controls that are used to select the type of questions. The second group box holds eleven radio buttons that are used to select values that are used as factors in calculations. The third group box contains three radio button controls for timing options. A scroll bar control rod is used to change the time. In chapter three, you will build Bank Code game. The storage box is locked and can only be opened if you enter the correct digit combination. Combinations can be 2 to 4 non-repetitive digits (range of digits from 1 to 9). After a guess is given, you will be notified of how many digits are right and how many digits are in the right position. Based on this information, you will give another guess. You continue to guess until you get the right combination or until you stop the game. On the left side of the form is a large picture box control. On the right side, two group box controls and two button controls are placed. In the picture box, a control panel is placed. In the panel, there are four label controls (set the AutoSize property to False) and nine button controls. In the first group box control, place three radio buttons. In the second group box control, a text box control is placed. The picture box contains an image of bank and a panel. The label controls in the panel are used to display the combinations entered (the BorderStyle property set to FixedSingle to display the

label size). The nine buttons on the panel are used to enter combinations. Radio buttons are used to set options. The buttons (one to start and stop the game and another to exit the project) are used to control game operations. The text box displays the results of the combinations entered. In chapter four, you will build Horse Racing game. This is a simple game. Up to 10 horses will race to the finish line. You guessed two horses that you thought could win the race. By clicking on the Start button, the race will start. All horses will race speed to get to the finish line. Labels are used to display instructions and number of horses in a race. Four button controls are used: two buttons to change number of horses, one button to start the game, and one other button to stop the game. The picture box control is used to load the horse image. A timer control is used to update the horse's movement during the race. In chapter five, you will build Catching Ball game. The bird flew and dropped ball from the sky. Users are challenged to position man under the fallen ball to catch it. Labels are used for instructions and to display game information (remaining time, number of balls captured, and game difficulty level). Two buttons are used to change the game difficulty level, one button to start the game, and another button to stop the game. Picture box controls hold images for man, bird, and ball. In chapter six, you will build Smart Tic Tac Toe game. That said, this is the first game ever programmed on a computer and one that had been programmed by Bill Gates himself when he was a teenager while attending Lakeside School in Seattle. The aim of this game is to win the game on a 3 x 3 grid with the victory of three identical symbols (X or O) on horizontal, diagonal, or vertical lines. The players will play alternately. In this game given two game options: player 1 against player 2 or human player against computer. A smart but simple strategy will be developed for computer logic to be a formidable opponent for humans. In chapter seven, you will build Fighting Plane program. This program can be played by two human players or human player versus computer. The controls of the player are done via the keyboard. Player 1 presses A key to move up, Z key to move down, and S key to throw rudal. When you choose Two players from the Options button, this game can be played by two human players. Player 1 presses the same keys, while player 2 presses key K to move up, M to move down, and key J to throw rudal. All label controls are used for titles and provide scoring and game information. The large panel (Panel1) is the playing field. Three button controls are used to start / stop a program, set options, and exit the program. One timer control is used to control game animation and another is used to represent the computer's decision process. The second control panel (Panel2) is used to select game options. One group box contains radio buttons which are used to select number of players. A group box contains radio buttons to select the level of difficulty of the game, when playing against a computer. A small button is used to close the options panel. The default properties are set for one-player games with the easiest game difficulty.

Unreal Engine 4 Scripting with C++ Cookbook Packt Publishing Ltd

Over 40 intermediateto advanced recipes for taking your XNA development arsenal further in this book and e-book.

Unreal Engine Game Development Cookbook O'Reilly Media

Over 100 recipes to get you creating modern, fast, and high-quality games with C++About This Book*Level up your game programming skills with insightful recipes on building games in C++*Analyze the less commonly discussed problems with C++ applications to develop the best games*Improve the performance of your games with the new multi-threading and networking features of C++11Who This Book Is ForThis book is ideal for aspiring game developers who are proficient in C++ programming and are interested in developing games with C++. Some basic knowledge of game programming will be useful but is not necessary.What You Will Learn*Explore the basics of game development to build great and effective features for your game*Develop your first text-based game using the various concepts of object-oriented programming*Use algorithms when developing games with various sorting and searching techniques*Exploit data structures in a game's development for data storage*Create your first 2D game using GDI library and sprite spreet.*Build your first advanced 2D game of space invaders using patterns such as observer, fly-weight, abstract factory, command, state, and moreIn DetailC++ is one of the preferred languages for game development as it supports a variety of coding styles that provides low-level access to the system. C++ is still used as a preferred game programming language by many as it gives game programmers control of the entire architecture, including memory patterns and usage. However, there is little information available on how to harness the advanced features of C++ to build robust games.This book will teach you techniques to develop logic and game code using C++. The primary goal of this book is to teach you to create high-quality games using C++ game programming scripts and techniques, regardless of the library or game engine you use. It will show you how to make use of the object-oriented capabilities of C++ so you can write well-structured and powerful games of any genre. The book also explores important areas such as physics programming and audio programming, and gives you other useful tips and tricks to improve your code.By the end of this book, you will be competent in game programming using C++, and will be able to develop your own games in C++.

Unity Game Development Cookbook Packt Publishing Ltd

Learn animation programming from first principles and implement modern animation techniques that can be integrated into any game development workflow Key FeaturesBuild a functional and production-ready modern animation system with complete features using C++Learn basic, advanced, and skinned animation programming with this step-by-step guideDiscover the math required to implement cutting edge animation techniques such as inverse kinematics and dual quaternionsBook Description Animation is one of the most important parts of any game. Modern animation systems work directly with track-driven animation and provide support for advanced techniques such as inverse kinematics (IK), blend trees, and dual quaternion skinning. This book will walk you through everything you need to get an optimized, production-ready animation system up and running, and contains all the code required to build the animation system. You'll start by learning the basic principles, and then delve into the core topics of animation programming by building a curve-based skinned animation system. You'll implement different skinning techniques and explore advanced animation topics such as IK, animation blending, dual quaternion skinning, and crowd rendering. The animation system you will build following this book can be easily integrated into your next game development project. The book is intended to be read from start to finish, although each chapter is self-contained and can be read independently as well. By the end of this book, you'll have implemented a modern animation system and got to grips with optimization concepts and advanced animation techniques. What you will learnGet the hang of 3D vectors, matrices, and transforms, and their use in game developmentDiscover various techniques

to smoothly blend animationsGet to grips with GLTF file format and its design decisions and data structuresDesign an animation system by using animation tracks and implementing skinningOptimize various aspects of animation systems such as skinned meshes, clip sampling, and pose palettesImplement the IK technique for your game characters using CCD and FABRIK solversUnderstand dual quaternion skinning and how to render large instanced crowdsWho this book is for This book is for professional, independent, and hobbyist developers interested in building a robust animation system from the ground up. Some knowledge of the C++ programming language will be helpful.

Panda3D 1.7 Game Developer's Cookbook Packt Publishing Ltd

Filled with a practical collection of recipes, the UnrealScript Game Programming Cookbook is full of clear step-by-step instructions that help you harness the powerful scripting language to supplement and add AAA quality to your very own projects.This essential Cookbook has been assembled with both the hobbyist and professional developer in mind. A solid foundation of object oriented programming knowledge will be required. All examples can be replicated and used by UDK and in some cases other software and tools - all of which are available for free – can be used too.

Lua Game Development Cookbook CRC Press

If you want to make cross-platform games without the hassle and dangers of writing platform-specific code, or If you are a game programmer who may have some experience with Java and you want to learn everything you need to know about Libgdx to produce awesome work, this is the book for you. To take full advantage of the recipes in this book, you are expected to be familiar with java with good game programming knowledge.

Unity Development Cookbook Packt Publishing Ltd

Build and customize a wide range of powerful Unity AI systems with over 70 hands-on recipes and techniques About This Book Empower your agent with decision making capabilities using advanced minimaxing and Negamaxing techniques Discover how AI can be applied to a wide range of games to make them more interactive. Instigate vision and hearing abilities in your agent through collider based and graph based systems Who This Book Is For This book is intended for those who already have a basic knowledge of Unity and are eager to get more tools under their belt to solve AI and gameplay-related problems. What You Will Learn Use techniques such as A*and A*mbush to empower your agents with path finding capabilities. Create a representation of the world and make agents navigate it Construct decision-making systems to make the agents take different actions Make different agents coordinate actions and create the illusion of technical behavior Simulate senses and apply them in an awareness system Design and implement AI in board games such as Tic-Tac-Toe and Checkers Implement efficient prediction mechanism in your agents with algorithms such as N-Gram predictor and naive Bayes classifier Understand and analyze how the influence maps work. In Detail Unity 5 comes fully packaged with a toolbox of powerful features to help game and app developers create and implement powerful game AI. Leveraging these tools via Unity's API or built-in features allows limitless possibilities when it comes to creating your game's worlds and characters. This practical Cookbook covers both essential and niche techniques to help you be able to do that and more. This Cookbook is engineered as your one-stop reference to take your game AI programming to the next level. Get to grips with the essential building blocks of working with an agent, programming movement and navigation in a game environment, and improving your agent's decision making and coordination mechanisms - all through hands-on examples using easily customizable techniques. Discover how to emulate vision and hearing capabilities for your agent, for natural and humanlike AI behaviour, and improve them with the help of graphs. Empower your AI with decision-making functions through programming simple board games such as Tic-Tac-Toe and Checkers, and orchestrate agent coordination to get your AIs working together as one. Style and approach This recipe-based guide will take you through implementing various AI algorithms. Each topic is explained and placed among other related techniques, sometimes building on the knowledge from previous chapters. There are also references to more technical books and papers, so you can dig deeper if you want to.

Packt Publishing

A Cookbook with wide range of recipes to allow you to learn game development with AndEngine quickly and efficiently. "AndEngine for Android Game Development Cookbook" is geared toward developers who are interested in working with the most up-to-date version of AndEngine, sporting the brand new GLES 2.0 branch. The book will be helpful for developers who are attempting to break into the mobile game market with plans to release fun and exciting games while eliminating a large portion of the learning curve that is otherwise inevitable when getting into AndEngine development. This book requires a working installation of eclipse and the required libraries, including AndEngine and its various extensions set up prior to working with the recipes.

Beginning C++ Game Programming O'Reilly Media

Over 40 recipes to accelerate the process of learning game design and solving development problems using Unreal Engine About This Book Explore the quickest way to tackle common challenges faced in Unreal Engine Create your own content, levels, light scenes, and materials, and work with Blueprints and C++ scripting An intermediate, fast-paced Unreal Engine guide with targeted recipes to design games within its framework Who This Book Is For This book is for those who are relatively experienced with Unreal Engine 4 and have knowledge of its fundamentals. Working knowledge of C++ is required. What You Will Learn Discover editor functionalities for an in-depth insight into game design Develop environments using terrain for outdoor areas and a workflow for interiors as well using brushes Design various kinds of materials with unique features, such as mirrors and glows Explore the various ways that lighting can be used in the engine Build various level effects using Blueprints, Unreal's visual scripting system Set up a development environment and develop custom functionality with C++ for your games Create healthbars and main menus with animations using Slate, Unreal's UI solution, through the UMG Editor Package and create an installer to get your project out into the world In Detail Unreal Engine is powerful tool with rich functionalities to create games. It equips you with the skills to easily build mobile and desktop games from scratch without worrying about which platform they will run on. You can focus on the individual complexities of game development such as animation and rendering. This book takes you on a journey to jumpstart your game design efforts. You will learn various aspects of the Unreal engine commonly encountered with practical examples of how it can be used, with numerous references for further study. You will start by getting acquainted with Unreal Engine 4 and building out levels for your game. This will be followed by recipes to help you create environments, place meshes, and implement your characters. You will then

learn to work with lights, camera, and shadows to include special effects in your game. Moving on, you'll learn Blueprint scripting and C++ programming to enable you to achieve trigger effects and add simple functionalities. By the end of the book, you will see how to create a healthbar and main menu, and then get your game ready to be deployed and published. Style and approach This book offers detailed, easy-to-follow recipes that will help you master a wide range of Unreal Engine 4's features. Every recipe provides step-by-step instructions, with explanations of how these features work, and alternative approaches and research materials so you can learn even more.

C++ Game Development By Example Packt Publishing Ltd

The second edition of C# and Game Programming offers the same practical, hands-on approach as the first edition to learning the C# language through classic arcade game applications. Complete source code for games like Battle Bit, Asteroid Miner, and Battle Tennis, included on the CD-ROM, demonstrates programming strategies and complements the comprehensive treatment of C# in the text. From the basics of adding graphics and sound to games, to advanced concepts such as the .Net framework and object-oriented programming, this book provides the foundations for a beginner to become a full-fledged programmer. New in this edition: - Supports DirectX 9.0 - Revised programs and examples - Improved frame rate for game examples

Qt5 C++ GUI Programming Cookbook Apress

C# Game Programming Cookbook for Unity 3DCRC Press

Qt5 C++ GUI Programming Cookbook Packt Publishing Ltd

This is a cookbook with over 80 recipes offering solutions to common game development problems with Panda3D with explained sample code and screenshots added in.If you are a developer with experience in Python, Panda3D, and optionally C++ and shading languages and you are looking for quick and easy to integrate solutions to common game development problems with Panda3D, this book is for you.

Libgdx Cross-platform Game Development Cookbook Packt Publishing Ltd

A systematic guide consisting of over 70 recipes which focus on helping you build portable mobile games and aims to enhance your game development skills with clear instructions.If you are a C++ developer who wants to jump into the world of Android game development and who wants to use the power of existing C++ libraries in your existing Android Java applications, then this book is for you. You need to have basic knowledge of C or C++ including pointer manipulation, multithreading, and object-oriented programming concepts as well as some experience developing applications without using an IDE.

C# Game Programming Cookbook for Unity 3D Packt Publishing Ltd

Designed for beginners with no knowledge or experience in game development or programming, this book teaches the essentials of the Unity game engine,the C# programming language, and the art of object-oriented programming. Aiming to be prolific with examples, new concepts are not only explained, but thoroughly demonstrated. Starting with an introduction to Unity, you'll learn about scenes, GameObjects, prefabs, components, and how to use the various windows to interact with the engine. You'll then dive into the fundamentals of programming by reviewing syntax rules, formatting, methods, variables, objects and types, classes, and inheritance, all while getting your hands dirty writing and testing code yourself. Later, the book explains how to expose script data in the Inspector and the basics of Unity’s serialization system. This carefully crafted work guides you through the planning and development of bare bones, simple game projects designed to exercise programming concepts while keeping less relevant interruptions out of the way, allowing you to focus on the implementation of game mechanics first and foremost. Through these example projects, the book teaches input handling, rigidbodies, colliders, cameras, prefab instantiation, scene loading, user interface design and coding, and more. By the end, you'll have built a solid foundation in programming that will pave your way forward in understanding core C# syntax and fundamentals of object-oriented programming—not just what to type but why it's typed and what it’s really doing. Game Programming with Unity and C# will send you on your way to becoming comfortable with the Unity game engine and its documentation and how to independently seek further information on yet-untouched concepts and challenges. What You'll Learn Understand the fundamentals of object-oriented computer programming, including topics specifically relevant for games. Leverage beginner-to-intermediate-level skills of the C# programming language and its syntax. Review all major component types of the Unity game engine: colliders and rigidbodies, lights, cameras, scripts, etc. Use essential knowledge of the Unity game engine and its features to balance gameplay mechanics for making interesting experiences Who This Book Is For Beginners who have no prior experience in programming or game development who would like to learn with a solid foundation that prepares them to further develop their skills.

Mastering Android Game Development with Unity Packt Publishing Ltd

Build and customize a wide range of powerful Unity AI systems with over 70 hands-on recipes and techniquesAbout This Book- Empower your agent with decision making capabilities using advanced minimaxing and Negamaxing techniques- Discover how AI can be applied to a wide range of games to make them more interactive.- Instigate vision and hearing abilities in your agent through collider based and graph based systemsWho This Book Is ForThis book is intended for those who already have a basic knowledge of Unity and are eager to get more tools under their belt to solve AI and gameplay-related problems.What You Will Learn- Use techniques such as A*and A*mbush to empower your agents with path finding capabilities.- Create a representation of the world and make agents navigate it- Construct decision-making systems to make the agents take different actions- Make different agents coordinate actions and create the illusion of technical behavior- Simulate senses and apply them in an awareness system- Design and implement AI in board games such as Tic-Tac-Toe and Checkers- Implement efficient prediction mechanism in your agents with algorithms such as N-Gram predictor and naive Bayes classifier- Understand and analyze how the influence maps work.In DetailUnity 5 comes fully packaged with a toolbox of powerful features to help game and app developers create and implement powerful game AI. Leveraging these tools via Unity's API or built-in features allows limitless possibilities when it comes to creating your game's worlds and characters. This practical Cookbook covers both essential and niche techniques to help you be able to do that and more.This Cookbook is engineered as your one-stop reference to take your game AI programming to the next level. Get to grips with the essential building blocks of working with an agent, programming movement and navigation in a game environment, and improving your agent's decision making and coordination mechanisms - all through hands-on examples using easily customizable techniques. Discover how to emulate

vision and hearing capabilities for your agent, for natural and humanlike AI behaviour, and improve them with the help of graphs. Empower your AI with decision-making functions through programming simple board games such as Tic-Tac-Toe and Checkers, and orchestrate agent coordination to get your AIs working together as one.Style and approachThis recipe-based guide will take you through implementing various AI algorithms. Each topic is explained and placed among other related techniques, sometimes building on the knowledge from previous chapters. There are also references to more technical books and papers, so you can dig deeper if you want to.

Cocos2d Cross-Platform Game Development Cookbook Packt Publishing Ltd

Build your own OpenGL or Vulkan application in C++ and use it as a playground to explore the path from basic features to advanced techniques of character animation in modern games with the help of this illustrated guide Key Features Learn how to create a game skeleton with keyboard and mouse controls along with modern graphics Gain insights into model loading, character animations, inverse kinematics, and debugging techniques Master the art of creating animated characters and controlling their various aspects Purchase of the print or Kindle book includes a free PDF eBook Book DescriptionIf you’re fascinated by the complexities of animating video game characters and are curious about the transformation of model files into 3D avatars and NPCs that can explore virtual worlds, then this book is for you. In this new edition, you’ll learn everything you need to know about game animation, from a simple graphical window to a large crowd of smoothly animated characters. First, you’ll learn how to use modern high-performance graphics, dig into the details of how virtual characters are stored, and load the models and animations into a minimalistic game-like application. Then, you’ll get an overview of the components of an animation system, how to play the animations and combine them, and how to blend from one animation into another. You’ll also get an introduction to topics that will make your programming life easier, such as debugging your code or stripping down the graphical output. By the end of this book, you’ll have gained deep insights into all the parts of game animation programming and how they work together, revealing the magic that brings life to the virtual worlds on your screen.What you will learn Create simple OpenGL and Vulkan applications and work with shaders Explore the glTF file format, including its design and data structures Design an animation system with poses, clips, and skinned meshes Find out how vectors, matrices, quaternions, and splines are used in game development Discover and implement ways to seamlessly blend character animations Implement inverse kinematics for your characters using CCD and FABRIK solvers Understand how to render large, animated crowds efficiently Identify and resolve performance issues Who this book is for This book is for curious C++ developers, game programmers, game designers, and character animators, either pursuing this as a hobby or profession, who have always wanted to look behind the curtain and see how character animation in games works. The book assumes basic C++ and math knowledge, and you should be able to read code and math formulas to get the most out of this book.

Design Patterns für die Spieleprogrammierung CRC Press

This book is for all programmers and game enthusiasts who want to stop dreaming about creating a game, and actually create one from scratch.The reader should know the basics of programming and using the Lua language. Knowledge of the C/C++ programming language is not necessary, but it's strongly recommended in order to write custom Lua modules extending game engine capabilities or to rewrite parts of the Lua code into a more efficient form.Algebra and matrix operations are required in order to understand advanced topics in Chapter 4, Graphics – Legacy Method with OpenGL 1.x-2.1 and Chapter 5, Graphics – Modern Method with OpenGL 3.0+.Sample demonstrations are coupled with binary libraries for Windows and Linux operating systems for convenience.

iOS Game Programming Cookbook Packt Publishing Ltd

Designed for beginners with no knowledge or experience in game development or programming, this book teaches the essentials of the Unity game engine, the C# programming language, and the art of object-oriented programming. New concepts are not only explained, but thoroughly demonstrated. Starting with an introduction to Unity, you'll learn about scenes, GameObjects, prefabs, components, and how to use the various windows to interact with the engine. You'll then dive into the fundamentals of programming by reviewing syntax rules, formatting, methods, variables, objects and types, classes, and inheritance, all while getting your hands dirty writing and testing code yourself. Later, the book explains how to expose script data in the Inspector and the basics of Unity’s serialization system. This carefully crafted work guides you through the planning and development of bare bones, simple game projects designed to exercise programming concepts while keeping less relevant interruptions out of the way, allowing you to focus on the implementation of game mechanics first and foremost. Through these example projects, the book teaches input handling, rigidbodies, colliders, cameras, prefab instantiation, scene loading, user interface design and coding, and more. By the end, you'll have built a solid foundation in programming that will pave your way forward in understanding core C# syntax and fundamentals of object-oriented programming—not just what to type but why it's typed and what it’s really doing. Game Programming with Unity and C# will send you on your way to becoming comfortable with the Unity game engine and its documentation and how to independently seek further information on yet-untouched concepts and challenges. What You'll LearnUnderstand the fundamentals of object-oriented computer programming, including topics specifically relevant for games.Leverage beginner-to-intermediate-level skills of the C# programming language and its syntax. Review all major component types of the Unity game engine: colliders and rigidbodies, lights, cameras, scripts, etc.Use essential knowledge of the Unity game engine and its features to balance gameplay mechanics for making interesting experiences. Who This Book Is For Beginners who have no prior experience in programming or game development who would like to learn with a solid foundation that prepares them to further develop their skills.

Game Programming with Unity and C# CRC Press

Learn everything you need to know to use the powerful Unity engine to its full potential for 3D and 2D game development, simulation, artificial intelligence, and beyond. From the basics of scripting to techniques for interactivity, AI and behavior, animation, narrative, and networking, this flexible, mind-bogglingly popular engine is useful for anything that needs visuals and real-time simulation. With this thoroughly updated problem-solving cookbook, beginner and intermediate Unity developers will learn about the Unity engine through brief recipes that teach specific features of the software and scripting systems. You'll apply a collection of snippets of code to

address common scenarios such as properly keeping score, accepting input, and sharing state over the network. This cookbook pinpoints the problem, sets out the solution, and discusses how to solve your problem in the best and most straightforward way possible. You'll find solutions for: 2D and 3D graphics Math, physics, and character control Animation and movement Behavior and AI Sound and music Narrative and dialogue Input and gameplay Scripting and user interface Simulation and synthetic data creation Networking and accessing web content Analytics and telemetry

Unity 5.x Game AI Programming Cookbook

"O'Reilly Media, Inc."

Utilize proven solutions to solve common problems in game development About This Book Untangle your game development workflow, make cleaner code, and create structurally solid games Implement key programming patterns that will enable you to make efficient AI and remove duplication Optimize your game using memory management techniques Who This Book Is For If you are a game developer who wants to solve commonly-encountered issues or have some way to communicate to other developers in a standardized format, then this book is for you. Knowledge of basic game programming principles and C++ programming is assumed. What You Will Learn Learn what design patterns are and why you would want to use them Reduce the maintenance burden with well-tested, cleaner code Employ the singleton pattern effectively to reduce your compiler workload Use the factory pattern to help you create different objects with the same creation logic and reduce coding time Improve game performance with Object Pools Allow game play to interact with physics or graphics in an abstract way Refractor your code to remove common code smells In Detail You've learned how to program, and you've probably created some simple games at some point, but now you want to build larger projects and find out how to resolve your problems. So instead of a coder, you might now want to think like a game developer or software engineer. To organize your code well, you need certain tools to do so, and that's what this book is all about. You will learn techniques to code quickly and correctly, while ensuring your code is modular and easily understandable. To begin, we will start with the core game programming patterns, but not the usual way. We will take the use case strategy with this book. We will take an AAA standard game and show you the hurdles at multiple stages of development. Similarly, various use cases are used to showcase other patterns such as the adapter pattern, prototype pattern, flyweight pattern, and observer pattern. Lastly, we'll go over some tips and tricks on how to refactor your code to remove common code smells and make it easier for others to work with you. By the end of the book you will be proficient in using the most popular and frequently used patterns with the best practices. Style and approach This book takes a step-by-step real-life case studies approach. Every pattern is first explained using a bottleneck. We will show you a problem in your everyday workflow, and then introduce you to the pattern, and show you how the pattern will resolve the situation.