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Over 100 recipes exploring the new and exciting features of Unity 5 to spice up your Unity skillset About This Book Built on the solid foundation of the popular Unity 4.x Cookbook, the recipes in this edition have been completely updated for Unity 5 Features recipes for both 2D and 3D games Provides you with techniques for the new features of Unity 5, including the new UI system, 2D game development, new Standard Shaders, and the new Audio Mixer Who This Book Is For From beginners to advanced users, from artists to coders, this book is for you and everyone in your team! Programmers can explore multimedia features, and multimedia developers can try their hand at scripting. Basic knowledge and understanding of the Unity platform, game design principles, and programming knowledge in C# is essential. What You Will Learn Immerse players with great audio, utilizing Unity 5's audio features including the new Audio Mixer, ambient sound with Reverb Zones, dynamic soundtracks with Snapshots, and balanced audio via Ducking Create better materials with Unity's new, physically-based, Standard Shader Measure and control time, including pausing the game, displaying clocks and countdown timers, and even implementing "bullet time" effects Improve ambiance through the use of lights and effects such as reflection and light probes Create stylish user interfaces with the new UI system, including power-bars, clock displays, and an extensible inventory system Save and load text and media assets from local or remote sources, publish your game via Unity Cloud, and communicate with websites and their databases to create online scoreboards Discover advanced techniques, including the publisher-subscriber and state patterns, performance bottleneck identification, and methods to maximize game performance and frame rates Control 2D and 3D character movement, and use NavMeshAgents to write NPC and enemy behaviors such as seek, flee, flock, and waypoint path following In Detail Unity 5 is a flexible and intuitive multiplatform game engine that is becoming the industry's de facto standard. Learn to craft your own 2D and 3D computer games by working through core concepts such as animation, audio, shaders, GUI, lights, cameras, and scripting to create your own games with Unity 5. Completely re-written to cover the new features of Unity 5, this book is a great resource for all Unity game developers, from those who have recently started using Unity right up to Unity professionals. The first half of the book focuses on core concepts of 2D game design while the second half focuses on developing 3D game development skills. In the first half, you will discover the new GUI system, the new Audio Mixer, external files, and animating 2D characters in 2D game development. As you progress further, you will familiarize yourself with the new Standard Shaders, the Mecanim system, Cameras, and the new Lighting features to hone your skills towards building 3D games to perfection. Finally, you will learn non-player character control and explore Unity 5's extra features to enhance your 3D game development skills. Style and approach Each chapter first introduces the topic area and explains how the techniques covered can enhance your games. Every recipe provides step-by-step instructions, followed by an explanation of how it all works, and useful additional refinements or alternative approaches. Every required resource and C# script (fully commented) is available to download, enabling you to follow each recipe yourself. Get up and running with Unity with the help of expert guidance for addressing the performance issues encountered in Unity development Key Features • Discover solutions to common problems faced by .NET developers while creating games in Unity • Explore tips, tricks, best practices, and advanced Unity coding techniques for creating impressive games • Understand how to program with C# code using Unity's built-in modules and add engaging effects Book Description Understand what makes Unity the world's most widely used real-time 3D development platform and explore its powerful features for creating 3D and 2D games, as well as the Unity game engine and the Microsoft Game Dev, including the Microsoft Azure Cloud and Microsoft Azure PlayFab services, to create games. You will start by getting acquainted with the Unity editor and the basic concepts of Unity script programming with C#. You'll then learn how to use C# code to work with Unity's built-in modules, such as UI, animation, physics, video, and audio, and understand how to develop a game with Unity and C#. As you progress through the chapters, you'll cover advanced topics such as the math involved in computer graphics and how to create a custom render pipeline in Unity with the new Scriptable Render Pipeline, all while optimizing performance in Unity. Along the way, you'll be introduced to Microsoft Game Dev, Azure services, and Azure PlayFab, and using the Unity3D PlayFab SDK to access the PlayFab API. By the end of this Unity book, you'll have become familiar with the Unity engine and be ready to develop your own games while also addressing the performance issues that you could encounter in the development process. What you will learn • Get to grips with using the Unity Editor • Use C# scripts to work with Unity's built-in modules such as UI, animation, physics, video, and audio • Create a custom render pipeline in Unity Engine with the latest Scriptable Render Pipeline • Write high-performance multithreaded code with the latest DOTs in Unity • Discover the Azure PlayFab Client library for C# in Unity • Understand how the asset management and serialization system within Unity really works • Explore some of the most commonly used profiler tools in Unity development Who this book is for The book is for developers with intermediate .NET and C# programming experience who are interested in learning game development with Unity. Basic experience in C# programming is assumed. Discover how to use Unity with Xcode to create fun, imaginative 3D games for iPhone and iPad. This book shows you how to optimize your game for both speed and quality, how to test and profile your game, and how to get the most out of your iOS device features, including the gyroscope and accelerometer. You'll also learn how to incorporate the latest Game Center improvements in iOS into your game, how to make sure your game gets into the App Store, and even how to promote your app and track revenue. Unity is an incredibly powerful and popular game creation tool, and Unity 5 brings even more great features, including Mecanim animation. If you have a great 3D game idea, and you want to make it a reality in the App Store, then Learn Unity 5 for iOS Game Development has exactly what you need. What You'll Learn How to include iAds How to integrate Game Center leaderboards and achievements How to profile and optimize performance Who This Book Is For iOS developers interested in using Unity and Unity developers who want to customize their games for iOS devices. A complete beginner's guide to game development with the powerful Unity game engine. CS Instructor and game designer, Mike Geig, offers a do-it-yourself approach to game development - with all of the main essentials covered. In just 24 hours, learn how to get started developing games with Unity with a hands-on and modular approach. Each chapter covers an essential component of the game development process, illustrated with sample projects, and including full source code, all 3rd party art assets (textures, fonts, models), and all 3rd party sound assets. ?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 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. Start building commercial and playable games such as 2D collection and adventure games, 3D FPS game in Unity with C#, and add AR/VR/MR experiences to them with this illustrated guide Key Features Create game apps, including a 2D adventure game, a 3D first-person shooter, and more Get up to speed with Unity Gaming Services available for creating commercially viable games Follow steps for publishing, marketing, and maintaining your games effectively Purchase of the print or Kindle book includes a free PDF eBook Book Description Unity 2022 by Example is a complete introduction to building games in Unity following a project-based approach. You'll be introduced to the Unity game engine and the tools available for building and customizing a game exactly the way you want it, while maintaining a good code foundation to build upon. Once you get to grips with the fundamentals of Unity game development, you'll start creating a 2D collection game and an adventure game, followed by a 3D first person shooter game. Next, you'll explore advanced topics, such as using machine learning to create AI-based enemy behavior, virtual reality for extending the first-person game, and augmented reality for developing a farming simulation game in a real-world setting. The book will help you gain hands-on knowledge of these topics as you build projects using the latest game tool kits. You'll also learn how to commercialize your game by publishing it to a distribution platform and maintain and support it throughout its lifespan. As you progress, you'll gain real-world knowledge and experience by taking your games from conceptual design to completion. By the end of this Unity book, you'll have strong foundational knowledge of how to structure a Unity project that is both maintainable and extensible for commercially released games. What you will learn Build game environments and design levels, and implement game mechanics using Unity's features Explore 3D game creation, focusing on gameplay mechanics and player animation Develop customizable game systems using object-oriented architecture Build an MR experience using the XR Interaction Toolkit while learning how to merge virtual and real-world elements Get up to speed with advanced AI interactions using sensors and Unity's machine learning toolkit, ML-Agents Implement dynamic content in games using Unity LiveOps services like Remote Config Who this book is for If you find yourself struggling with completing game projects in Unity and want to follow best practices while maintaining a good coding structure, then this book is for you. This book is also for aspiring game developers and hobbyists with some experience in developing games, who want to design basic playable and commercial games in Unity with a core loop, player verbs, simple mechanics, and win/lose conditions. Experience with the Unity Editor interface and implementing functionality by creating C# scripts is required to get the most out of this book. Newly Edited and Updated

Version (Fourth Edition) for Unity 2019. Get started with Unity and game programming fast without the headaches Unity is a great software to create video games; however, it includes so many options and features that getting started can feel overwhelming. Without my book, most people spend too long trying to learn how to use Unity the hard way. This book is the only one that will get you to learn Unity fast without wasting so much time. This book is the first book in the series "Unity from Zero to Proficiency" where you will learn to code fast and be able to create your own video games with Unity in no time. What you will learn - After completing this book, you will be able to: - Know and master the features that you need to create 2D and 3D environments for your games. - Quickly create (and navigate through) realistic 3D indoors and outdoors environments. - Create a 3D Maze with lights, walls, and textures. - Use ProBuilder to create a house. - Create an island with trees, sandy beaches, mountains, and water. - Include and control a car and a plane. - Create a 2D platform game (with no scripting needed). - Export your games to the web. Who this book is for This book is for: - Hobbyists who need a book that gets them started with Unity and game development easily. - Parents looking for a book that introduces their children to game programming painlessly. - Teachers looking for a complete and clear resource on programming through the creation of games. - Aspiring indie game developers. How this book is different This is the only book that you need to get started with Unity fast and to enjoy the journey without the frustration. This book includes six chapters that painlessly guide you through the necessary skills to master Unity's interface, use its core features, and create and navigate through realistic 2D and 3D environments. It assumes no prior knowledge on your part and ensures that you have all the information and explanations that you need every step of the way. What this book offers This book includes all the features that you need to get started with Unity and game development: Learn without the headaches: This book assumes that you can't be expected to learn everything at once; this is why you will build all your skills incrementally. In addition, if you are more of a visual learner, you will gain access to a FREE video training that covers all the topics and features introduced in the book so that you can see how it is done. Make your dream of creating your own games come true: This book ensures that you stay motivated by giving you the right amount of information and challenge in each chapter; we all know that it's hard to keep motivated when learning a new skill, so this book always contextualizes the knowledge with an example (so that you feel it's relevant), and also makes sure that you get to challenge yourself, if you need to, with optional challenges present at the end of each chapter. Progress and feel confident in your skills: You will have the opportunity to learn and to use Unity at your own pace and to become comfortable with its interface. This is because every single new concept introduced will be explained in great detail so that you never feel lost. All the concepts are introduced progressively so that you don't feel overwhelmed. Create your own games and feel awesome: With this book, you will build your own 2D and 3D environments and you will spend more time creating than reading, to ensure that you can apply the concepts covered in each section. All chapters include step-by-step instructions with examples that you can use straight-away. If you want to get started with Unity today, then buy this book now. Mastering Unity Scripting is an advanced book intended for students, educators, and professionals familiar with the Unity basics as well as the basics of scripting. Whether you've been using Unity for a short time or are an experienced user, this book has something important and valuable to offer to help you improve your game development workflow. Whether you are new to C# or a seasoned developer just starting with Unity, you may find it difficult to use C# in Unity because: - You are new to C#. - You already have some coding experience in C# but you may find that many concepts in Unity (e.g., components) are different from working in straight C# code. - You have started coding in C# but you would like more examples specific to C# with Unity, including advanced features. The thing is, regardless of the game that you want to create with Unity, if you want to harness the power of this game engine you will need to understand C#. Use this in-depth Resource to Truly Master C# and Unity You may be able to "slap" some code together to get the job done, but you may wish you could understand the code in more depth and be able to come-up with your own code that scales-up painlessly; and this makes sense because if you truly want to create code that is efficient, scalable, and that leverages all the features available in Unity, you will probably need to learn C# in more depth, but also to understand how it can be combined to Unity's built-in libraries properly. There are plenty of resources out there; however very few explain C# in the context of Unity; and although they may provide code solutions, they may not give in-depth explanations on the C# concepts and the design ideas behind the code, or explain how the code can be optimized, so that you can avoid issues linked to memory or maintainability down the line. This is the reason why I have created this book. The idea behind its design is to provide a resource for different types of readers (i.e., beginner, intermediate or advanced programmers), to explain C# concepts in-depth, in the context of Unity, and to provide practical information and step-by-step instructions. This book was created to answer frequently-asked questions about C# programming for Unity. It includes over 300 pages of step-by-step instructions to help you become more proficient in C# for Unity. After reading this book, you should be able to (1) Understand C# and Object-Oriented Programming in-depth, (2) apply these concepts in Unity and implement common game mechanics through the built-in classes available in Unity, and (3) optimize your code so that it is easy to maintain. Find the Solution to your Problems in this 300-page Guide After using this book you will be able to solve your C# headaches. Each chapter can be read independently so that you can find and apply the solutions to a specific problem immediately. - Chapter 1 explains C# concepts in depth so that you can become proficient in C# programming and Object-Oriented concepts (e.g., inheritance, constructors, polymorphism, overloading, overriding, etc.) - Chapter 2 shows you how to code and debug C# scripts along with some best practices that will keep your code clean and bug-free. - Chapter 3 explains key concepts in linear algebra so that you can understand and use vectors in Unity (e.g., dot products for vision). - Chapter 4 acts as a cook book where you will find sections that explain how key (and frequently used) methods and C# classes can be employed to improve your gameplay, and you can go directly to the section that you need for your game (e.g., audio, detection, user-inputs, reading files, etc) and find both explanations and code examples that you can use immediately. - Chapter 5 shows you how to optimize your code and to structure it so that it is easier to maintain using component-based programming, design patterns and useful structures such as delegates or coroutines. - Chapter 6 answers Frequently Asked Questions (FAQs) related to C#. If you want to solve your C# programming headaches and to really understand how C# and Unity work together effectively, download this book now. The ideal Unity book for programmers ready to dive into advanced 3D gaming As a dynamic, graphically rich 3D game engine, Unity3D stands out from its competitors by working on nearly every desktop and mobile platform. This book is the first to offer professional-level programming of Unity using C#. You begin with learning how to install Unity3D and gradually move on to more advanced coding topics in C#. Each object is introduced, applied to the code, demonstrated through examples, and added to an example game that is built upon throughout the book. By the end of the book, you will be encouraged to create a game and upload it to a site where other users can view and comment, cultivating the learning process through dialog and interaction. Explains how to maximize advanced capabilities of Unity3D for programming games Highlights techniques for creating shaders, which manipulate the way graphics are rendered by the game engine Extends the reach of the book by discussing how Unity3D is an ideal way to break into the social web market Demystifies Unity3D co-routines and the yield statement in a clear and concise manner Whether you use this book as a tutorial or reference manual for working with Unity3D and C#, you will most certainly find it to be invaluable. Learn C# programming from scratch using Unity as a fun and accessible entry point with this updated edition of the bestselling series. Includes invitation to join the online Unity Game Development community to read the book alongside peers, Unity developers/C# programmers and Harrison Ferrone. Purchase of the print or Kindle book includes a free eBook in the PDF format. Key Features Learn C# programming basics, terminology, and coding best practices Become confident with Unity fundamentals and features in line with Unity 2021 Apply your C# knowledge in practice and build a working first-person shooter game prototype in Unity Book Description The Learning C# by Developing Games with Unity series has established itself as a popular choice for getting up to speed with C#, a powerful and versatile programming language with a wide array of applications in various domains. This bestselling franchise presents a clear path for learning C# programming from the ground up through the world of Unity game development. This sixth edition has been updated to introduce modern C# features with Unity 2021. A new chapter has also been added that covers reading and writing binary data from files, which will help you become proficient in handling errors and asynchronous operations. The book acquaints you with the core concepts of programming in C#, including variables, classes, and object-oriented programming. You will explore the fundamentals of Unity game development, including game design, lighting basics, player movement, camera controls, and collisions. You will write C# scripts for simple game mechanics, perform procedural programming, and add complexity to your games by introducing smart enemies and damage-causing projectiles. By the end of the book, you will have developed the skills to become proficient in C# programming and built a playable game prototype with the Unity game engine. What you will learn Follow simple steps and examples to create and implement C# scripts in Unity Develop a 3D mindset to build games that come to life Create basic game mechanics such as player controllers and shooting projectiles using C# Divide your code into pluggable building blocks using interfaces, abstract classes, and class extensions Become familiar with stacks, queues, exceptions, error handling, and other core C# concepts Learn how to handle text, XML, and JSON data to save and load your game data Explore the basics of AI for games and implement them to control enemy behavior Who this book is for If you're a developer, programmer, hobbyist, or anyone who wants to get started with Unity and C# programming in a fun and engaging manner, this book is for you. You'll still be able to follow along if you don't have programming experience, but knowing the basics will help you get the most out of this book. This book is devoted to the study of engineering and control technologies for the cyber-physical systems development. This book defines the approaches in the engineering leverage the exploitation of artificial intelligence and most urgent computing methods. The authors study the activities allows for the developing new and perspective concepts of robotics systems combining various machine learning methods, uncertainty explanation approaches, computer vision and unmanned aerial systems control technologies including artificial neural networks and simulation modeling by addressing a large scale of applications. The book also describes new materials engineering as well as implementation of these technologies in the different domains such as polymeric film production, polymer composition, and roller squeezing of leather, in order to realize the novel cyber-physical systems, their functionalities, and features. The authors describe the development of method for increasing the software efficiency, considering the increasing complexity of the computing systems and the importance of ensuring accuracy and velocity of modelling. The book also analyses algorithms for fuzzy models and systems, including the cyber-physical real-time systems, and non-stationary object with discrete time. The authors highlight the problem of ensuring the quality on engineering technologies for cyber-physical systems as the most important and consider different approaches to its solution. The Unity Engine Tutorial for Any Game Creator Unity is now the world's #1 game engine, thanks to its affordability, continuous improvements, and amazing global community. With Unity, you can design, code, and author your game once, and then deploy it to multiple platforms, reaching huge audiences and earning maximum returns. Learning 2D Game Development with Unity® will help you master Unity and build powerful skills for success in today's game industry. It also includes a bonus rundown of the new GUI tools introduced in Unity's version 4.6 beta. With this indispensable guide, you'll gain a solid, practical understanding of the Unity engine as you build a complete, 2D platform-style game, hands-on. The step-by-step project will get you started fast, whether you're moving to Unity from other engines or are new to game development. This tutorial covers the entire development process, from initial concept, plans, and designs to the final steps of building and deploying your game. It illuminates Unity's newly integrated 2D toolset, covering sprites, 2D physics, game scripts, audio, and animations. Throughout, it focuses on the simplest and lowest-cost approaches to game development, relying on free software and assets. Everything you'll need is provided. Register your book at informit.com/title/9780321957726 to access assets, code listings, and video tutorials on the companion website. Learn How To Set up your Unity development environment and navigate its tools Create and import assets and packages you can add to your game Set up game sprites and create atlas sheets using the new Unity 2D tools Animate sprites using keyframes, animation controllers, and scripting Build a 2D game world from beginning to end Establish player control Construct movements that "feel right" Set up player physics and colliders Create and apply classic gameplay systems Implement hazards and tune difficulty Apply audio and particle effects to the game Create intuitive game menus and interface elements Debug code and provide smooth error handling Organize game resources and optimize game performance Publish your game to the web for others to see and play Build a tower defense game and earn delectable C# treats by baking cupcakes and fighting fearsome sweet-toothed pandas About This Book Build a complete and exciting 2D Tower Defense game from scratch. Understand and learn to perform each phase of the game development pipeline Homework and exercises to improve your skills and take them to the next level Who This Book Is For If you are looking forward to get started with 2D game development, either if you are a newcomer to this world, or you came from 3D games or other game engines, this book is for you. Although there are many references to other resources throughout the book, it is assumed that you have a general understanding of C# and its syntax and structure. What You Will Learn Import and set up assets for 2D game development Design and implement dynamic and responsive User Interfaces Create and handle complex animation systems Unlock all the potential of the physics engine Implement Artificial Intelligence algorithms to give intelligence to your NPCs Script gameplay and overall bring your ideas to life In Detail Want to get started in the world of 2D game development with Unity? This book will take your hand and guide you through this amazing journey to let you know exactly what you need to build the games you want to build, without sacrificing quality. You will build a solid understanding of Unity 5.x, by focusing with the embedded tools to develop 2D games. In learning about these, along with accurate explanations and practical examples, you will design, develop, learn how to market and publish a delectable Tower Defense game about cupcakes versus pandas. Each chapter in this book is structured to give you a full understanding on a specific aspect of the workflow pipeline. Each of these aspects are essential for developing games in Unity. In a step-by-step approach, you will learn about each of the following phases: Game Design, Asset Importing, Scripting, User Interfaces, Animations, Physics, Artificial Intelligence, Gameplay Programming, Polishing and Improving, Marketing, Publishing and much more. This book provides you with exercises and homework at the end of each chapter so that you can level up your skills as a Unity game developer. In addition, each of these parts are centered on a common point of discussion with other learners just like you. Therefore, by sharing your ideas with other people you will not only develop your skills but you will also build a network. Style and approach This is a fun step-by-step approach in the whole pipeline of 2D game development in Unity, which is explained in a conversational and easy-to-follow style. Each topic is explained sequentially, allowing you to experience both basics and advanced features of Unity. By doing this, the book is able to provide you with a solid grasp on each of the topics. In this way, by engaging with the book's content, exploring the additional references to further readings and completing the homework sections, you are able to challenge yourself and apply what you know in a variety of ways. Once you have finished reading this book, you will be well on your way to developing games from start to finish! Looking to become more efficient using Unity? How to Cheat in Unity 5 takes a no-nonsense approach to help you achieve fast and effective results with Unity 5. Geared towards the intermediate user, HTC in Unity 5 provides content beyond what an introductory book offers, and allows you to work more quickly and powerfully in Unity. Packed full with easy-to-follow methods to get the most from Unity, this book explores time-saving features for interface customization and scene management, along with productivity-enhancing ways to work with rendering and optimization. In addition, this book features a companion website at www.alanthorn.net, where you can download the book's companion files and also watch bonus tutorial video content. Learn bite-sized tips and tricks for effective Unity workflows Become a more powerful Unity user through interface customization Enhance your productivity with rendering tricks, better scene organization and more Better understand Unity asset and import workflows Learn techniques to save you time and money during development Build fully functional, professional 3D games with realistic environments, sound, dynamic effects, and more! The art of programming mechanics -- Real world mechanics -- Animation mechanics -- Game rules and mechanics -- Character mechanics -- Player mechanics -- Environmental mechanics -- Mechanics for external forces. A practical guide to Unity game scripting using C#, backed with practice tests, exam tips, and easy-to-follow examples to help you better prepare for the exam and become a pro in Unity programming Key Features Discover the essentials of game scripting with Unity and C# to customize every aspect of your game Overcome challenges in Unity game development using effective techniques and easy solutions Pass the Unity certification exam with the help of mock tests, exam tips, and self-assessment questions Book Description Unity Certified Programmer is a global certification program by Unity for anyone looking to become a professional Unity developer. The official Unity programmer exam will not only validate your Unity knowledge and skills, but also enable you to be part of the Unity community. This study guide will start by building on your understanding of C# programming and take you through the process of downloading and installing Unity. You'll understand how Unity works and get to grips with the core objectives of the Unity exam. As you advance, you'll enhance your skills by creating an enjoyable side-scrolling shooter game that can be played within the Unity Editor or any recent Android mobile device. This Unity book will test your knowledge with self-assessment questions and help you take your skills to an advanced level by working with Unity tools such as the Animator, Particle Effects, Lighting, UI/UX, Scriptable Objects, and debugging. By the end of this book, you'll have developed a solid understanding of

the different tools in Unity and understand how to create impressive Unity applications by making the most of its toolset. What you will learn Discover techniques for writing modular, readable, and reusable scripts in Unity Implement and configure objects, physics, controls, and movements for your game projects Understand 2D and 3D animation and write scripts that interact with Unity's Rendering API Explore Unity APIs for adding lighting, materials, and texture to your apps Write Unity scripts for building interfaces for menu systems, UI navigation, application settings, and much more Delve into SOLID principles for writing clean and maintainable Unity applications Who this book is for The book is for game developers, software developers, mobile app developers, and Unity developers who want to advance in the game or related industry. Basic knowledge of C# programming and Unity engine is required. Over 60 recipes to help you create professional and exquisite UIs to make your games more immersive About This Book Design and develop interactive and professional user interfaces (UIs) for games in Unity Discover how to implement and deal with various in-game UI elements that will impress your players This practical recipe guide will help you to efficiently create powerful and remarkable UIs using C# code Who This Book Is For If you are a game developer with some experience in Unity and C# and want to create the best interactive experience fast and intuitively, then this book is for you. If you are an intermediate game developer or an expert, these recipes will help you bring out the power of the new UI Unity system. What You Will Learn Implement different kinds of counters and healthbars Deal with timers and find out how to format them Animate and vivify UI elements Handle runtime customizations Add complex Head-up displays (HUDs) Design and implement 3D UIs Integrate minimaps in the UI In Detail With the increasing interest in game development, it's essential to design and implement a UI that reflects the game settings and shows the right information to the player. The Unity system is used to create complex and aesthetically pleasing user interfaces in order to give a professional look and feel to a game. Although the new Unity UI system is powerful and quite easy to use, by integrating it with C# scripts, it's possible to realize the potential of this system and bring an impressive UI to games. This guide is an invaluable collection of recipes if you are planning to use Unity to develop a game. Starting with the basic concepts of the UI components, we'll take you all the way through to creating complex interfaces by including animations and dynamics elements. Based on real-world problems, these recipes will start by showing you how to make common UI elements such as counters and healthbars. You will then get a walkthrough of how to manage time using timers, and will learn how to format them. You will move on to decorating and animating the UI elements to vivify them and give them a professional touch. Furthermore, you will be guided into the 3D UI world and into HUD scripting. Finally, you will discover how to implement complex minimaps in the interface. Style and approach Interactive, easy-to-follow recipes will help you create and implement UIs that make gaming an exhilarating experience. Summary Manning's bestselling and highly recommended Unity book has been fully revised! Unity in Action, Second Edition teaches you to write and deploy games with the Unity game development platform. You'll master the Unity toolset from the ground up, adding the skills you need to go from application coder to game developer. Foreword by Jesse Schell, author of The Art of Game Design Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Build your next game without sweating the low-level details. The Unity game development platform handles the heavy lifting, so you can focus on game play, graphics, and user experience. With support for C# programming, a huge ecosystem of production-quality prebuilt assets, and a strong dev community, Unity can get your next great game idea off the drawing board and onto the screen! About the Book Unity in Action, Second Edition teaches you to write and deploy games with Unity. As you explore the many interesting examples, you'll get hands-on practice with Unity's intuitive workflow tools and state-of-the-art rendering engine. This practical guide exposes every aspect of the game dev process, from the initial groundwork to creating custom AI scripts and building easy-to-read UIs. And because you asked for it, this totally revised Second Edition includes a new chapter on building 2D platformers with Unity's expanded 2D toolkit. What's Inside Revised for new best practices, updates, and more! 2D and 3D games Characters that run, jump, and bump into things Connect your games to the internet About the Reader You need to know C# or a similar language. No game development knowledge is assumed. About the Author Joe Hocking is a software engineer and Unity expert specializing in interactive media development. Table of Contents PART 1 - First steps Getting to know Unity Building a demo that puts you in 3D space Adding enemies and projectiles to the 3D game Developing graphics for your game PART 2 - Getting comfortable Building a Memory game using Unity's 2D functionality Creating a basic 2D Platformer Putting a GUI onto a game Creating a third-person 3D game: player movement and animation Adding interactive devices and items within the game PART 3 - Strong finish Connecting your game to the internet Playing audio: sound effects and music Putting the parts together into a complete game Deploying your game to players' devices Explore the world of augmented reality development with the latest features of Unity and step-by-step tutorial-style examples with easy-to-understand explanations Key Features Build functional and interactive augmented reality applications using the Unity 3D game engine Learn to use Unity's XR and AR components, including AR Foundation and other standard Unity features Implement common AR application user experiences needed to build engaging applications Book Description Augmented reality applications allow people to interact meaningfully with the real world through digitally enhanced content. The book starts by helping you set up for AR development, installing the Unity 3D game engine, required packages, and other tools to develop for Android (ARCore) and/or iOS (ARKit) mobile devices. Then we jump right into the building and running AR scenes, learning about AR Foundation components, other Unity features, C# coding, troubleshooting, and testing. We create a framework for building AR applications that manages user interaction modes, user interface panels, and AR onboarding graphics that you will save as a template for reuse in other projects in this book. Using this framework, you will build multiple projects, starting with a virtual photo gallery that lets you place your favorite framed photos on your real-world walls, and interactively edit these virtual objects. Other projects include an educational image tracking app for exploring the solar system, and a fun selfie app to put masks and accessories on your face. The book provides practical advice and best practices that will have you up and running quickly. By the end of this AR book, you will be able to build your own AR applications, engaging your users in new and innovative ways. What you will learn Discover Unity engine features for building AR applications and games Get up to speed with Unity AR Foundation components and the Unity API Build a variety of AR projects using best practices and important AR user experiences Understand the core concepts of augmented reality technology and development for real-world projects Set up your system for AR development and learn to improve your development workflow Create an AR user framework with interaction modes and UI, saved as a template for new projects Who this book is for This augmented reality book is for game developers interested in adding AR capabilities to their games and apps. The book assumes beginner-level knowledge of Unity development and C# programming, familiarity with 3D graphics, and experience in using existing AR applications. Beginner-level experience in developing mobile applications will be helpful to get the most out of this AR Unity book. Key Features Understand C# programming basics, terminology, and coding best practices Put your knowledge of C# concepts into practice by building a fun and playable game Come away with a clear direction for taking your C# programming and Unity game development skills to the next level Book Description Over the years, the Learning C# by Developing Games with Unity series has established itself as a popular choice for getting up to speed with C#, a powerful and versatile programming language that can be applied in a wide array of application areas. This book presents a clear path for learning C# programming from the ground up without complex jargon or unclear programming logic, all while building a simple game with Unity. This fifth edition has been updated to introduce modern C# features with the latest version of the Unity game engine, and a new chapter has been added on intermediate collection types. Starting with the basics of software programming and the C# language, you'll learn the core concepts of programming in C#, including variables, classes, and object-oriented programming. Once you've got to grips with C# programming, you'll enter the world of Unity game development and discover how you can create C# scripts for simple game mechanics. Throughout the book, you'll gain hands-on experience with programming best practices to help you take your Unity and C# skills to the next level. By the end of this book, you'll be able to leverage the C# language to build your own real-world Unity game development projects. What you will learn Discover easy-to-follow steps and examples for learning C# programming fundamentals Get to grips with creating and implementing scripts in Unity Create basic game mechanics such as player controllers and shooting projectiles using C# Understand the concepts of interfaces and abstract classes Leverage the power of the latest C# features to solve complex programming problems Become familiar with stacks, queues, exceptions, error handling, and other core C# concepts Explore the basics of artificial intelligence (AI) for games and implement them to control enemy behavior Who this book is for If you're a developer, programmer, hobbyist, or anyone who wants to get started with C# programming in a fun and engaging manner, this book is for you. Prior experience in programming or Unity is not required. This second edition of C# Game Programming Cookbook for Unity 3D expounds upon the first with more details and techniques. With a fresh array of chapters, updated C# code and examples, Jeff W. Murray's book will help the reader understand structured game development in Unity unlike ever before. New to this edition is a step-by-step tutorial for building a 2D infinite runner game from the framework and scripts included in the book. The book contains a flexible and reusable framework in C# suitable for all game types. From game state handling to audio mixers to asynchronous scene loading, the focus of this book is building a reusable structure to take care of many of the most used systems. Improve your game's sound in a dedicated audio chapter covering topics such as audio mixers, fading, and audio ducking effects, or dissect a fully featured racing game with car physics, lap counting, artificial intelligence steering behaviors, and game management. Use this book to guide your way through all the required code and framework to build a multi-level arena blaster game. Features Focuses on programming, structure, and an industry-level, C#-based framework Extensive breakdowns of all the important classes Example projects illustrate and break down common and important Unity C# programming concepts, such as coroutines, singletons, static variables, inheritance, and scriptable objects. Three fully playable example games with source code: a 2D infinite runner, an arena blaster, and an isometric racing game The script library includes a base Game Manager, timed and proximity spawning, save profile manager, weapons control, artificial intelligence controllers (path following, target chasing and line-of-sight patrolling behaviors), user interface Canvas management and fading, car physics controllers, and more. Code and screenshots have been updated with the latest versions of Unity. These updates will help illustrate how to create 2D games and 3D games based on the most up-to-date methods and techniques. Experienced C# programmers will discover ways to structure Unity projects for reusability and scalability. The concepts offered within the book are instrumental to mastering C# and Unity. In his game career spanning more than 20 years, Jeff W. Murray has worked with some of the world's largest brands as a Game Designer, Programmer, and Director. A Unity user for over 14 years, he now works as a consultant and freelancer between developing his own VR games and experiments with Unity. Master performance optimization for Unity3D applications with tips and techniques that cover every aspect of the Unity3D Engine About This Book Optimize CPU cycles, memory usage, and GPU throughput for any Unity3D application Master optimization techniques across all Unity Engine features including Scripting, Asset Management, Physics, Graphics Features, and Shaders A practical guide to exploring Unity Engine's many performance-enhancing methods Who This Book Is For This book is intended for intermediate and advanced Unity developers who have experience with most of Unity's feature-set, and who want to maximize the performance of their game. Familiarity with the C# language will be needed. What You Will Learn Use the Unity Profiler to find bottlenecks anywhere in our application, and discover how to resolve them Implement best-practices for C# scripting to avoid common pitfalls Develop a solid understanding of the rendering pipeline, and maximize its performance through reducing draw calls and avoiding fill rate bottlenecks Enhance shaders in a way that is accessible to most developers, optimizing them through subtle yet effective performance tweaks Keep our scenes as dynamic as possible by making the most of the Physics engine Organize, filter, and compress our art assets to maximize performance while maintaining high quality Pull back the veil on the Mono Framework and the C# Language to implement low-level enhancements that maximize memory usage and avoid garbage collection Get to know the best practices for project organization to save time through an improved workflow In Detail Competition within the gaming industry has become significantly fiercer in recent years with the adoption of game development frameworks such as Unity3D. Through its massive feature-set and ease-of-use, Unity helps put some of the best processing and rendering technology in the hands of hobbyists and professionals alike. This has led to an enormous explosion of talent, which has made it critical to ensure our games stand out from the crowd through a high level of quality. A good user experience is essential to create a solid product that our users will enjoy for many years to come. Nothing turns gamers away from a game faster than a poor user-experience. Input latency, slow rendering, broken physics, stutters, freezes, and crashes are among a gamer's worst nightmares and it's up to us as game developers to ensure this never happens. High performance does not need to be limited to games with the biggest teams and budgets. Initially, you will explore the major features of the Unity3D Engine from top to bottom, investigating a multitude of ways we can improve application performance starting with the detection and analysis of bottlenecks. You'll then gain an understanding of possible solutions and how to implement them. You will then learn everything you need to know about where performance bottlenecks can be found, why they happen, and how to work around them. This book gathers a massive wealth of knowledge together in one place, saving many hours of research and can be used as a quick reference to solve specific issues that arise during product development. Style and approach This book is organized based on the major features of Unity engine and should be treated as a reference guide. It is written as a series of investigations into both common and unusual performance pitfalls, each including a study on why the bottleneck is causing us problems, and a list of enhancements or features that can be used to work around them. Differences in effectiveness, behaviors, or feature-sets between Unity 4.x and Unity 5.x will be highlighted. If you have C# knowledge but now want to become truly confident in creating fully functional 2D RPG games with Unity, then this book will show you everything you need to know. Unity in Action, Third Edition teaches you to create games with the Unity game platform. It's many 2D, 3D, and AR/VR game examples give you hands-on experience with Unity's workflow tools and state-of-the-art rendering engine. This fully updated third edition presents new coverage of Unity's XR toolkit and shows you how you can start building with virtual and augmented reality. Master Game UI system by creating captivating user interface components with Unity 5 through Unity 2018 and C#. Learn about UI texts, images, world space UI, mobile-specific UI and much more. Key Features Develop a game UI with both technical and aesthetic considerations Use all the UI elements provided by Unity's UI system Step-by-step examples of creating user interface components in the top game genres Book Description A functional UI is an important component for player interaction in every type of video game. Along with imparting crucial statistical information to the player, the UI is also the window through which the player engages with the world established by the game. Unity's tools give you the opportunity to create complex and attractive UIs to make your game stand out. This book helps you realize the full potential of Unity's powerful tools to create the best UI for your games by walking you through the creation of myriad user interface components. Learn how to create visually engaging heads-up-displays, pause menus, health bars, circular progress bars, animated menus, and more. This book not only teaches how to lay out visual elements, but also how to program these features and implement them across multiple games of varying genres. While working through the examples provided, you will learn how to develop a UI that scales to multiple screen resolutions, so your game can be released on multiple platforms with minimal changes. What you will learn Design principles and patterns for laying out elements in your UI Techniques that allow your UI to scale appropriately in different resolutions How to use automatic layouts to streamline your UI building process Properties of the Event System and how to appropriately hook events to your UI elements Access the components and properties of UI elements via code Implement all of Unity's built-in UI elements as well as those provided by TextMeshPro Develop key UI components that are popularly used in multiple game genres Add visual flare to user interfaces with the use of animation and particle effects Create a UI that displays in the Screen Space as well as World Space Who this book is for This book is for anyone keen to improve their games via a great user interface with Unity's UI system. If you're looking for a book that explains how to develop specific user interfaces or that thoroughly explains how each of the individual Unity components work, this book is for you. Learn Unity Programming with UnityScript is your step-by-step guide to learning to make your first Unity games using UnityScript. You will move from point-and-click components to fully customized features. You need no prior programming knowledge or any experience with other design tools such as PhotoShop or Illustrator - you can start from scratch making Unity games with what you'll learn in this book. Through hands-on examples of common game patterns, you'll learn and apply the basics of game logic and design. You will gradually become comfortable with UnityScript syntax, at each point having everything explained to you clearly and concisely. Many beginner programming books refer to documentation that is too technically abstract for a beginner to use - Learn Unity Programming with UnityScript will teach you how to read and utilize those resources to hone your skills, and rapidly increase your knowledge in Unity game development. You'll learn about animation, sound, physics, how to handle user interaction and so much more. Janine Suvak has won awards for her game development and is ready to show you how to start your journey as a game developer. The Unity3D game engine is flexible, cross-platform, and a great place to start your game development adventure, and UnityScript was made for it - so get started game programming with this book today. Achieve mesmerizing game experiences using the latest Unity 2021 features by following a practical approach to building professional games Key Features Unleash the

capabilities of C# scripting to create UIs, graphics, game AI agents and more. Explore Unity's latest tools, including Universal Render Pipeline, Shader Graph, UI Toolkit, Visual Scripting, and VFX graph, to enhance graphics and animation. Build an AR experience using Unity's AR Foundation. Book Description Learning how to use Unity is the quickest way to creating a full game, but that's not all you can do with this simple, yet comprehensive suite of video game development tools – Unity is just as useful for creating AR/VR experiences, complex simulations, real-time realistic rendering, films, and practical games for training and education. Hands-On Unity 2021 Game Development outlines a practical journey to creating your first full game from the ground up, building it step-by-step and applying your knowledge as you progress. Complete with hands-on tutorials and projects, this easy-to-follow guide will teach you how to develop the game using several Unity tools. As you advance, you will learn how to use the Unity engine, create simple scripts using C#, integrate graphics, sound, and animations, and manipulate physics to create interesting mechanics for your game. You'll be able to apply all the knowledge that you gain to a real-world game. Later chapters will show you how to code a simple AI agent to challenge the user and use profiling tools to ensure that the code runs efficiently. Finally, you'll work with Unity's AR tools to create AR experiences for 3D apps and games. By the end of this Unity book, you will have created a complete game and built a solid foundation in using a wide variety of Unity tools. What you will learn. Explore both C# and Visual Scripting tools to customize various aspects of a game, such as physics, gameplay, and the UI. Program rich shaders and effects using Unity's new Shader Graph and Universal Render Pipeline. Implement postprocessing to improve graphics quality with full-screen effects. Create rich particle systems for your Unity games from scratch using VFX Graph and Shuriken. Add animations to your game using the Animator, Cinemachine, and Timeline. Use the brand new UI Toolkit package to create user interfaces. Implement game AI to control character behavior. Who this book is for This book is best suited for game developers looking to upgrade their knowledge and those who want to migrate their existing skills to the Unity game engine. Those with prior Unity knowledge will also benefit from the chapters exploring the latest features. While you'll still be able to follow along if you don't have any programming experience, knowing the fundamentals of C# programming will help you get the most out of this book. Hailed as a "must-have textbook" (CHOICE, January 2010), the first edition of Game Engine Architecture provided readers with a complete guide to the theory and practice of game engine software development. Updating the content to match today's landscape of game engine architecture, this second edition continues to thoroughly cover the major components that make up a typical commercial game engine. New to the Second Edition Information on new topics, including the latest variant of the C++ programming language, C++11, and the architecture of the eighth generation of gaming consoles, the Xbox One and PlayStation 4. New chapter on audio technology covering the fundamentals of the physics, mathematics, and technology that go into creating an AAA game audio engine. Updated sections on multicore programming, pipelined CPU architecture and optimization, localization, pseudovectors and Grassman algebra, dual quaternions, SIMD vector math, memory alignment, and anti-aliasing. Insight into the making of Naughty Dog's latest hit, The Last of Us. The book presents the theory underlying various subsystems that comprise a commercial game engine as well as the data structures, algorithms, and software interfaces that are typically used to implement them. It primarily focuses on the engine itself, including a host of low-level foundation systems, the rendering engine, the collision system, the physics simulation, character animation, and audio. An in-depth discussion on the "gameplay foundation layer" delves into the game's object model, world editor, event system, and scripting system. The text also touches on some aspects of gameplay programming, including player mechanics, cameras, and AI. An awareness-building tool and a jumping-off point for further learning, Game Engine Architecture, Second Edition gives readers a solid understanding of both the theory and common practices employed within each of the engineering disciplines covered. The book will help readers on their journey through this fascinating and multifaceted field. Unity is an incredibly powerful and popular game creation tool, and Unity 4 brings even more great features, including Mechanim animation. Learn Unity 4 for iOS Game Development will show you how to use Unity with Xcode to create fun, imaginative 3D games for iPhone, iPad, and iPod touch. You'll learn how to optimize your game for both speed and quality, how to test and profile your game, and how to get the most out of your iOS device features, including the gyroscope and accelerometer. You'll also learn how to incorporate the latest Game Center improvements in iOS 6 into your game, how to make sure your game gets into the App Store, and even how to promote your app and track revenue. If you have a great 3D game idea, and you want to make it a reality in the App Store, then Learn Unity 4 for iOS Game Development has exactly what you need. Learn Unity game development with C# through a series of practical projects ranging from building a simple 2D game to adding AR/VR experiences and machine learning capabilities in a simple yet effective way. Key Features. Gain a high-level overview of the Unity game engine while building your own games portfolio. Discover best practices for implementing game animation, game physics, shaders, and effects. Create fully featured apps, including Space shooter and a 2D adventure game, and develop AR/VR experiences and Game AI agents. Book Description The Unity game engine, used by millions of developers around the world, is popular thanks to its features that enable you to create games and 3D apps for desktop and mobile platforms in no time. With Unity 2020, this state-of-the-art game engine introduces enhancements in Unity tooling, editor, and workflow, among many other additions. The third edition of this Unity book is updated to the new features in Unity 2020 and modern game development practices. Once you've quickly got to grips with the fundamentals of Unity game development, you'll create a collection, a twin-stick shooter, and a 2D adventure game. You'll then explore advanced topics such as machine learning, virtual reality, and augmented reality by building complete projects using the latest game tool kit. As you implement concepts in practice, this book will ensure that you come away with a clear understanding of Unity game development. By the end of the book, you'll have a firm foundation in Unity development using C#, which can be applied to other engines and programming languages. You'll also be able to create several real-world projects to add to your professional game development portfolio. What you will learn. Learn the fundamentals of game development, including GameObjects, components, and scenes. Develop a variety of games in C# and explore the brand new sprite shaping tool for Unity 3D and 2D games. Handle player controls and input functionality for your Unity games. Implement AI techniques such as pathfinding, finite state machines, and machine learning using Unity ML-Agents. Create virtual and augmented reality games using Unity VR and AR Foundation. Explore the cutting-edge features of Unity 2020 and how they can be used to improve your games. Who this book is for If you are a game developer or programmer new to Unity and want to get up and running with the game engine in a hands-on way, this book is for you. Unity developers looking to work on practical projects to explore new features in Unity 2020 will find this book useful. A basic understanding of C# programming is required. If you don't know anything about programming in general, writing code, writing scripts, or have no idea where to even begin, then this book is perfect for you. If you want to make games and need to learn how to write C# scripts or code, then this book is ideal for you. Unity is a cross-platform development platform initially created for developing games but is now used for a wide range of things such as: architecture, art, children's apps, information management, education, entertainment, marketing, medical, military, physical installations, simulations, training, and many more. Unity takes a lot of the complexities of developing games and similar interactive experiences and looks after them behind the scenes so people can get on with designing and developing their games. These complexities include graphics rendering, world physics and compiling. More advanced users can interact and adapt them as needed but for beginners they need not worry about it. Games in Unity are developed in two halves; the first half - within the Unity editor, and the second half - using code, specifically C#. Unity is bundled with Mono. Developer Visual Studio 2015 Community for writing C#. Get up to speed with a series of performance-enhancing coding techniques and methods that will help you improve the performance of your Unity applications. Key Features. Optimize graphically intensive games using the latest features of Unity such as Entity Component System (ECS) and the Burst compiler. Explore techniques for solving performance issues with your VR projects. Learn best practices for project organization to save time through an improved workflow. Book Description Unity engine comes with a great set of features to help you build high-performance games. This Unity book is your guide to optimizing various aspects of your game development, from game characters and scripts, right through to animations. You'll explore techniques for writing better game scripts and learn how to optimize a game using Unity technologies such as ECS and the Burst compiler. The book will also help you manage third-party tooling used with the Unity ecosystem. You'll also focus on the problems in the performance of large games and virtual reality (VR) projects in Unity, gaining insights into detecting performance issues and performing root cause analysis. As you progress, you'll discover best practices for your Unity C# script code and get to grips with usage patterns. Later, you'll be able to optimize audio resources and texture files, along with effectively storing and using resource files. You'll then delve into the Rendering Pipeline and learn how to identify performance problems in the pipeline. In addition to this, you'll learn how to optimize the memory and processing unit of Unity. Finally, you'll cover tips and tricks used by Unity professionals to improve the project workflow. By the end of this book, you'll have developed the skills you need to build interactive games using Unity and its components. What you will learn. Apply the Unity Profiler to find bottlenecks in your app, and discover how to resolve them. Discover performance problems that are critical for VR projects and learn how to tackle them. Enhance shaders in an accessible way, optimizing them with subtle yet effective performance tweaks. Use the physics engine to keep scenes as dynamic as possible. Organize, filter, and compress art assets to maximize performance while maintaining high quality. Use the Mono framework and C# to implement low-level enhancements that maximize memory usage and prevent garbage collection. Who this book is for The book is intended for intermediate Unity game developers who want to maximize the performance of their game. The book assumes familiarity with C# programming. Explore every nook and cranny of Unity 5 to turn your imaginations into reality. About This Book* Demystify the C# programming language in Unity 5.x.* Unleash the power of Unity to create a wide variety of projects in numerous genres and formats.* Master the art of optimization for Unity 5.x applications with tips and techniques that will further enhance your game. Who This Book Is For Beginner level Unity developers who do not have much programming experience. What You Will Learn* Master the art of applying C# in Unity. Get to know about techniques to turn your game idea into working project.* Use loops and collections efficiently in Unity to reduce the amount of code.* Create and code a good-looking functional UI system for your game.* Find out how to create exciting and interactive games using GUIs.* Work with different animation assets and components to enhance your game further.* Personalize your game by learning how to use Unity's advanced animation system.* Create, visualize, and edit animated creatures to add to your already amazing game.* Familiarize yourself with the tools and practices of game development. Discover how to create the Game Manager class to, generate game levels, and develop UI for the game.* Use the Unity Profiler to find bottlenecks anywhere in your application, and discover how to resolve them.* Implement best practices for C# scripting to avoid common mistakes. In Detail Unity is a cross-platform game engine that is used to develop 2D and 3D video games. Unity 5 is the latest version, and adds a real-time global illumination to the games; and its powerful new features help to improve a game's efficiency. If you love games and want to learn how to make them but have no idea where to begin, then this course is built just for you. This learning path is divided into three modules which will take you in this incredible journey of creating games. The course begins with getting you started with programming behaviors in C# so that you can create 2D games in Unity. You will begin by installing Unity and learning about its features. You will learn how to perform object-oriented programming and discover how to manage the game play loop, generate game levels, and develop a simple UI for the game. By the time this module comes to a close, you will have mastered the art of applying C# in Unity. It is now time we put into use what we learned in the previous module into reality as we move onto the second module. Here, we will be building 7-8 action-packed games of different difficulty levels. Each project will focus on key Unity features as well as game strategy development. This module will mark your transformation from an application developer to a full-fledged Unity game developer. Who wouldn't love a game that is fully perfect, functional, and without any glitches? The third module deals with just that by teaching how to enhance your game by learning game optimization skills. Here, you'll gain an understanding of possible solutions to any problem and how to implement them. You will then learn everything you need to know about where performance bottlenecks can be found, why they happen, and how to work around them. With this massive wealth of knowledge, at the end of this learning path, you will be able to leverage an array of game development techniques to create your own basic games while resolving any issues that you encounter. Style and approach This learning path should be treated as the complete package necessary for building games. It is a step-by-step guide to develop a game from scratch by applying the fundamentals of C# and Unity scripting, with a reference guide in the end to solve all your gaming problems. This book uses the learning-by-example approach. It takes simple examples from games to introduce all the main concepts of programming in an easy-to-digest and immediately recognizable way. This book is for the total beginner to any type of programming, focusing on the writing of C# code and scripts only. There are many parts that make up the Unity game engine. It is assumed that the reader already knows their way around Unity's user interface. The code editor used in this book is the MonoDevelop editor supplied by Unity. Master a series of performance-enhancing coding techniques and methods that help them improve the performance of their Unity 3D applications. About This Book Discover features and techniques to optimize Unity Engine's CPU cycles, memory usage, and the GPU throughput of any application. Explore multiple techniques to solve performance issues with your VR projects. Learn the best practices for project organization to save time through an improved workflow. Who This Book Is For This book is intended for intermediate and advanced Unity developers who have experience with most of Unity's feature-set, and who want to maximize the performance of their game. Familiarity with the C# language will be needed. What You Will Learn Use the Unity Profiler to find bottlenecks anywhere in your application, and discover how to resolve them. Implement best practices for C# scripting to avoid common pitfalls. Develop a solid understanding of the rendering pipeline, and maximize its performance by reducing draw calls and avoiding fill rate bottlenecks. Enhance shaders in a way that is accessible to most developers, optimizing them through subtle yet effective performance tweaks. Keep your scenes as dynamic as possible by making the most of the Physics engine. Organize, filter, and compress your art assets to maximize performance while maintaining high quality. Discover different kinds of performance problems that are critical for VR projects and how to tackle them. Use the Mono Framework and C# to implement low-level enhancements that maximize memory usage and avoid garbage collection. Get to know the best practices for project organization to save time through an improved workflow. In Detail Unity is an awesome game development engine. Through its massive feature-set and ease-of-use, Unity helps put some of the best processing and rendering technology in the hands of hobbyists and professionals alike. This book shows you how to make your games fly with the recent version of Unity 2017, and demonstrates that high performance does not need to be limited to games with the biggest teams and budgets. Since nothing turns gamers away from a game faster than a poor user-experience, the book starts by explaining how to use the Unity Profiler to detect problems. You will learn how to use stopwatches, timers and logging methods to diagnose the problem. You will then explore techniques to improve performance through better programming practices. Moving on, you will then learn about Unity's built-in batching processes; when they can be used to improve performance, and their limitations. Next, you will import your art assets using minimal space, CPU and memory at runtime, and discover some underused features and approaches for managing asset data. You will also improve graphics, particle system and shader performance with a series of tips and tricks to make the most of GPU parallel processing. You will then delve into the fundamental layers of the Unity 3D engine to discuss some issues that may be difficult to understand without a strong knowledge of its inner-workings. The book also introduces you to the critical performance problems for VR projects and how to tackle them. By the end of the book, you will have learned to improve the development workflow by properly organizing assets and ways to instantiate assets as quickly and waste-free as possible via object pooling. Style and approach This practical book will help readers understand the essentials of the Unity 3D engine and how to build games while improving the performance of their applications. This hands-on beginners guide gets you building games fast, all with the awesome Unity engine! You'll speed past the basics and use your existing coding skills to create 2D, 3D, and AR/VR games. In Unity in Action, Third Edition, you will learn how to: Create characters that run, jump, and bump into things. Build 3D first-person shooters and third-person action games. Construct 2D card games and side-scrolling platformers. Script enemies with AI. Improve game graphics by importing models and images. Design an intuitive user interface for your games. Play music and spatially-aware sound effects. Connect your games to the internet for online play. Deploy your games to desktop, mobile, and the web. Thousands of new game developers have chosen Joe Hocking's Unity in Action as their first step toward Unity mastery. Starting with the initial groundwork of a new game development project, you'll quickly start writing custom code instead of clicking together premade scripts. This fully updated third edition comes packed with fully refreshed graphics, Unity's latest features, and coverage of augmented and virtual reality toolkits. You'll master the Unity toolset from the ground up, learning the skills to go from application coder to game developer. Foreword by Jesse Schell. About the technology Writing games is rewarding and fun—and with Unity, it's easy to get started! Unity handles the heavy lifting, so you can focus on game play, graphics, and user experience. C# support and a huge ecosystem of prebuilt components help even first-time developers go from the drawing board to the screen fast. About the book Unity in Action, Third Edition teaches you to create games with the Unity game platform. It's many 2D, 3D, and AR/VR game examples give you hands-on experience with Unity's workflow tools and state-of-the-art rendering engine. This fully updated third edition presents new coverage of

Unity's XR toolkit and shows you how you can start building with virtual and augmented reality. What's inside Create characters that run, jump, and bump into things Script enemies with AI Play music and spatially-aware sound effects Deploy your games to desktop, mobile, and the web About the reader For programmers who know any object-oriented programming language. Examples are in C#. About the author Joe Hocking is a software engineer and Unity expert specializing in interactive media development. Table of Contents PART 1 FIRST STEPS 1 Getting to know Unity 2 Building a demo that puts you in 3D space 3 Adding enemies and projectiles to the 3D game 4 Developing graphics for your game PART 2 GETTING COMFORTABLE 5 Building a Memory game using Unity's 2D functionality 6 Creating a basic 2D platformer 7 Putting a GUI onto a game 8 Creating a third-person 3D game: Player movement and animation 9 Adding interactive devices and items within the game PART 3 STRONG FINISH 10 Connecting your game to the internet 11 Playing audio: Sound effects and music 12 Putting the parts together into a complete game 13 Deploying your game to players' devices Learn C# programming from scratch using Unity as a fun and accessible entry point with this updated edition of the bestselling series. Includes invitation to join the online Unity Game Development community to read the book alongside peers, Unity developers/C# programmers and Harrison Ferrone. Key Features Develop a strong foundation of programming concepts and the C# language Become confident with Unity fundamentals and features in line with Unity 2023 Build a playable game prototype in Unity—a working first-person shooter game prototype Book DescriptionIt's the ability to write custom C# scripts for behaviors and game mechanics that really takes Unity the extra mile. That's where this book can help you as a new programmer! Harrison Ferrone, in this seventh edition of the bestselling series will take you through the building blocks of programming and the C# language from scratch while building a fun and playable game prototype in Unity. This book will teach you the fundamentals of OOPs, basic concepts of C#, and Unity engine with lots of code samples, exercises and tips to go beyond the book with your work. You will write C# scripts for simple game mechanics, perform procedural programming, and add complexity to your games by introducing intelligent enemies and damage-dealing projectiles. You will explore the fundamentals of Unity game development, including game design, lighting basics, player movement, camera controls, collisions, and more with every passing chapter. Note: The screenshots in the book display the Unity editor in full-screen mode for a comprehensive view. Users can easily reference color versions of images by downloading them from the GitHub repository or the graphics bundle linked in the book. What you will learn Understanding programming fundamentals by breaking them down into their basic parts Comprehensive explanations with sample codes of object-oriented programming and how it applies to C# Follow simple steps and examples to create and implement C# scripts in Unity Divide your code into pluggable building blocks using interfaces, abstract classes, and class extensions Grasp the basics of a game design document and then move on to blocking out your level geometry, adding lighting and a simple object animation Create basic game mechanics such as player controllers and shooting projectiles using C# Become familiar with stacks, queues, exceptions, error handling, and other core C# concepts Learn how to handle text, XML, and JSON data to save and load your game data Who this book is forIf you're a developer, programmer, hobbyist, or anyone who wants to get started with Unity and C# programming in a fun and engaging manner, this book is for you. You'll still be able to follow along if you don't have programming experience, but knowing the basics will help you get the most out of this book.

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