

Quick answers to common problems

Unity 2D Game Development Cookbook

Over 50 hands-on recipes that leverage the features of Unity to help you create 2D games and game prototypes

Claudio Scolastici

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PUBLISHING

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BIRMINGHAM - MUMBAI

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To those who never told me to look elsewhere...

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As well as games, he sometimes likes to work on other aspects of game development, such as designing game loops, user acquisition strategies, and monetization models, and content writing.

Being a game enthusiast, Pranav is always interested in new game technologies and how it brings excitement to the lives people. You can contact him at pranavpaharia@hotmail.com or visit his portfolio link: <http://pranavpaharia.wix.com/portfolio>.

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Preface

There was a time when building games was a cumbersome and almost exclusive activity, as you needed to program your own game engine or pay a good amount of money to license one.

Thanks to Unity, creating video games today is still a cumbersome activity, though less exclusive and expensive!

With this book, we aim to provide you with a detailed guide to approach the development of an actual 2D game with Unity. As it is a complex process that requires several operations to be performed, we will do our best to support you at every step by providing all the relevant information to help you successfully make games with Unity.

Packt cookbooks offer knowledge in the form of recipes that describe individual tasks and how to perform them. This way, you are provided with a quick-reference guide that you can read in whichever order you may see fit for your actual development needs.

We thus encourage you to freely move back and forth between chapters to take full advantage of the flexible structure of cookbooks.

Enough of the premises, let's start by taking a look at the Unity interface!

The goal

In the last decade, a large section of the game development industry moved back to its garage roots, so to say, and opened its arms to embrace small groups of very motivated people who want to make games. The revolution of (almost) free 3D engines such as Unity and UDK allowed these small groups with no money to invest to give birth to their gameplay ideas and challenge the market by building up actual, professional games.

With this book, we plan to provide you with a detailed guide to approach game development with Unity. As game making is a complex process that requires several operations to be performed, we will do our best to support you in each step, providing all the relevant information to help you successfully move through the creation of your next game with Unity.

This book provides knowledge in the form of recipes that describe individual tasks and the steps required to perform them. This way, you are provided with a quick-reference guide that can be checked in any order you see fit for your actual development needs.

We thus encourage you, the readers, to freely move back and forth between chapters and take full advantage of the flexible structure of this book.

The mean

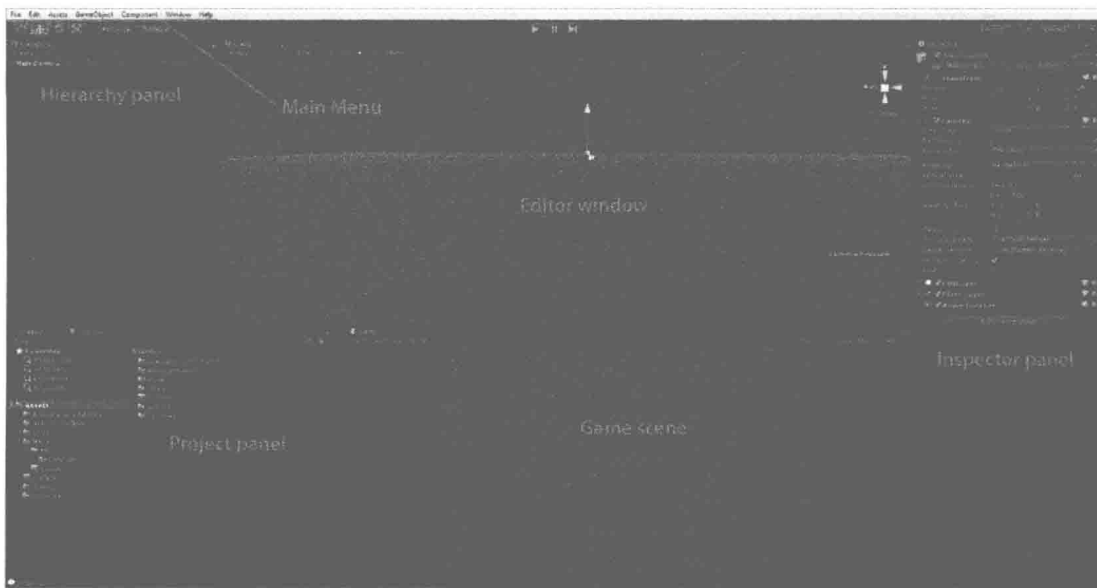
As a reference template to help you better understand the practical operations explained throughout this book, we plan to create a game prototype, featuring 2D gameplay with 3D graphics.

We believe this solution nicely fits two distinct needs: on one side, 2D gameplay is lighter to prototype, allowing us to describe the many features of Unity without the burdens of 3D mathematics.

On the other side, using 3D graphics (specifically for the game character and other game objects), we have the opportunity to discuss very important Appendix features of Unity, which would go unnoticed elsewhere. In the end, Unity is an engine to make 3D games, mainly!

The interface

With regard to the operations described and the pace we move between topics at, we assume you are already familiar with the Unity interface and its basic operations. Anyway, for those of you who may be a bit rusty with the Unity pipeline, let's begin our journey with a quick look at the Unity interface and the operations required to start a new project and configure the folders directory.



The preceding image shows the layout we are used to working with in Unity. Let's give a quick description of the main panels and windows available:

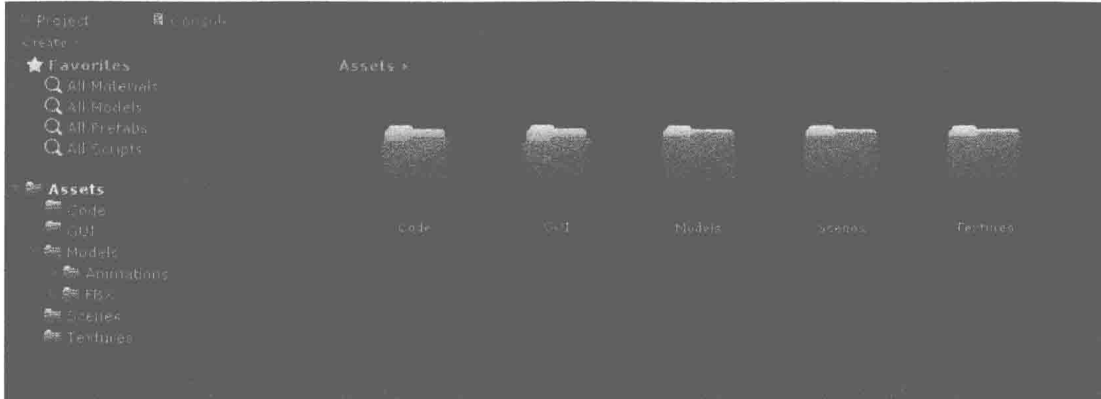
- ▶ **Main Menu:** This is where you **Load\Save** projects and game scenes, create and import new assets, and create game objects of different types to be added to the game scene. This is also the place where you add specific components to game objects to improve their features.

Finally, this is where you configure the **Render** and **Project Settings** and where you configure the **Built Settings** for your games.

- ▶ **Hierarchy panel:** This panel lists all the objects that have been added to your game scene so far. Here you can select a specific element to be manipulated in the game scene or add components to improve its behavior and capabilities.

- ▶ **Project panel:** This window lists the project folders and their contents. If you want your Unity project to keep nice and clean, we suggest you make extensive use of folders, by adding one specifically for each type of game asset (models, animations, textures, audio clips, animator controllers, and so on) you plan to have in your game. This way, whenever you need to access a certain asset, you know exactly where to search for it!

The following image shows an example folder directory of a project of ours:



- ▶ **Editor window:** This is the main Unity panel, the one that is used to actually assemble the game. Any GameObject that is required by your game must at some point be instantiated (by physical drag and drop or by code) here!
- ▶ **Game scene:** This panel shows what the game looks like from the player's perspective. It displays the output of the main camera from the game scene and it is very useful to actually test what's happening, especially when you are studying specific graphic solutions or the disposition of GUI elements on the screen.
- ▶ **Inspector panel:** This panel allows you to edit the assets available in the **Project panel**. It contains a lot of functionality, and we will often refer to the **Inspector panel** and the object properties displayed here, especially upon importing new assets (**Models, Animations, Textures, and Audio clips**) in our project.

If this super-quick description doesn't suffice, we recommend you go online and check for a beginner's tutorial about Unity. There are plenty available, both for free and for a price (for example on www.digitaltutors.com). Unity itself offers plenty of resources; you could start with this one: <http://unity3d.com/learn/tutorials/modules/beginner/editor>.