Lituz.com

Lituz.com

A STEP-BY-STEP GUIDE TO CREATING YOUR GAMES

LEARN

C# PROGRAMMING

BY CREATING GAMES

WITH UNITY

(BEGINNER)

PATRICK FELICIA

Lituz.com

Lituz.com

Table of Contents

Learn C# Programming by Creating Games with Unity

1 Installing Unity and Becoming Familiar with the Interface

2 Introduction to C# programming

3 Creating your First Script

4 Creating an Infinite Runner

5 Using Classes with C#

6 Creating a Simple 2D Shooter

7 Using Lists and Dictionnaries in C#

8 Creating a Word Guessing Game

9 Saving and Loading Information with local files in C#

10 Accessing and Updating a Database in C#

11 Reading Files and Creating Scenes Procedurally with C#

Lituz.com

12 Using Linear Algebra with C# for Unity

13 Combining C# and Unity Objects

14 Creating a Memory Game

15 Debugging and Managing Errors

16 Development principles and Applications (DRY, SOLID, SRP, KISS)

17 Writing clean and reusable code

18 Solutions to Quizzes

19 Thank you

Lituz.com

Learn C# Programming

By Creating Games

with Unity

_____

Learn C# with Unity

Lituz.com

Patrick Felicia

Lituz.com

Learn C# Programming

By Creating Games

with Unity

Copyright © 2024 Patrick Felicia

All rights reserved. No part of this book may be reproduced, stored in retrieval systems, or transmitted in any form or by any means, without the prior written permission of the publisher (Patrick Felicia), except in the case of brief quotations embedded in critical articles or reviews.

Every effort has been made in the preparation of this book to ensure the accuracy of the information presented. However, the information contained in this book is sold without warranty, either expressed or implied. Neither the author and its dealers and distributors will be held liable for any damages caused or alleged to be caused directly or indirectly by this book.

First published: July 2024

Published by Patrick Felicia

Lituz.com

Credits

Author: Patrick Felicia

Lituz.com

About the Author

Patrick Felicia is a lecturer and researcher at SETU (South East Technological University), where he teaches and supervises undergraduate and postgraduate students. He obtained his MSc in Multimedia Technology in 2003 and his PhD in Computer Science in 2009, from University College Cork, Ireland. He has published several books and articles on the use of video games for educational purposes, including the Handbook of Research on Improving Learning and Motivation through Educational Games: Multidisciplinary Approaches (published by IGI), and Digital Games in Schools: a Handbook for Teachers, published by European Schoolnet. Patrick is also the Editor-in-chief of the International Journal of Game-Based Learning and the Conference Director of the Irish Conference on Game-Based a popular conference on games and learning organized throughout Ireland.

Lituz.com

Support and Resources for this Book

You can download the resource pack for this book; it includes solutions scripts for some of the sections in this book, as well as some of the files needed to complete some of the activities presented in this book.

To download these resources, please do the following.

If you are already a member of my list, you can just go to the member area using the usual password and you will gain access to all the resources for this book.

If you are not yet on my list, you can do the following:

Open the following link: http://learntocreategames.com/books/
Select this book C# Programming by Creating Games with
On the new page, click on the link labelled or scroll down to the bottom of the page.
In the section called your Free Resource enter your email address and your first name, and click on the button labeled I want to receive my bonus
After a few seconds, you should receive a link to your free start-up pack.
When you receive the link, you can download all the resources to your computer.

Lituz.com

This book is dedicated to Mathis

_____

[ ]

Lituz.com

Table of Contents

Contents

- Credits
- About the Author
- Support and Resources for this Book
- Table of Contents
- Preface
- What you Need to Use this Book
- Who this Book is for
- Who this Book is not for
- How you will Learn from this Book
- Format of each Chapter and Writing Conventions

Special Notes

- How Can You Learn Best from this Book?
- Feedback
- Improving the Book
- Supporting the Author
- 1 Installing Unity and Becoming Familiar with the Interface

What is a game engine and should you use one?
Advantages of using Unity
Downloading Unity Hub
Installing Unity
Launching Unity
Understanding and becoming familiar with the interface
The scene view
Discovering and navigating through the scene

Lituz.com

The hierarchy view
The project view

The inspector
The console view
The asset store window
Level roundup
Summary
Checklist
Quiz

2 Introduction to C# programming

Introduction
Statements
Comments
Variables
Arrays
Constants
Operators
Conditional statements
Switch Statements
Loops
Level Roundup
Checklist
Quiz

3 Creating your First Script

Workflow to create a script
How scripts are compiled

Lituz.com

Coding conventions
A few things to remember when you create a script (checklist)

Common errors and their meaning
Best practices
Variable naming
Methods
Debugging using dichotomy
Creating a script
Writing your first statement
Using variables
Creating methods
Modifying the scope of variables
Creating your first class
Overloading our constructor
Using constant variables
Constant and static variables
Using the switch case structure
Using arrays and loops
Instantiating visual objects in your scene
Level Roundup
Checklist
Quiz
Challenge

4 Creating an Infinite Runner

Adding movement to the character
Adding random obstacles to the scene
Displaying the score
Improving the appearance of the game

Lituz.com

Creating the static environment
Pausing the game

Level roundup
Checklist
Quiz
Challenge

5 Using Classes with C#

Introduction
Classes
Defining a class
Accessing class members and variables
Constructors
Destructors
Static members of a class
Inheritance
Methods
Accessing methods and access modifiers
Common methods
Scope of variables
Events
Polymorphism (general concepts)
Dynamic polymorphism
NameSpaces
Level Roundup
Checklist
Quiz

6 Creating a Simple 2D Shooter

Lituz.com

Adding the spaceship
Shooting missiles

Destroying the target
Spawning moving targets randomly
Managing Damage
Level Roundup
Checklist
Quiz
Challenge 1
Challenge 2

7 Using Lists and Dictionnaries in C#

Lists
Dictionaries
Events
Level Roundup
Checklist
Quiz

8 Creating a Word Guessing Game

Creating the interface for the game
Detecting and processing the user input
Choosing random words
Tracking the score and the number of attempts
Choosing words from a file
Level roundup

Lituz.com

Checklist
Quiz
Challenge 1
Challenge 2

9 Saving and Loading Information with local files in C#

Saving single records
Saving multiple Data for 1 player
Saving multiple Data for several players
Saving Multiple Data (Continued)
Using JSON and XML for more complex data
Level Roundup
Checklist
Quiz

10 Accessing and Updating a Database in C#

Introduction to Online Databases
Accessing a database through PHP
Passing data to a PHP script
Accessing PHP from Unity
Setting up your server
Creating new tables
Creating and running your PHP script
Gathering data from Unity
Updating the player's records
Level Roundup
Checklist
Quiz

Lituz.com

Challenge 1

11 Reading Files and Creating Scenes Procedurally with C#

Building your environment from an array
Creating an environment from a text file

Creating an environment from an image file
Using XML files for content creation
Creating a Maze Procedurally
Creating an environment like Minecraft procedurally
Creating a virtual solar system based on an XML file
Level Roundup
Checklist
Quiz
Challenge 1
Challenge 2
Challenge 3

12 Using Linear Algebra with C# for Unity

Using vectors and forces
Coordinate systems
Scalars and vectors
Why use vectors rather than scalars?
Mathematical notations for vectors
Using vectors in Unity
Performing operations on vectors
Adding and subtracting vectors
Adding vectors in Unity
Multiplying vectors by scalars

Lituz.com

Lituz.com

To'liq qismini
Shu tugmani
bosish orqali
sotib oling!