Codeless Game Construction
Using Construct 2 & 3

Building
Audio & Rhythmic
Browser Games

By Stephen Gose

Building Audio & Rhythmic Browser Games

Codeless Game Construction using Construct2 & Construct3

Stephen Gose

This book is available at https://leanpub.com/cgc-c23-music

This version was published on 2025-07-29

This is a Leanpub book. Leanpub empowers authors and publishers with the Lean Publishing process. Lean Publishing is the act of publishing an in-progress ebook using lightweight tools and many iterations to get reader feedback, pivot until you have the right book and build traction once you do.

Tweet This Book!

Please help Stephen Gose by spreading the word about this book on Twitter!

The suggested tweet for this book is:

I'm making HTML games using the Codeless Game Construction workbook.

The suggested hashtag for this book is #PBMCube.

Find out what other people are saying about the book by clicking on this link to search for this hashtag on Twitter:

#PBMCube

For my students
@ Culpeper Public Schools, Culpeper, VA;
@ ITT Technical Institute, Tempe, AZ;
@ Early Career Academy, Tempe, AZ; and
@ University of Advancing Technology (UAT), Tempe, AZ

Contents

Part II: *Starting a C2 Project* 6

Part III: *Starting a C3 Project* 9

Part IV: Production & Distribution 12

Preface

Distribution Permission

All rights are reserved under the Pan-American and International Copyright Conventions. You **may not** reproduce this book, in whole or in part, in any form or by any means electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system that is now known or hereafter invented, **without written permission** from the author. Brief quotations in critical reviews or articles are permitted without the author's permission.

Supporting website: https://makingbrowsergames.com/

Forewords

by Terry Paton: — "Copying or imitating is an awesome way to learn how to do something, traditional artists have done it for centuries. This practice was generally considered a tribute, *not a forgery*, — **If you want to get better at something, then try to do it like those who've already mastered it.** Look at the choices they have made and consider why they made those decisions, often important things are hidden in subtlety and the only way we learn those subtleties is by creating the same thing. The balance here is "stealing" versus "inspiration". **"Ripping off" ideas from someone else in a way that harms their hard work as compared to producing something that was "inspired by" their work.** If you plan on publicly releasing something, I recommend you should inject some of your own vision into any game you make, take a concept but then extend or change it to create something of your own."

Disclosures

- I refer to "Construct 2" under the **moniker of "C2"** and **Construct 3** as **"C3"** to distinguish it as a clear demarcation between the versions.
- **Stephen Gose LLC reserves the right, at any time and without notice, to change modify, or correct the information contained in this publication.**

In this book, I am not paid to recommend any of the tools or services presented but I do use affiliate links. Here's how it works. When I find a tool, service, author's content, idea, or product I admire, I investigate if they have an affiliate program. If it exists, I get a special link, and when you click it or confirm a purchase I receive a small percentage from that activity. In short, it's the same method everyone finds on any typical website; only now, those reference links are available inside ebooks and I use them as **a substitute for "crowd-funding" websites.**

I think everyone, with "**any business savvy,**" should do this too; especially when you recommend books, services, and tools for your own products. Amazon and other publishers offer affiliate links. Whenever you recommend anything **(hopefully this book? hint, hint!), use your affiliate link.**

By law, I must disclose that I am using affiliate links. Amazon, in particular, requires the following:

> *"We are a participant in the Amazon Services LLC Associates Program, an affiliate advertising program designed to provide a means for us to earn fees by linking to Amazon.com and affiliated sites."*

Thank you for your patronage! I truly appreciate it.

Disclaimer

- All the information, contained within, is for the convenience of its readers. It is accurate, as can be reasonably verified, at the time of original publication. However, this content may not reflect migrating application improvements nor industry recommendations **after the original publication date** for **ECMA-262** (aka **(also known as)** "JavaScript", ES5, ES6, ES7, ES8, ES9, or … ES14?!) or for any updated versions of this **JavaScript Gaming Framework.**
- All websites listed herein **are accurate at the time of publication but may change in the future or cease to exist.** It is best to research these "dead websites" links in **"The WayBack Machine"**. The listing of website references and resources does not imply my endorsement of any site's entire contents.

- There are no guarantees nor warranties stated nor implied by the distribution of this educational information. Using this information is at the reader's own risk, and no liability shall be carried to me — the author. Any damage or loss is the sole responsibility of the reader.

CONSTRUCT 2 — End-of-Life

July 1st, 2020, Construct 2 reached the "end-of-life" product cycle (e.g.: "taken off sale") and was no longer available for new purchases. On July 1st, 2021, Construct 2 was fully retired. This means that:

- No further Construct 2 releases are made.
- No official Construct 2 support will be provided — except for email support regarding **any historical payment or license issues.**
- No further official `NW.js` updates will be issued for Construct 2.
- ***All existing valid Construct 2 licenses will continue to work indefinitely.*** You will still be able to use the full features of Construct 2 ***if you've purchased*** it in the past - it is only continuing support and updates that will stop. Bear in mind though that if changes in other software (e.g.: ***Safari browser***) impact Construct 2 features to stop working, no further updates will be forthcoming.
- ***The online manual and tutorials will remain available.***
- The Construct2-related forums will remain accessible (but will be collapsed into a sub-category in the main forum list).

Workbook Content

This tutorial workbook is written in a fun, friendly, conversational style with example project(s) and numerous open-ended exercises that **encourage you** to include your bespoke artwork assets and features. When you finish this workbook, you should have *your very own finished bespoke game — not just a mirror copy of mine* — provided that you follow the exercises and guidelines. It's not exclusive to only the Construct Gaming Framework family; *this content can apply to any JS Gaming Framework.*

> For Patrons from Amazon and other Book Distributors

Updating Your Kindle Book Version!

LeanPub Patrons automatically receive **all updates** for student or workshop instructor files. To receive the most currently updated versions available for your Kindle ebook.

1. Go to Manage Your Content and Devices.
2. Search for your Kindle book.
3. If available, select **Update Available,** then select Update.
4. Your book edition *does not include any source code files.* **Part IV** has a **discount coupon crediting you the purchase price of this book** toward the workshop's source code and artwork files.

To receive automatic book updates as they become available, enable ***Automatic Book Update*** on the Preferences tab in ***Manage Your Content and Devices***.

Instructor and Student downloads are available to Amazon patrons (and other Book Distributors) at a discounted fee and proof of purchase. See the ***"End-User License Agreement" (EULA)*** here. Your book's "license number" is your purchased "invoice reference number". For future updates, please register your book at my ***email contact***.

> About this Workbook

This workbook **is a guide** to **Construct Gaming Framework**, and an intermediate-level guide to **PHP Server-side game development**, **WebSockets,** efficient **JavaScript programming fundamentals**, and game design's **"best practices"**. (see Appendix: "JS OLOO for Modern Game Development Method") I assume you (the reader) **already know some of these technologies.** If not, then a few hours spent on **W3Schools** can quickly remedy any deficiency and earn valuable certifications. **The workshop instructor's packaged edition** includes PowerPoint slides with lecture references available only from **LeanPub.com**.

This edition reveals different production methods which I call the **Game Design System**™ — in which, we'll create **Game Recipes™** for specific "Game Mechanics". This workbook provides simple-to-follow worksheets, step-by-step instructions, and a straightforward approach to building specific Game Mechanics **from Construct components** using my **Game Design System™** methods discussed in the supporting **"Code-less Game Construction"** series.

Expert game developers understand the "Don't Repeat Yourself" (D.R.Y.) concept, yet few have taken a step back to the "10,000-foot view" on their own game production pipelines. We'll do that aerial view in this book at first, and then, as we follow this game's development, we'll **"nose dive head-first"** directly into those controlling events that **breathe life** into this **"Game Mechanics".** I believe you will be surprised how quickly, and easily, we can build games using the **Game Design System™** and its **Game Recipes™.** But more importantly, how quickly you can "construct" an entire gaming series.

> How to Read & Use this workbook:

Start by reading — or skimming through — the **Introduction Section,** so that together, we are speaking the same "game references" and terminologies. Then, select the Construct version that interests you and begin your bespoke game project development. C3 can load and run any C2 project with only a few extreme exceptions concerning plugins. **I don't use any plugins other than those native to Construct.** You could begin your game studio products using C2, start selling your product line, and then once revenues are coming in, subscribe to C3.

Here are the topics in this edition:

- Game creation for this Game Mechanics in both Construct2 (C2) and Construct3 (C3).
- How to integrate these "Game Mechanics" with other "Gaming Genres" — for example, "Hidden Objects", "Tower Defense", and varied Combat Systems!

- Deploy games as either a "Content Management System" (CMS), a "Progressive Web Application" (PWA), or a "Single Web-Page Application" (SWPA) for any device.
- Analyze the **current market demand** for this specific Game Mechanics and Game Genre, **where** and **how** to deploy it.
- Automatically generate various game board environment themes.
- ***Instructor Guides and teaching resources are available for workshops in the Teacher's edition with online course content.***
- Where to find and Access ***several online courses*** included with this book.
- **Coding Style Appendix:** sections dedicated to interested ***Senior Programming Engineers*** and the ***rationale on why and how*** migration **away from classical OOP** to OLOO compositions is important.
- **"The Deeper Dive"** sections for interested Software Engineers concerning Construct Gaming Framework.
- Each ***Part*** contains several sub-sections. The workbook starts with an "Introduction Overview" into the goals, game ludology, and generation tools. In a matter of minutes, you will have a working game prototype for this Game's Mechanics. All that remains to do is to **add your own artwork and additional game features;** after a few days, you'll have a completed game ready to deploy to any "apps" store.
- You'll find detailed working examples, with dozens of illustrations and many concepts you can freely apply to your own gaming projects.
- All the source code is externally linked and annotated with enhanced explanations.

> Viewing the eBook:

This book includes programming code that is optimally viewed ***in single-column landscape mode,*** and you should adjust the font size to a comfortable setting.

> External Links

I've ***"gone to great lengths"*** to make this book "skim-friendly" ***— even for my International customers*** by emphasizing important concepts ***in bold font type.*** I have provided links to *(American) "English Jargon phrases"* that will help translate this content directly into your native language. I use "Notes", "Tips", "Warning", and "Best Practices" icons to encapsulate those ancillary topics for your further education from **other experts** in the gaming industry.

The Internet is a living, dynamic information resource ***that doubles every 35 days!*** There are **several reasons** this book **points to external content** … because —

1. It provides you with the "research path" I took to present and develop my ideas. It takes all the guesswork out of it and conserves your research time and efforts. It saves you 100s of hours of your personal time searching for supporting facts and opinions.
2. It avoids copyright infringements and **provides the required acknowledgments** to all those "Open-source authors" for their contributions and use of their resources under **"these various licenses and EULA."**
3. It provides external authors the opportunity ***to recant (or update) their published content.*** Technology is a fast-moving target, and what was once "cutting edge" soon becomes obsolete. For example, the use of **"window.onload"** was recanted by its originator back in 2014 as an unsafe method for launching browser applications.
4. Finally, and most importantly, it **reduces your initial purchase price** from the reams of "padded source code content" while keeping your investment in this book's information **"fresh"** — don't make me embarrass those authors who do this and sell their books filled with **90% source code double-spaced in an unrelated programming language with few annotations!** This book would be ***double the size and triple the price*** if I had embedded all of the source code ***as other authors do.***

You'll find your ***Bonus content, source code, and references*** —

- in the footnotes links,
- external reference links, and in **the various linked files** which are available directly from my supporting website — without needed registration **nor logon and thus** keeping your personal information safe!
- **OR** from the latest edition updates found in your **LeanPub.com personal library** (assuming that you purchased this copy as a LeanPub patron).

All the source code is provided as Construct project files and **"pure"** JavaScript (JS) — it doesn't use any additional "abstraction layers" such as "TypeScript", "CoffeeScript", or "JQuery" for obvious reasons.

I assume that many readers will want to use this book to quickly build their ***bespoke*** game projects. So, I've included reference examples to other similar game examples, gaming engines, frameworks, ***GUI game kits***, indie developers, authors, their "open-source" contributions, articles, books, ***artwork***, application tools, and their wisdom. You'll soon discover why I do this …

Your newly obtained skills …

By the end of this workbook, you'll have integrated into your own ***bespoke*** game design:

- ***Built "future-proof" and flexible game architecture.***
- Used the **Game Design System™** to create ***Game Recipes™*** from the Construct tools.
- Adopted processes for software project management using "**agile development**".
- Imported resources and game assets;
- Displayed, animated, and moved sprite objects on various scene layouts and layers;
- Incorporated "***sound effects***" (abbreviated as ***sfx or "ChipTones"***) and theme music across various game scenes;
- Deployed "heads-up display" (HUD) on game scenes both inside and outside the canvas;
- Used customized web fonts;
- Incorporated multiple user interfaces (touch, multi-touch, accelerometer, mouse, and keyboard);
- Created and managed various Game Phases for CMS, SPWA, & PWA;
- Managed permanent game artwork, and assets across this game series;
- Optimized your games for various user ***IoT gaming devices***;
- Integrated several 3rd-party scripts and services.

More Resources

"Game Recipe™" Courses (purchased separately on specific Gaming Mechanics) using the **Game Design System™ management method and concepts.** These courses enhance your skills and are available from my educational websites hosted by ***LeanPub.com*** or ***Training By Blackboard, Books, and Browsers***.

You can earn your **Game Development Certifications** from ***my online courses***, **or (my personal favorite!) Zenva**; to enhance your resume. See the growing catalog of courses for **college credit, home-schooling, or personal skills development** at ***Training by Blackboard, Books & Browsers***

Programming Courses

See the growing catalog of courses for **college credit, home-schooling, or personal skills development** at *Training by Blackboard, Books & Browsers*

- *Using JavaScript OLOO in game development* — Abandon OOP for Composition Game Development.
- *Codeless Game Design Workshop* — Game Development Course using Construct 2 & 3 Gaming Frameworks. Instructor presentation materials included.

> References Used

This workbook is a derivative work and transpiled from a single chapter of a larger collection of 16+ Game Mechanics and 19 sub-genres from the original **Phaser JS Gaming Framework** found on **https://leanpub.com/pgskc/.** It is also available as a single chapter in the upcoming "*Construct Game Starter Kit Collection*". You'll also discover how similar Flash AS2/3 code is to JavaScript.

- *Construct Game Starter Kit Collection* — in pdf or epub from **LeanPub.com** and "hardback editions" from Amazon
- *Construct2 Official Online Manual*
- *C2 Addon SDK Online Documentation*
- *Construct2 JavaScript SDK Documentation*
- *Construct3 Online Manual*
- *C3 Addon SDK Online Documentation*

Making Audio Games

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

1. Introduction to Game Design

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

1.1 Approaching Game Development

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

1.2 Focusing Your Game

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

1.3 Developing Storylines & Gamer's Avatar

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

1.4 Designing The User Interface

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

1.5 Formulating Good Gameplay

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

1.6 Developing The Logic

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

1.7 Writing The Source Code

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

1.8 Checking For Errors

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

1.9 Preparing For Distribution

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

2. Audio, Music, & Rhythm Game Design

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

2.1 Deeper Dive: Not Everyone *Hears* Alike!

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

2.2 Audio Game's Featured Ingredients

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

2.3 Game Mechanics

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Deeper Dive: *Tuning* Our Game to Musical Theory

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> "Coda": What have we learned?

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

2.4 Audio Construction Tools

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Composing Game Musical Themes

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

2.5 Optional Audio Design — *"Pure JS"* tone generation

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Using Construct3 Audio Interface

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

2.6 Conclusion

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

Part II: *Starting a C2 Project*

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

3. Lesson 1: *C2 "Audio"* Project

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

3.1 *About* Your Project

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

3.2 Project Settings:

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

3.3 Configuration Settings

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

3.4 Design Considerations: CMS, PWA, or SWPA?!

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Creating a C2 SWPA Game Version?

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Creating a C2 CMS or PWA Game Version?

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

3.5 Season to Taste ...

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

3.6 Comparing your code

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

Part III: *Starting a C3 Project*

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

4. Lesson 1: *C3 "Audio"* Project

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

4.1 *About* Your Project

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

4.2 Project Settings: Color Theme, Start-up & Display

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

4.3 Configuration Settings: Advanced & Editor

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

4.4 Design Considerations: CMS, PWA, or SWPA?!

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Creating a C3 SWPA Game Version?

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Creating a C3 CMS or PWA Game Version?

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

4.5 Season to Taste ...

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

4.6 Comparing your code

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

Part IV: Production & Distribution

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

5. *"Mozart Music Match™" Suite*

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

5.1 CMS Description

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

5.2 CMS Design Considerations

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

6. "Audio Memory Match" Developer's Guide

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

6.1 Game Description

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

6.2 Design Considerations

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Game Mechanics (GM): Logic & Rules

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Game Mechanics (GM): Data Structures

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

6.3 Game Layout

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> ## Background Theme

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> ## User Interface

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

6.4 Gameplay Event Sheet

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> ## Event #1 "On start of layout"

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> ## Events #5 to #9 — User Interface

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> ## Events #10 — Game Finished?

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> ## Events #11 to #13 — Supporting Function

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

7. Ear Training Developer's Guide

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

7.1 Game Description

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

7.2 Design Considerations

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Game Mechanics (GM): Logic & Rules

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Game Mechanics (GM): Data Structures

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

7.3 Game Layouts

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Background Theme

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> User Interface Layouts

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

7.4 Gameplay Event Sheet

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Event #1 "On start of layout"

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Events #2 to #8 — User Interface Layouts

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Events #9 to #19 — User Interface Inputs

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Events #20 to #21 — Game Finished

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Events #22 to #26 — Supporting Functions

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Events #27 to #29 — Supporting Functions

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

8. "HiLo" Developer's Guide

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

8.1 Design Considerations

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

Game Mechanics (GM): Logic & Rules

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

Game Mechanics (GM): Data Structures

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

8.2 Game Layout

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Background Theme

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> **User Interface**

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

8.3 Gameplay Event Sheet

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> **Event #1 "On start of layout"**

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> **Events #2 to #8 — HUD updates**

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> **Events #9 to #24 — User Interface**

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> **Events #25 to #35 — Supporting Functions**

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> **Events #36 to #38 — Game Conclusion**

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

9. "Motif Memory" Developer's Guide

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

9.1 Game Description

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

9.2 Design Considerations

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Deeper Dive: Matching Tones to "Correct" Colors

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Optional Design Used

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Game Mechanics (GM): Logic & Rules

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Game Mechanics (GM): Data Structures

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

9.3 Game Layout

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Background Theme

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> User Interface

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

9.4 Gameplay Event Sheet

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Event #1 "On start of layout"

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Events #2 To #4 — Gameplay Toggle Management

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Events #5 To #9 — "Player's Turn" Management

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Event #8 — "Player's Turn" Ends

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Event #9 — New Game Turn

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Events #10 To #17 — Supporting Functions

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

10. "Sight Reading" Developer's Guide

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

10.1 Game Description

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

10.2 Design Considerations

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Game Mechanics (GM): Logic & Rules

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Game Mechanics (GM): Data Structures

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

10.3 Game Layout

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Background Theme

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> User Interface (UI)

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

10.4 Gameplay Event Sheet

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Event #1 "On start of layout"

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Events #2 to #10 — User Interface

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Events #11 to #45 — Game Framework Display Mgt.

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> Events #47 & #48 — Game Turn Conclusion.

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

> **Events #49 & #65 — Supporting Functions**.

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

What's next?

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

11. Product Distribution

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

11.1 Game Distribution & Marketing

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

Introduction: 8-Step Deployment Method.

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

11.2 Book Review Protocol

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

11.3 Tell the world about *your* game!

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

Appendix: Audio Standards

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

G7.11

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

G7.22

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

Technical Overview Presentation

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

Appendix: MIDI

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

Playing with MIDI in JavaScript

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

Parsing & Reading MIDI Files:

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

Playing MIDI Files:

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

Generating MIDI Files:

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

Web MIDI API:

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.

Choosing the Right Library:

This content is not available in the sample book. The book can be purchased on Leanpub at https://leanpub.com/cgc-c23-music.