

COMP 266: Assignment 1

Site Design

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Themes and Purposes

The main purpose of my website will be to create a system capable of displaying literature for users on compatible Nintendo DS systems (this includes the Nintendo DSI, 3DS, 2DS, 3DS XL, New 2DS, New 3DS, and New 3DS XL). The main source of inspiration for this project came from the DSIPaint.com and 3DSPaint.com websites. These sites provide a platform for users to draw, create blogs and custom pages, play games, share photos, and more through the Nintendo DSI/3DS browsers. Both of the previously mentioned sites had once supported a library where users could read books, but they have since stopped functioning. The main goal is to create a replacement for the currently broken library while also providing additional updates in UI and long-term functionality. The website will be open-sourced and a GitHub repository will be created to track changes [6].

Restoring the 3DS/DSI library would interest any active users on DSIPaint and 3DSPaint websites and could also provide additional insight and tools for creating or updating websites designed to function with DS systems in the future; some especially unique elements are the ability to display 3D photos and videos. Furthermore, Nintendo's DS line is assumed to be over, but new devices, such as the AYN Thor, and the high resale value of original 2/3DS systems demonstrate there is still a demand for supporting 2/3DS-oriented websites [2].

In terms of theming, the site is planned to possess a semi formal structure. Some features could include a discussion and rating system for books, a portal for requesting or submitting literature, and a settings page for configuring themes, font-size, and reading preferences (such as horizontal and vertical reading modes, themes, and background music); Some background theme ideas are frutiger aero, utopian scholastic, and global village coffeehouse. Finally, a system for categorizing and finding books will be needed (bookmarking/catalogue system of sorts).

Some limitations to consider are the resolutions, dual screens considerations, download speed (about 1Mbs), and web protocols. Furthermore, there is limited support for photo, audio, and video formats[3]. Other challenges include creating a system for displaying text to the screen in small chunks from a large selection of text, managing settings (this will most likely be done through cookies), and creating a rating/discussion/feedback system. Some final considerations would be towards what content should be displayed in the library; all content should be public domain, and should not possess any innappropriate themes or subject matter.

Personas

From a hardware perspective, users can be divided into four groups:

Native 2/3DS users.

- This category includes any users of the original 3DS/2DS systems.

There are different browser limitations between the original and “New” series of 3DS systems [3]. Users of the original series face more restrictions and may require a separate site to accommodate certain functionalities that can be made more robust for the “New” series [3].

Native “New” 2/3DS user.

- This category includes all “New” series of 3DS systems. The “New” series provides more functionalities than the older versions; some of the additional features include audio/video support and a broader range of supported image formats and web protocols.

Emulator users.

- This category includes anyone using an emulator for 3DS software, such as Citra [1].

Desktop users.

- This category includes any user with a regular personal laptop running a popular operating system (Linux, macOS, Windows) with a up-to-date web-browsing application (SeaMonkey, Firefox, etc..). The site viewed by a desktop user should be able to perform all the functionalities that

a console user can do; furthermore, the user may be able to perform additional tasks, such as emailing a book selection.

From a potential visitor's viewpoint, users could be divided into three groups.

Genuine Readers.

- This category includes anyone who intends to regularly read literature via the website through a 2/3DS console or otherwise.

Other Developers.

- This category includes anyone interested in creating a similar site and may want a reference for ideas and testing.

Tourists/Explorers.

- This category includes those that may not necessarily use the site for reading, but would like explore some of the functionalities for entertainment.

From an age standpoint, users can be divided into two groups:

Children

- Children includes anyone under the age of 18. Because the library is intended to be a replacement for DSIPaint/3DSpaint's library, book

options should follow any rules/criteria from these sites to ensure site adoption.

Adults

- Adults include anyone above the age of 18. One consideration will be providing reading material that is interesting for all age ranges.

From a technical understanding perspective, potential users could be divided into three categories:

Low

- Low technical understanding expects zero knowledge of how the site works underneath; users rely entirely on abstract UI elements for navigation and interaction.

Medium

- Medium technical understanding assumes some basic knowledge in general website functionality (for example, understanding that deleting cookies will remove and personalized settings or themes).

High

- High technical understanding assume a deeper knowledge of web programming in general. Considerations should be made in limiting exploitable elements of the website, such as spam contacting or excessive requests.

Scenarios

1. An adult user with some understanding of web programming has an original 2/3DS system and is looking for websites that are compatible with the console's original browser. The user discovers the library website through a web post, forum, or the DSIPaint/3DSPaint websites. When they discover the site, they explore the immediate links (catalog, about, settings). They are informed on the About page that some features may not work on original 2/3DS systems and require the New 2/3DS systems to function. The user searches for a book, selects a title that interests them, and reads a few pages before leaving.

2. An adult user with a high-level understanding of web programming uses their original New 2/3DS system to frequently visit sites such as DSIPaint and 3DSPaint as a hobby. They navigate to the settings tab and set a custom font size and background theme. Next, they navigate to the book's catalog, select a book, and read for some amount of time. When the user wants to stop reading, they save their book position and return to the menu. The user notices that a book they want isn't in the catalog, and they decide to navigate to the contact page. From the contact page, the user enters their suggestion, response email, and confirms their message before sending it. Next, the user navigates back to the home page, and navigates to the About page, which provides

an overview of the application and provides links to the website's source code. Finally, they bookmark the website and exit the browser.

3. A user is exploring old websites and comes across the library. They navigate to the About page and skim the information available before exiting.

4. A user with some experience in web programming wants to publish their own works on the library site. They navigate to the contacts page and send a link to download their correctly formatted text writing. After a review, their work is either published or denied from the site.

5. A user with a high level understanding of web programming wants to develop their own website for 2/3DS systems. They discover the online library and navigate to the About page. From the About page, the user navigates to the website's GitHub page; the contents are explored/copied onto the user's own website.

6. A user with a low understanding of web programming discovers the site via their desktop browser, the website functions, but has some limitations in adjusting to scale. The user navigates to the books catalog and reads a few pages before leaving.

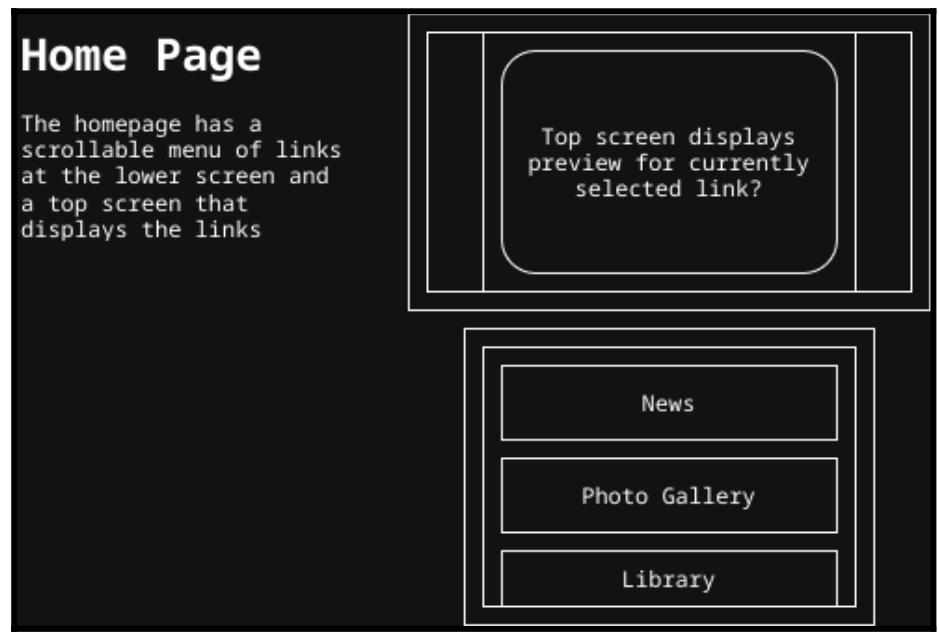
Further Requirements

Further requirements may include developing a stronger understanding of the limitations between the original 2/3DS and New 2/3DS systems; for example, learning

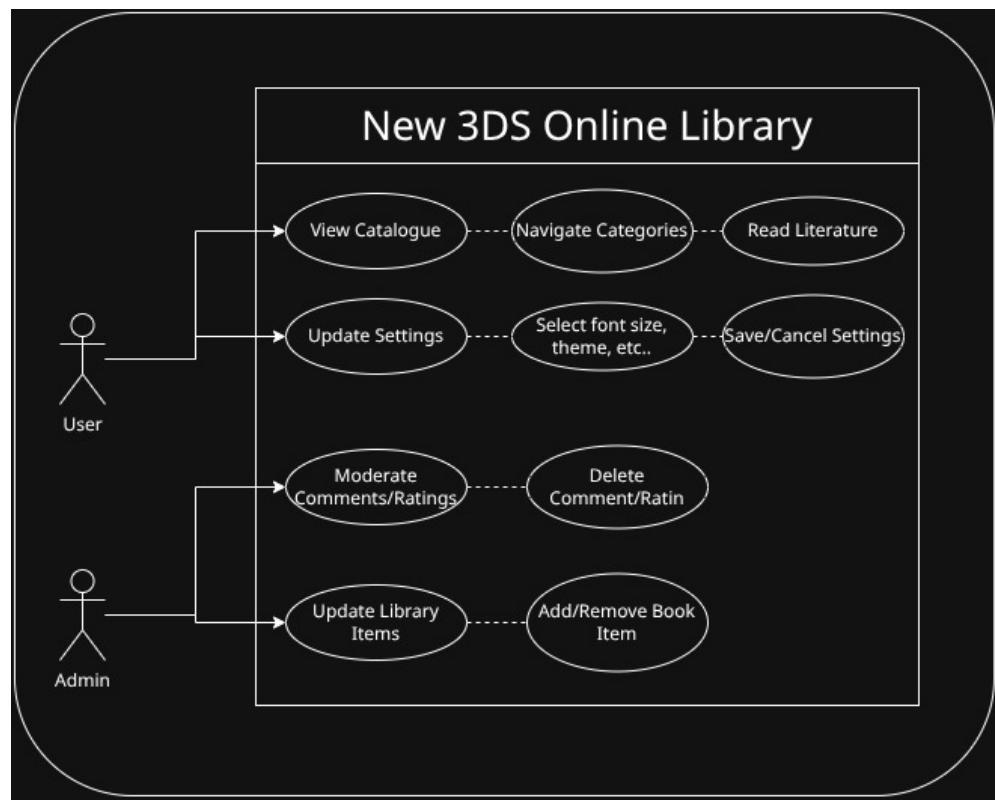
about the Netfront Browser, Mozilla 5.0, HTTP 1.0/1.1 and TLS 1.0/1.1/1.2, HTML 4.01 (5 for New 3DS) [3]. The New 2/3DS most notably includes audio and video support (including 3D video in .mkv format) [3]. Another requirement may be the inclusion of a mobile/desktop site version to ensure better cross-platform functionality (this seems to be the easiest solution for scaling and screen considerations). Some limitations for testing would be lack of equipment; currently, the website can only be tested on a New 3DS system and a laptop browser (Firefox). A final consideration throughout development will be ensuring systems are in place to prevent abuse of the library, such as spamming, comment moderation, and fair ratings. While an account system may be created in the future, the current scope will restrict user information to data stored within the browser.

Mock-up, Diagrams, and Site Map

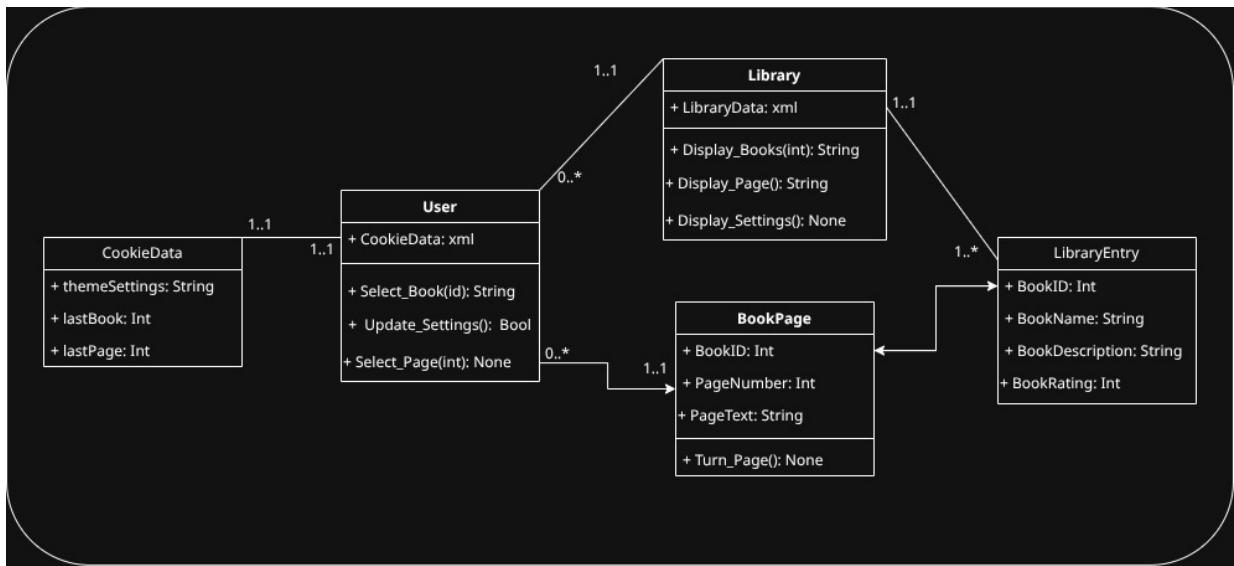
Main Menu Mock-up



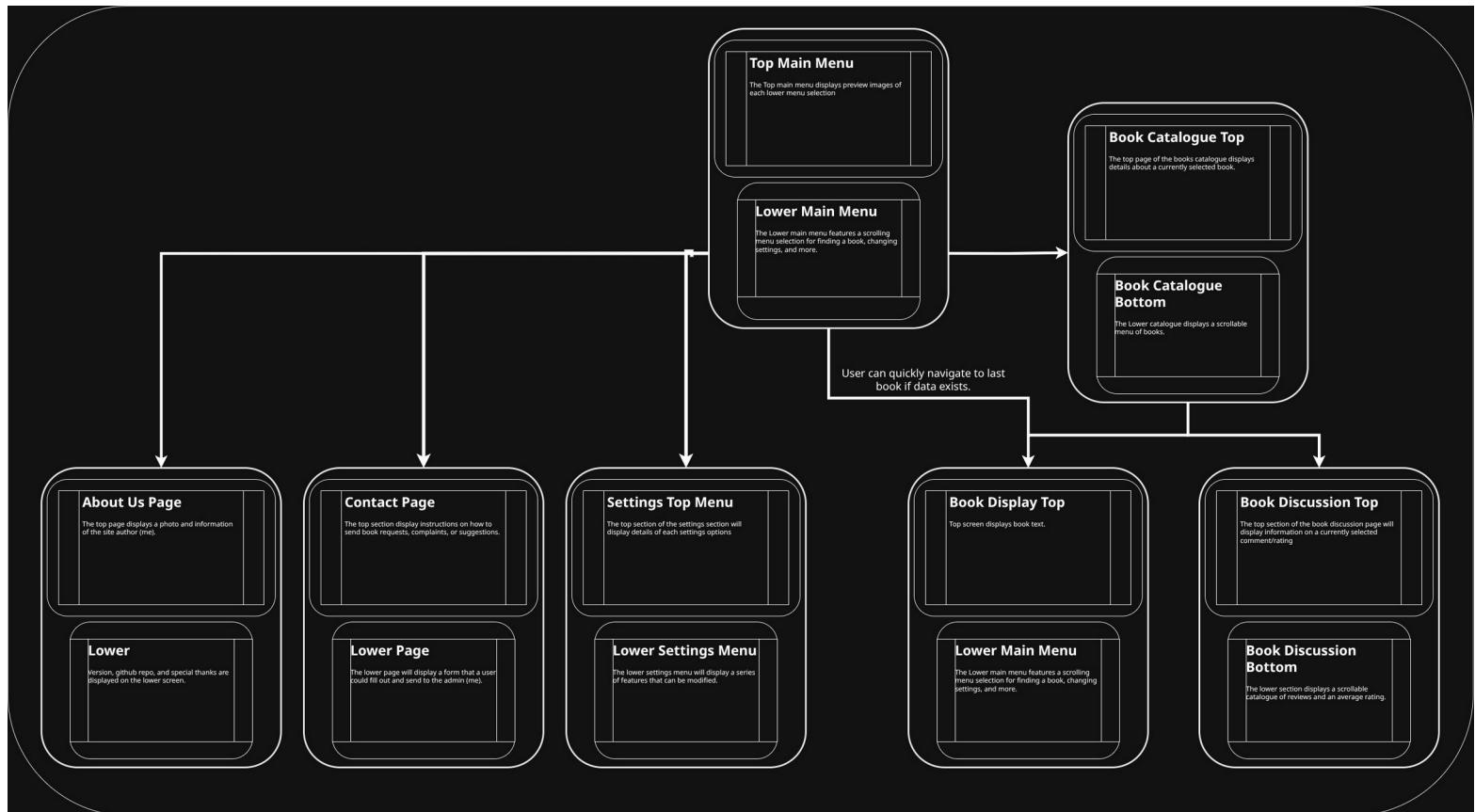
Use Case Diagram



Class Diagram



Site Map



Resources

[1] “Citra – Nintendo 3DS Emulator,” *Citra*, Mar. 05, 2024. <https://citra-emulator.com/>

[2] L. Weedston, “Likely to keep climbing”: Used Nintendo 3DS prices are

skyrocketing and everyone has a theory,” *The Daily Dot*, Dec. 31, 2025.

<https://www.dailymotion.com/entertainment/nintendo-3ds-prices-skyrocketing/>

(accessed Jan. 09, 2026).

This article provides context and theories to the rising cost of Nintendo 3DS/2DS systems.

[3] “Nintendo 3DS Internet Browser Specs | Nintendo Support.” https://en-americas-support.nintendo.com/app/answers/detail/a_id/13802/session/L2F2LzEvdGltZS8xNzY3OTIwNDEyL2dlbi8xNzY3OTIwNDEyL3NpZC9mVUtUYlFCT

[XBaekk4S0JxclZodFRqQmQ1WmF3RkY5M2xfaEFvJTdFQUl4JTdFVDVzOGowWnQx](https://en-americas-support.nintendo.com/app/answers/detail/a_id/13802/session/L2F2LzEvdGltZS8xNzY3OTIwNDEyL2dlbi8xNzY3OTIwNDEyL3NpZC9mVUtUYlFCT)

[OVdkNWliWDRPVjA4Z0d4SDh6Z3JKdDVNbRDbTBVeUlJRkh6WTJHdjBVQUhBSEJ](https://en-americas-support.nintendo.com/app/answers/detail/a_id/13802/session/L2F2LzEvdGltZS8xNzY3OTIwNDEyL2dlbi8xNzY3OTIwNDEyL3NpZC9mVUtUYlFCT)

[xU2JHeVJTU2hsNjhYRXBMaDBmRzFBJTIxJTIx](https://en-americas-support.nintendo.com/app/answers/detail/a_id/13802/session/L2F2LzEvdGltZS8xNzY3OTIwNDEyL2dlbi8xNzY3OTIwNDEyL3NpZC9mVUtUYlFCT)

This article provided an overview for the Nintendo 3DS’s and New 3DS’s browser

functionalities and limitations. I learned there are differences between the 3DS

and New 3DS browser capabilities. A future consideration will be deciding

whether to abandon support for older systems, or attempt to create a completely backwards compatible site. One major limitation from older systems is having no mentioned support for video or audio codecs; one feature I hoped to implement was an audiobook feature. Other considerations include only partial support for CSS 3 and outdated security protocols.

[4] “Internet Browser – 3dbrew,” *3dbrew.org*, 2016.

https://www.3dbrew.org/wiki/Internet_Browser (accessed Jan. 09, 2026).

This resource provides a myriad of useful details on both the old and new 3DS browsers. One particularly important section is the screen resolution details. For example, the top screen and bottom screen resolution are 400x240 and 320x240 respectively, but only 400x215 of the top screen is visible and 320x212 of the bottom screen is visible when the bottom menu bar is displayed. Other information includes methods for disabling scrolling and zooming; this could be used to make a site feel solid by keeping a consistent perspective and control scheme.

[5] simbas, “GitHub – simbas/n3dsite: optimized website for 3DS,” *GitHub*, 2025.

<https://github.com/simbas/n3dsite> (accessed Jan. 09, 2026).

This repository provides a basic template intended to be used with the Nintendo New 3DS browser. I copied this repository and am gradually making changes to accomodate my project goals. This project also directed me to the 3dbrew site which provided useful information about the 2/3DS and New 2/3DS browsers.

[6] RSA000, "GitHub – RSA000/New3DSLibrary: A repo for a new online 3DS Library," *GitHub*, 2025. <https://github.com/RSA000/New3DSLibrary> (accessed Jan. 10, 2026).

This repository will store the website through each stage of development.