

CS 5551 Third Increment Report

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Class ID: 9, Project Group ID: 1
CS 5591 – Spring 2015

I. Introduction

This is the summary report of the third iteration of work performed on the Terrapin Collection Manager system. This system proposes to implement a framework for organizing and managing a user's Board Game collection. The full background of this project can be found in the Project Proposal Document [1] submitted previously.

For this third iteration, my primary focus was on the administration side of the system. Now that content is being indexed, it needs to be organized, which means that searching capabilities needed to be provided for the content in question. Additionally, continuing from last iteration, about half the time spent during this iteration was on front-end client development, rendering and completing the workflow.

Since many of the details behind the architecture of this system were discussed previously in my Project Plan [2], I will not be repeating elements of those discussions here except to discuss changes or additions. This involved a lot of learning on my part, as I am inexperienced with client-side development of web applications. My focus was on creating responsive pages using jQuery and Bootstrap with layouts that scale well for both rich client environments and mobile platforms.

II. Objectives

I had several main objectives with this iteration. First, I needed to improve the agent process to continue to make the review process more automated than manual. Second, I needed to implement the administration clients that would be capable of reviewing this content. Third, I wanted to implement the remaining basic CRUD operations through REST services to allow me to focus almost exclusively on UI and presentation in the fourth iteration.

Some time was lost during this iteration, both due to Spring Break, as well as personal illness, which limited the amount of time I was able to commit to this project in addition to the other demands on my time. That being said, I am pleased with what I was able to learn and accomplish during this iteration.

One of the key areas in which I had to do a lot of learning was responsive layout development. I spent a lot of time interacting with CSS, learning how to use bootstrap layouts effectively, and adding intelligent features from jQuery, like autocomplete fields. The time spent learning these skills now should improve development time in the final iteration, which contains a larger portion of UI work.

III. Design Overview

My architectural model remains largely intact from the initial planning. I have added new parameters to various service calls, and created one new service, but fundamentally, the architectural plan as initially designed has been well suited to the work being done at this point in the project.

Expanding on the HTML split page model from the second iteration, I created a separate sub-folder in my web project root to host the admin pages required for content review and approval. This allowed me greater freedom to experiment with CSS changes to my common .css file to judge how they impact layout. I also leveraged focused more on response times, using compression tools to reduce image size and trying to use simpler light-weight functions instead of more expensive feature-rich calls.

Stories

#20 As the system, I need to be able to manage media item data so users can associate additional content to games.

#19 As the system, I need to be able to manage wishlist item information so users can manage their personal wishlists.

#38 As the system, I need to automatically generate statistics numbers so that these numbers accurately reflect the current state of the system.

#37 As the system, I need to be able to process statistics data for external games sources so that I can provide this information for the Admin Users.

#12 As an Administrative User, I need to be able to search Game data so that I can manually match price data to the correct game if it cannot be determined automatically.

#17 As the system, I need to be able to manage collection content so users can add or remove games from their collection.

#30 As the system, I want to proactively update external data I have cached so that I can stay current with that data, especially if users have notifications requested for a given game.

#11 As an Administrative User, I need to be able to define relationships between games and price data so that users can have access to retail information without having to log in directly to the retailer website

#29 As the system, I want to be able to monitor external data sources and pull new content so that I can stay current on new information being published by the external sites

#6 As an Administrative User, I need to be able to view new BoardGameGeek content so I can verify accuracy prior to conversion into Game content.

#7 As an Administrative User, I need to be able to view new CoolStuffInc content so I can verify accuracy prior to conversion into Game content.

#8 As an Administrative User, I need to be able to view new MiniatureMarket content so I can verify accuracy prior to conversion into Game content.

#10 As an Administrative User, I need to be able to submit verified Game content so I can build the index that will drive the collection management tool.

From a stories perspective, I was able to complete a decent number of stories this iteration, as well as leave fewer in flight heading into the final development iteration. I completed 11 stories with 2 others having been begun which will be transitioned into the fourth iteration. As can be seen, most of these stories have to do with the Administrative User role, which was fully realized this iteration.

There are now 10 stories that have been included in the fourth iteration, with another two items still in the backlog. Most of those items focus on the main collection user, and are front-end oriented stories, now that the spine of the system is in place. I expect to be able to deliver most if not all of the originally planned features by the end of this project.

IV. Implementation Details

While last iteration I used TLOC (Total Lines of Code) and MLOC (Meaningful Lines of Code), I will not be presenting those statistics again. Progress has been made, but as I mentioned, a fair amount of time this iteration was dedicated to learning to work with Bootstrap and jQuery-UI, so in some ways progress was slower than writing familiar code.

Two new REST endpoints were implemented this release.

/auto
/stats

The /stats end-point was designed to provide a quick query for collection metrics. The /auto end-point was designed to provide access to a stripped down data set to be used to searching games via an auto-complete input field.

Both the GET and PUT operations for /external/bggdata, /external/csidata, /external/mmdata, and /game were significantly enhanced to support a variety of new search options and parameters, as well as cascading updates behind the scenes to support administrative user tasks. In some ways, these tasks were taken from the initial concept that was designed for use with the /search REST end-point, but made more sense to be refactored into the source REST end-point to avoid redundant code.

For reference, the code repositories for each project are listed below. All code for this release has been checked in to the Master branch of each project. Because class diagrams at this point are a little large to make inclusion in this document meaningful, they have been uploaded as part of the github project under the src/model folders.

- ac-games-pojo – <https://github.com/apshaiTerp/ac-games-pojo>
- ac-games-db – <https://github.com/apshaiTerp/ac-games-db>
- ac-games-db-mongo – <https://github.com/apshaiTerp/ac-games-db-mongo>
- ac-games-restservice-spring – <https://github.com/apshaiTerp/ac-games-restservice-spring>
- ac-games-agent – <https://github.com/apshaiTerp/ac-games-agent>
- agent-site – <https://github.com/apshaiTerp/agent-site>

As most of the other code changes are in support of the new front-end workflow, I will include some screen shots of the site in both Google Chrome and Mobile usage:

Presented in Order are:

The Main Statistics Page (which is the ‘home’ site for Admin users)

The Board Game Geek Review Page

The CoolStuffInc Review Page

The MiniatureMarket Review Page

107.188.249.238:8080/tcm/admin/admin.html

Comics UMKC DAF Æon Y f CCH S X-Wing Pathfinder Side Projects

Terrapin Collection Administration Home BGG CSI MM About Log Out

This is some boiler plate text right here...

BoardGameGeek Stats Review BoardGameGeek Games

Base Games	149327
Expansion Games	9626
Collectible Games	457
Approved Games	74500
Rejected Games	82970
Review Pending	1940

CoolStuffInc Stats Review CoolStuffInc Games

Board Games	8260
Dice Masters Items	541
Collectible Card Game Items	88490
Living Card Games	329
Role Playing Games	2636
Miniatures	15602
Approved Games	2
Rejected Games	80000
Review Pending	44395

Terrapin Collection Admin Merchants & Marauders S Terrapin Collection Admin Adam

file:///Users/ac010168/Documents/umkc/agent-site/tcm/admin/bgg.html

Comics UMKC DAF Æon Y f CCH S X-Wing Pathfinder Side Projects

Terrapin Collection Administration Home BGG CSI MM About Log Out

Now we get down to brass tacks. Let's process some BGG Games!

Merchants & Marauders: Seas of Glory (2015)

Board Game Geek ID: 161167

Game Type: EXPANSION

Minimum Player Count: 2

Maximum Player Count: 4

Minimum Playing Time: 180 minutes

Maximum Playing Time: 180 minutes

Designers: Christian Marcussen

Publishers: Filosofia Édition, Z-Man Games

Select Primary Publisher: Choose Primary Publisher

Reject This Game Approve This Game

Christian Marcussen
MERCHANTS & MARAUDERS
SEAS OF GLORY
Filosofia Édition, Z-Man Games
This is an expansion, the base game is needed.
Z-MAN GAMES

Terrapin Collection Admin

file:///Users/ac010168/Documents/umkc/agent-site/tcm/admin/mm.html

Comics UMKC DAF Aeon CCH S CCG X-Wing Pathfinder Side Projects

Terrapin Collection Administration Home BGG CSI MM About Log Out

Star Wars Armada - Imperial Raider Expansion Pack Preorder

Miniature Market ID	44261
SKU	FFGSM15
Product Category	TABLETOP
Game Manufacturer	Fantasy Flight Games
Game Availability	PREORDER
Original MSRP	\$19.95
Current Price	\$13.77
Linked Game	Star Wars: Armada (Fantasy Flight Games - 2015)

Star Wars: Armada (2015)
Game ID: B6014

Reject This Game Approve This Game

STAR WARS ARMADA
IMPERIAL RAIDER EXPANSION PACK

Terrapin Collection Admin

file:///Users/ac010168/Documents/umkc/agent-site/tcm/admin/csi.html

Comics UMKC DAF Aeon CCH S CCG X-Wing Pathfinder Side Projects

Terrapin Collection Administration Home BGG CSI MM About Log Out

Doomtown: Reloaded: Frontier Justice Saddlebag Expansion

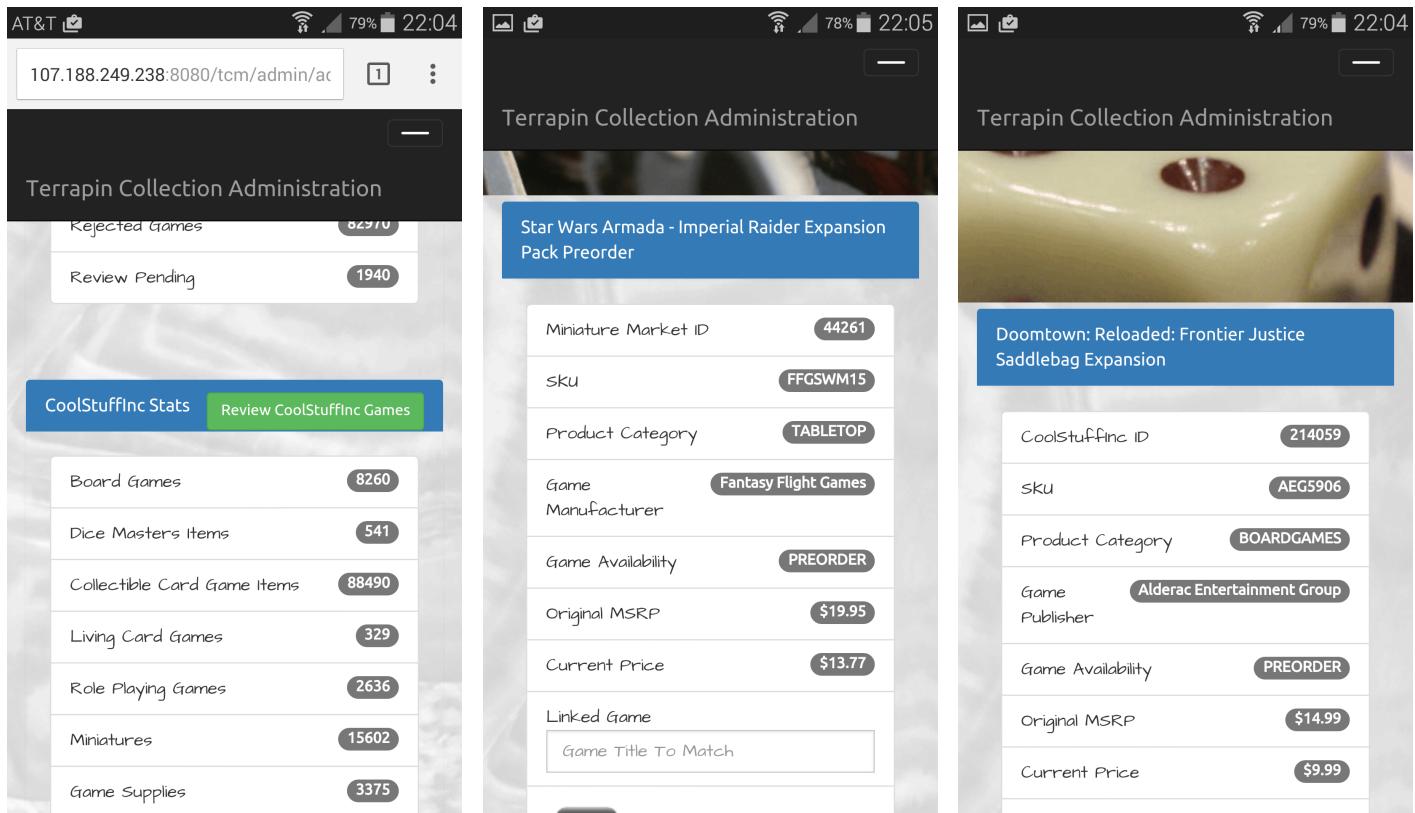
CoolStuffInc ID	214059
SKU	AEG5906
Product Category	BOARDGAMES
Game Publisher	Alderac Entertainment Group
Game Availability	PREORDER
Original MSRP	\$14.99
Current Price	\$9.99
Linked Game	Doomtown: Reloaded (Alderac Entertainment Group - 2014)

Doomtown: Reloaded (2014)
Game ID: 49394

Reject This Game Approve This Game

SADDLEBAG EXPANSION
DOOMTOWN
FRONTIER JUSTICE
RELOADED
AEG

And now for some of the Mobile views of portions of the same page:



As the screen shots show, the layout is responsive, and the desired elements are being represented correctly in either traditional rich-client or mobile formats.

Presented below are also the Class Diagrams for each of the sub projects. Because the diagrams are rather large in for several projects, I am including the links here to view the source image, so that should the reader desire, they can view the diagrams in greater detail:

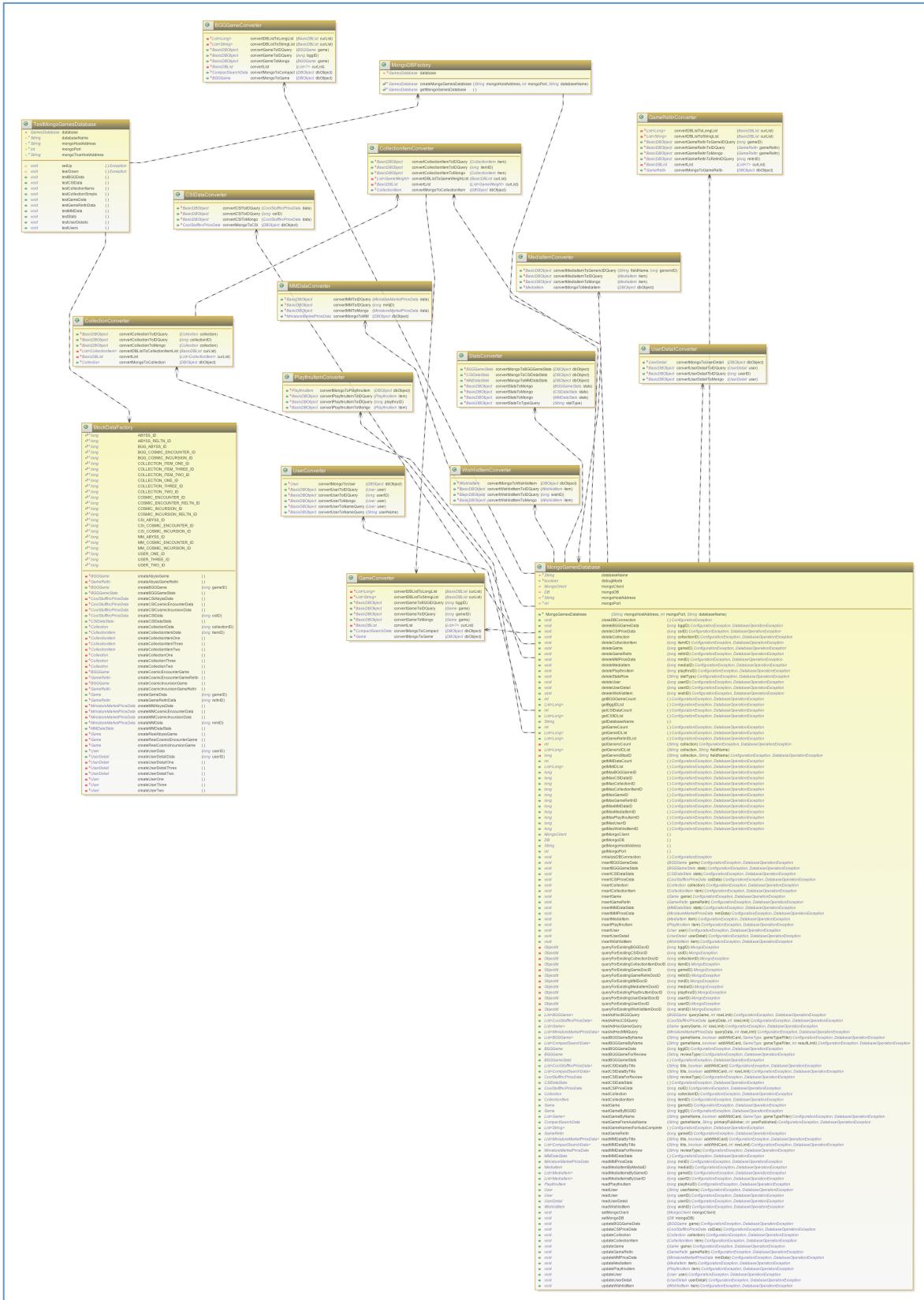
<https://github.com/apshaiTerp/ac-games-pojo/blob/master/src/models/allPojos.png>
<https://github.com/apshaiTerp/ac-games-db/blob/master/src/model/GamesDatabase.png>
<https://github.com/apshaiTerp/ac-games-db-mongo/blob/master/src/model/allMongo.png>
<https://github.com/apshaiTerp/ac-games-restservice-spring/blob/master/src/model/allRest.png>
<https://github.com/apshaiTerp/ac-games-agent/blob/master/src/model/allAgent.png>



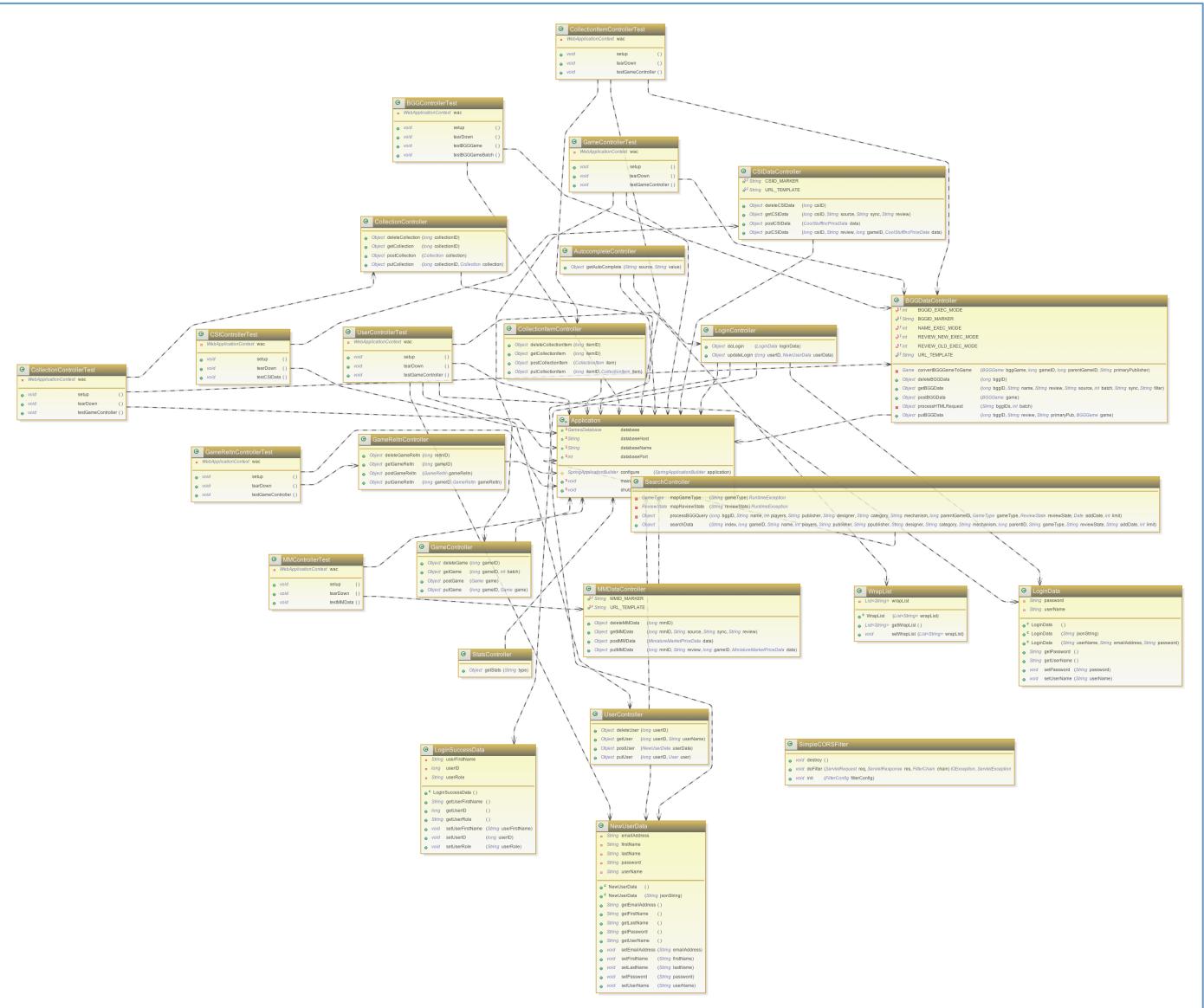
The ac-games-pojos Class Diagram



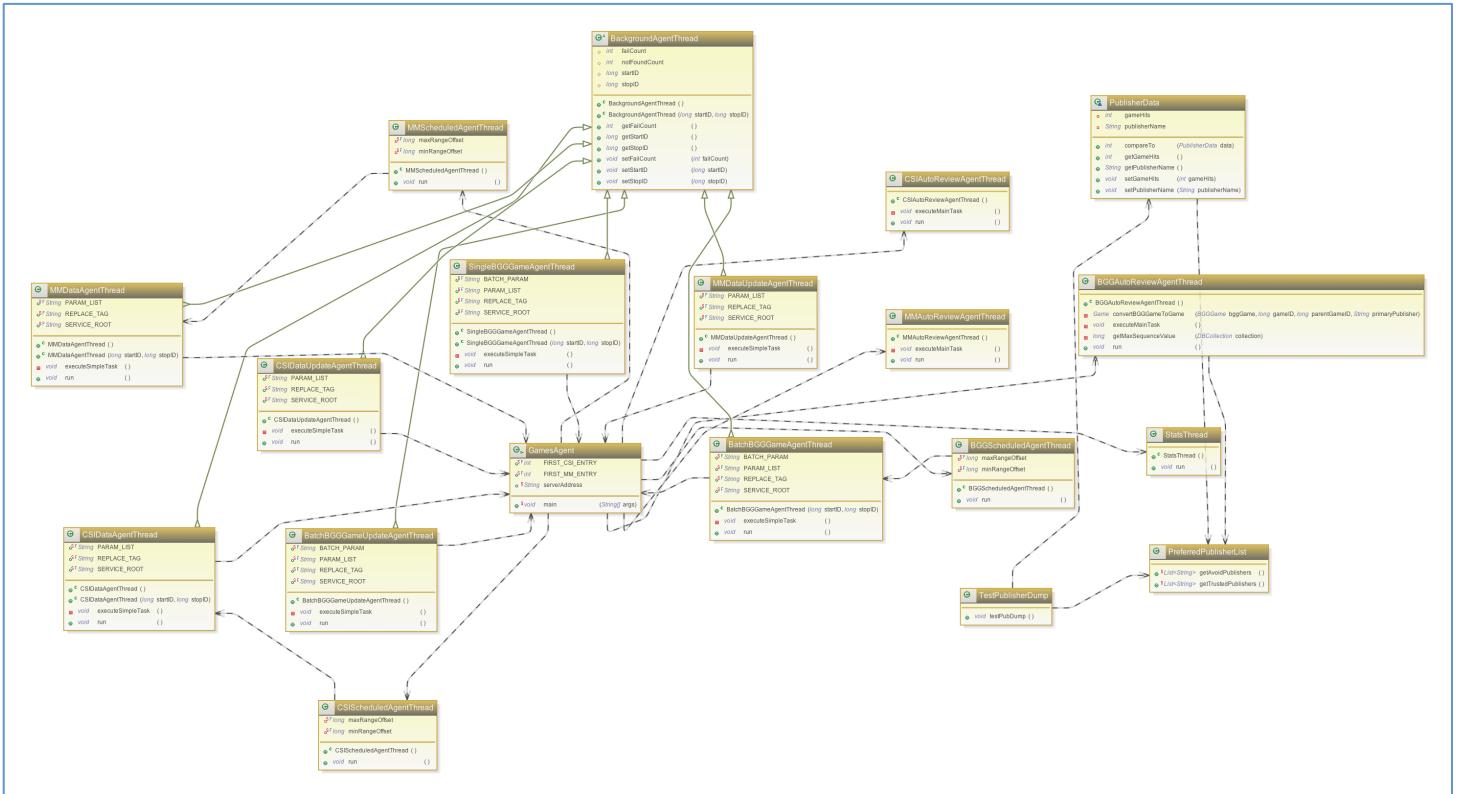
The ac-games-db Class Diagram



The ac-games-db-mongo Class Diagram



The ac-games-restservice-spring Class Diagram



The ac-games-agent Class Diagram

V. Testing

Because the majority of the work during this iteration was focused on the front-end, testing was not expanded significantly during this iteration. I consider that to be a strength of the heavy commitment to test development in the previous two iterations.

While all test evidence is documented under the site data, for brevity's sake I will only be including screen caps from the Surefire plugin report demonstrating the successfully execution of all test sets with this iteration end.

Complete Site Data can be found here:

<https://github.com/apshaiTerp/cs-5551-documentation/blob/master/maven%20sites/ac-games-db/ac-games-pojos-0.3.0-SNAPSHOT%20site/index.html>

<https://github.com/apshaiTerp/cs-5551-documentation/blob/master/maven%20sites/ac-games-db/ac-games-db-0.3.0-SNAPSHOT%20site/index.html>

<https://github.com/apshaiTerp/cs-5551-documentation/blob/master/maven%20sites/ac-games-db/ac-games-db-mongo-0.3.0-SNAPSHOT%20site/index.html>

<https://github.com/apshaiTerp/cs-5551-documentation/blob/master/maven%20sites/ac-games-db/ac-games-restservice-spring-0.3.0-SNAPSHOT%20site/index.html>

<https://github.com/apshaiTerp/cs-5551-documentation/blob/master/maven%20sites/ac-games-db/ac-games-agent-0.3.0-SNAPSHOT%20site/index.html>

Surefire Report

Summary

[[Summary](#)] [[Package List](#)] [[Test Cases](#)]

Tests	Errors	Failures	Skipped	Success Rate	Time
42	0	0	0	100%	0.511

Note: failures are anticipated and checked for with assertions while errors are unanticipated.

Package List

[[Summary](#)] [[Package List](#)] [[Test Cases](#)]

Package	Tests	Errors	Failures	Skipped	Success Rate	Time
com.ac.games.data.mock	42	0	0	0	100%	0.511

Note: package statistics are not computed recursively, they only sum up all of its testsuites numbers.

com.ac.games.data.mock

	Class	Tests	Errors	Failures	Skipped	Success Rate	Time
	TestBGGParser	14	0	0	0	100%	0.419
	TestCoolStuffIncParser	14	0	0	0	100%	0.03
	TestMiniatureMarketParser	14	0	0	0	100%	0.062

The ac-game-pojos Surefire Test Report

Surefire Report

Summary

[Summary] [Package List] [Test Cases]

Tests	Errors	Failures	Skipped	Success Rate	Time
10	0	0	0	100%	3.17

Note: failures are anticipated and checked for with assertions while errors are unanticipated.

Package List

[Summary] [Package List] [Test Cases]

Package	Tests	Errors	Failures	Skipped	Success Rate	Time
com.ac.games.db.test	10	0	0	0	100%	3.17

Note: package statistics are not computed recursively, they only sum up all of its testsuites numbers.

com.ac.games.db.test

	Class	Tests	Errors	Failures	Skipped	Success Rate	Time
	TestMongoGamesDatabase	10	0	0	0	100%	3.17

The ac-games-db-mongo Surefire Test Report

Surefire Report

Summary

[Summary] [Package List] [Test Cases]

Tests	Errors	Failures	Skipped	Success Rate	Time
9	0	0	0	100%	21.171

Note: failures are anticipated and checked for with assertions while errors are unanticipated.

Package List

[Summary] [Package List] [Test Cases]

Package	Tests	Errors	Failures	Skipped	Success Rate	Time
com.ac.games.rest.test	9	0	0	0	100%	21.171

Note: package statistics are not computed recursively, they only sum up all of its testsuites numbers.

com.ac.games.rest.test

	Class	Tests	Errors	Failures	Skipped	Success Rate	Time
	BGGControllerTest	2	0	0	0	100%	5.034
	CollectionControllerTest	1	0	0	0	100%	0.767
	CollectionItemControllerTest	1	0	0	0	100%	0.69
	CSIControllerTest	1	0	0	0	100%	1.006
	GameControllerTest	1	0	0	0	100%	0.711
	GameReltnControllerTest	1	0	0	0	100%	0.267
	MMCControllerTest	1	0	0	0	100%	12.001
	UserControllerTest	1	0	0	0	100%	0.695

The ac-games-restservice-spring Surefire Test Report

For performance testing, I decided to use Google's Load Time Analyzer to see how performance for my pages was evaluated. The feedback from these results is not yet incorporated into the site yet, but will be considered for future changes. I also had a hard time running performance tests against most of the Admin pages because I put them behind a session-specific login requirement. This made it impossible to submit requests to analyze those pages to anonymous testing tools since the default behavior when not logged in is to reroute to the login page. The general finding of my testing is that there are some changes that can be made to improve the Mobile experience, but the Interactive elements all passes successfully.

http://107.188.249.238:8080/tcm/

ANALYZE

! Mobile

! Desktop

63 / 100 Speed

! Should Fix:

Eliminate render-blocking JavaScript and CSS in above-the-fold content

► [Show how to fix](#)

Enable compression

► [Show how to fix](#)

! Consider Fixing:

Leverage browser caching

► [Show how to fix](#)

Minify HTML

► [Show how to fix](#)

✓ 6 Passed Rules

► [Show details](#)



100 / 100 User Experience

✓ Congratulations! No issues found.

http://107.188.249.238:8080/tcm/

ANALYZE

! Mobile

! Desktop

77 / 100 Suggestions Summary

! Should Fix:

Enable compression

► [Show how to fix](#)

Eliminate render-blocking JavaScript and CSS in above-the-fold content

► [Show how to fix](#)

! Consider Fixing:

Leverage browser caching

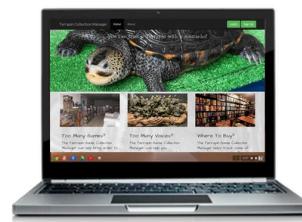
► [Show how to fix](#)

Minify HTML

► [Show how to fix](#)

✓ 6 Passed Rules

► [Show details](#)



*The results are cached for 30s. If you have made changes to your page, please wait for 30s before re-running the test.

http://107.188.249.238:8080/tcm/admin/admin.html

ANALYZE



Mobile



Desktop

64 / 100 Speed

! Should Fix:

Eliminate render-blocking JavaScript and CSS in above-the-fold content
» [Show how to fix](#)

Enable compression

» [Show how to fix](#)

! Consider Fixing:

Leverage browser caching

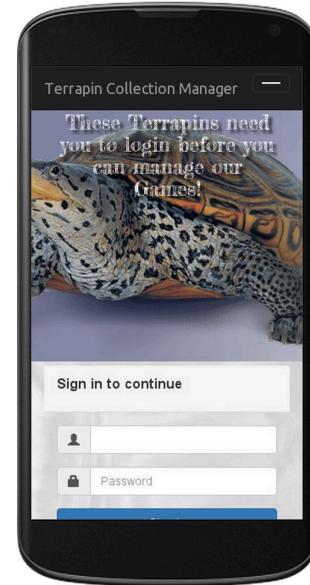
» [Show how to fix](#)

Minify HTML

» [Show how to fix](#)

✓ 6 Passed Rules

» [Show details](#)



100 / 100 User Experience

PageSpeed Insights

8+1

http://107.188.249.238:8080/tcm/admin/admin.html

ANALYZE



Mobile



Desktop

78 / 100 Suggestions Summary

! Should Fix:

Enable compression

» [Show how to fix](#)

Eliminate render-blocking JavaScript and CSS in above-the-fold content

» [Show how to fix](#)

! Consider Fixing:

Leverage browser caching

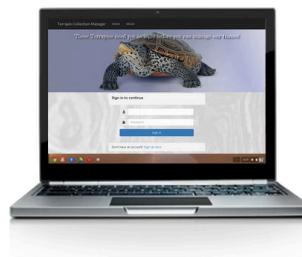
» [Show how to fix](#)

Minify HTML

» [Show how to fix](#)

✓ 6 Passed Rules

» [Show details](#)



I was also able to test with the YSlow analyzer, which did allow me a little more leverage to run tests behind the login wall. I have included some of those results here as well. Overall, all of my sites earned a B (with an average score of 85) from this site for performance and best practices adoption.

The screenshot shows a web browser window for the Terrapin Collection Manager. The title bar says "Terrapin Collection Manag x" and the address bar shows "107.188.249.238:8080/tcm/". The page features a large image of a turtle with the text "You can trust a Terrapin with a mustache!". Below the image are two smaller images: one of a terrarium and another of several baby turtles. The main content area displays YSlow analysis results with a grade of B and an overall performance score of 83. The left sidebar lists various optimization suggestions, many of which are marked with a red 'F' indicating they are not being implemented. The right sidebar provides detailed explanations for the 'F' grade under "Use a Content Delivery Network (CDN)".

Terrapin Collection Manager Home About Log In Sign Up

You can trust a Terrapin with a mustache!

chrome-extension://ninejjcohidippngpapiilmkgllmakh/yslo

Home Grade Components Statistics

Grade B Overall performance score 83 Ruleset applied: YSlow(V2) URL: <http://107.188.249.238:8080/tcm/>

ALL (23) FILTER BY: [CONTENT \(6\)](#) | [COOKIE \(2\)](#) | [CSS \(6\)](#) | [IMAGES \(2\)](#) | [JAVASCRIPT \(4\)](#) | [SERVER \(6\)](#)

A Make fewer HTTP requests
F Use a Content Delivery Network (CDN)
A Avoid empty src or href
F Add Expires headers
E Compress components with gzip
A Put CSS at top
A Put JavaScript at bottom
A Avoid CSS expressions
n/a Make JavaScript and CSS external
A Reduce DNS lookups
A Minify JavaScript and CSS
A Avoid URL redirects
A Remove duplicate JavaScript and CSS

Grade F on Use a Content Delivery Network (CDN)

There are 11 static components that are not on CDN.

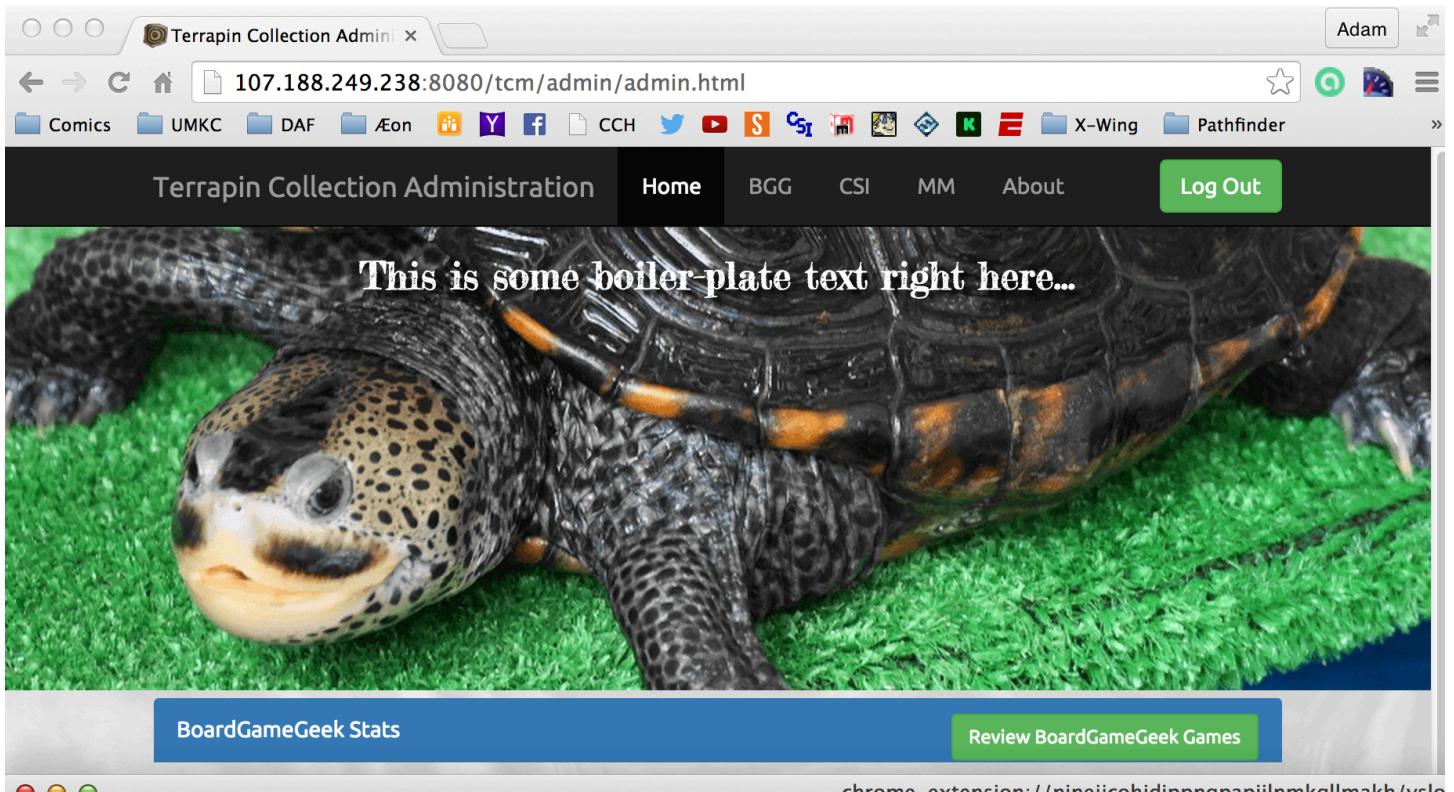
You can specify CDN hostnames in your preferences. See [YSlow FAQ](#) for details.

- fonts.googleapis.com: 1 component, 2.7K (0.7K GZip) [Add as CDN](#)
- ajax.googleapis.com: 1 component, 95.9K (33.2K GZip) [Add as CDN](#)

User proximity to web servers impacts response times. Deploying content across multiple geographic regions can help reduce latency.

[»Read More](#)

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chrome-extension://ninejjcohidippngpapilnmkllmakh/yslo

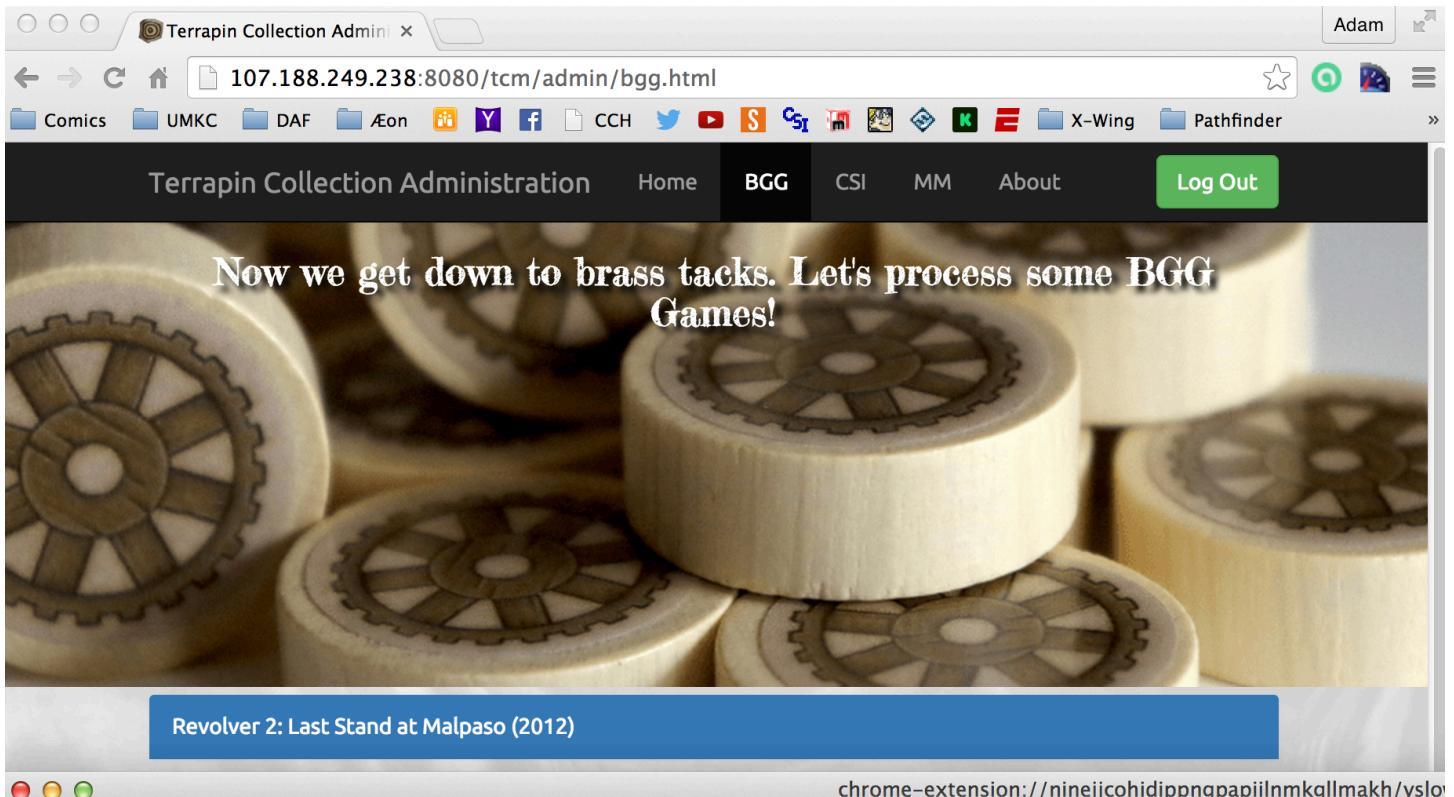
Home Grade Components Statistics |

Grade B Overall performance score 86 Ruleset applied: YSlow(V2) URL: <http://107.188.249.238:8080/tcm/admin/admin.html>

ALL (23) FILTER BY: [CONTENT \(6\)](#) | [COOKIE \(2\)](#) | [CSS \(6\)](#) | [IMAGES \(2\)](#) | [JAVASCRIPT \(4\)](#) | [SERVER \(6\)](#)

A Make fewer HTTP requests	Grade A on Make fewer HTTP requests
F Use a Content Delivery Network (CDN)	This page has 3 external stylesheets. Try combining them into one.
A Avoid empty src or href	Decreasing the number of components on a page reduces the number of HTTP requests required to render a page. Components include: combine files, combine multiple scripts into one script, combine multiple CSS files into one file, and compress files.
F Add Expires headers	
E Compress components with gzip	
A Put CSS at top	
A Put JavaScript at bottom	
A Avoid CSS expressions	
n/a Make JavaScript and CSS external	
A Reduce DNS lookups	
B Minify JavaScript and CSS	
A Avoid URL redirects	
A Remove duplicate JavaScript and CSS	
A Configure entity tags (ETags)	
A Make AJAX cacheable	
A Use GET for AJAX requests	

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Home | Grade | Components | Statistics |

Grade B Overall performance score 86 Ruleset applied: YSlow(V2) URL: <http://107.188.249.238:8080/tcm/admin/bgg.html>

[ALL \(23\)](#) FILTER BY: [CONTENT \(6\)](#) | [COOKIE \(2\)](#) | [CSS \(6\)](#) | [IMAGES \(2\)](#) | [JAVASCRIPT \(4\)](#) | [SERVER \(6\)](#)

A	Make fewer HTTP requests
F	Use a Content Delivery Network (CDN)
A	Avoid empty src or href
F	Add Expires headers
E	Compress components with gzip
A	Put CSS at top
A	Put JavaScript at bottom
A	Avoid CSS expressions
n/a	Make JavaScript and CSS external
A	Reduce DNS lookups
B	Minify JavaScript and CSS
A	Avoid URL redirects
A	Remove duplicate JavaScript and CSS
A	Configure entity tags (ETags)
A	Make AJAX cacheable

Grade A on Make fewer HTTP requests

This page has 3 external stylesheets. Try combining them into one.

Decreasing the number of components on a page reduces the number of HTTP requests required to render the page. Components include: combine files, combine multiple scripts into one script, combine multiple CSS files into one file, and compress files.

[»Read More](#)

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VI. Deployment

The ScrumDo link to this iteration can be found here:

<https://www.scrumdo.com/projects/project/terrapin-collection-manager/iteration/121583>

The final end-states for my projects has been included in the GitHub documentation site, but this is the list of the final java project end-states:

ac-games-pojos-0.3.0-SNAPSHOT.jar
ac-games-db-0.3.0-SNAPSHOT.jar
ac-games-db-mongo-0.3.0-SNAPSHOT.jar
ac-games-restservice-spring-0.3.0-SNAPSHOT.jar
ac-games-agent-0.3.0-SNAPSHOT.jar

The root URL for my service is <http://107.188.249.238:8080/ac-games-restservice-spring-0.3.0-SNAPSHOT/>.

The URL for my site is <http://107.188.249.238:8080/tcm/>.

All screen caps for the website generated above were taken using the live site deployment.

VII. Project Management

Because I am a team of one, I can attest that all work completed on this project is my own. I have not made an effort to track the time spent on this project during this iteration, largely because of the issue discussed above between vacation and illness, but I feel that in spite of those issues, I have managed to accomplish a lot this iteration.

Total story completion on this project may not be possible at this point. I believe at the end of next iteration, I will have a functional site, but some of the polish may still be lacking. I anticipate progress moving quickly on UI developments for the next iteration in part due to the experience gained during this past iteration, both with using external APIs like Bootstrap and jQuery as well as becoming more comfortable with HTML/JavaScript event interaction.

VIII. References

[1] – <https://github.com/apshaiTerp/cs-5551-documentation/blob/master/CS551-Project-Proposal.pdf>

[2] – <https://github.com/apshaiTerp/cs-5551-documentation/blob/master/CS%205551%20Project%20Plan.pdf>