

# CS 5551 Final Increment Report

Adam Carter

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

## I. Introduction

This is the final summary report for the 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 final iteration, my primary focus was on the user interface, specifically on the collection owner use cases. This work involved becoming much more familiar with dynamic HTML generation in response to AJAX requests, and took moving my REST services from standard CRUD operations to providing meaningful connections and representations of the data. This effort required the creation of some new REST endpoints as well as the expansion of existing services to ensure the data we access is both compact and useful.

With the project complete in terms of this semester's timeline, I am pleased with the offered feature set and layout. By the end of this iteration I certainly felt much more comfortable with the HTML5/JavaScript/AJAX/BootStrap/jQuery ecosystem of web-client development. I was not able to implement all of the stories I desired to, but plan to continue to expand the project on my own time to continue to improve its feature set and the user experience.

## II. Objectives

The primary objective of this iteration was to complete the web-client. This required really digging in to what ajax calls would be needed and learning how to dynamically generate content. I also wanted to make sure that the UI as a whole retained a consistent look and feel, and ensure that my REST calls were responsive and succinct.

Some time was lost during this iteration due to participation in the Hackathon as well as other classroom commitments, but overall I feel this may have been my most productive iteration to date. That feeling may stem from the fact that during this iteration I was finally able to visually present information that I have been building up my service infrastructure for this entire semester.

I felt like one main goal as well for this iteration was to come away from the web-client development work feeling like I understand how all the various technologies fit together. I wanted to understand better how to decide when I should use a simple ajax call, or when to use the jQuery ajax implementations. I wanted to try and learn where jQuery would improve development and performance and when it made more sense to use pure JavaScript. While I certainly don't feel I've mastered that set, I do feel like my experience was broad enough across widgets, layouts, and tasks that I feel much more confident in understanding where leverage certain technologies going forward.

### III. Design Overview

My architectural model remains largely intact from the initial planning. Several new REST endpoints were introduced with this iteration, and I have added new parameters to multiple existing service calls, but fundamentally, the architectural plan as initially designed has been well suited to the work being done at this point in the project. In fact, several future elements have already been coded into the REST/database layers from work I did earlier in this project that was unable to be fully realized, but will be available as I continue to expand the system.

My web design model basically breaks down into three groups: welcome, administration, and collection user. The welcome page set is all user-accessible without authentication, and contains some basic information as well as the sign-up and login screens. The administration page set is only available to administrative users, and serves the purpose of administering collection elements that come from the outside data sources in a pull-only fashion. The collection user page set contains all the tasks required for users to maintain and browse their game collection and wishlists.

## Stories

The screenshot shows a digital board interface for managing user stories. At the top, there's a header with a search bar labeled "Filter Board" and a gear icon for settings. Below the header is a toolbar with icons for creating, deleting, and filtering cards. The main area is a grid of cards, each representing a user story. The columns in the grid are: Story ID, Status, Title, Type, Assignee, and Priority (indicated by a yellow box). The stories listed are:

- #19 As the system, I need to be able to manage wishlist item information so users can manage their personal wishlists.  
Done Tasks | 0 Comments Services #E4 apshaiTerp
- #18 As the system, I need to be able to provide the ability to search games and game-related content so users can help manage their collections.  
Done Tasks | 0 Comments Services #E4 apshaiTerp
- #21 As a User, I want to be able to add Games to my collection so I can track which games are in my collection  
Done Tasks | 0 Comments CollectionClient #E5 apshaiTerp
- #22 As a User, I want to be able to remove Games from my collection so I can accurately reflect which games are in my collection  
Done Tasks | 0 Comments CollectionClient #E5 apshaiTerp
- #23 As a User, I want to be able to search for existing games so I can add those games to my collection  
Done Tasks | 0 Comments CollectionClient #E5 apshaiTerp
- #24 As a User, I want to be able to generate a list of recommended games from my collection so I can choose which games I can play based on the provided criteria  
This should allow for me to search for criteria like "Which of my games can I play with 6 players?" or "Which of my games are Cooperative Games?"  
Done Tasks | 0 Comments CollectionClient #E5 apshaiTerp
- #25 As a User, I want to view price data for games so I can make the best possible decision about when and where to buy my game.  
This story can technically cover both items in my wishlist and generic game searches.  
Done Tasks | 0 Comments CollectionClient #E5 apshaiTerp
- #26 As a user, I want to be able to build a wishlist of games I intend to purchase so I can help plan for future game purchases.  
Done Tasks | 0 Comments CollectionClient #E5 apshaiTerp
- #20 As the system, I need to be able to manage media item data so users can associate additional content to games.  
Doing Tasks | 0 Comments Services #E4 apshaiTerp
- #27 As a User, I want to be able to add Media content like videos or Game Manuals to my games so that I can retrieve that information quickly during a gaming event.  
Todo Tasks | 0 Comments CollectionClient #E5 apshaiTerp

From a stories perspective, I was able to complete a decent number of stories this iteration, though in truth I probably could have split several of those stories into smaller tasks. I completed 8 stories, all focused on the collection user feature set. Of the initial key project features, I was able to complete all collection maintenance tasks, implemented the game wishlist, and the game recommendation tasks. Other important features such as Playthrough tracking, Media item association, and change notifications, were not implemented.

For the project as a whole, I completed 32 of 38 stories with 1 in flight and 5 not yet started.

#### **IV. Implementation Details**

In previous iterations I used TLOC (Total Lines of Code) and MLOC (Meaningful Lines of Code) as a means of evaluating progress. While not a completely reliable metric for quality, I believe revisiting these statistics as the end of the project provides a useful means of illustrating where times was spent across the iterations. For instance, the jump in HTML code denoted in the growth of the TCM web-client is a good indicator for how much time was devoted to that component later in the project.

<b>Project</b>	<b>Classes/Pages</b>	<b>TLOC</b>	<b>MLOC</b>
ac-games-pojo – Iteration 1	22	1777	1086
ac-games-pojo – Iteration 2	38	2713	1568
ac-games-pojo – Iteration 4	51	4263	2377
ac-games-db – Iteration 1	3	54	39
ac-games-db – Iteration 2	3	103	117
ac-games-db – Iteration 4	3	154	179
ac-games-db-mongo – Iteration 1	7	2841	2419
ac-games-db-mongo – Iteration 2	13	3200	2753
ac-games-db-mongo – Iteration 4	17	4844	4250
ac-games-restservice-spring – Iteration 1	7	900	725
ac-games-restservice-spring – Iteration 2	22	2927	2321
ac-games-restservice-spring – Iteration 4	36	5176	4189
ac-games-agent – Iteration 1	6	640	463
ac-games-agent – Iteration 2	13	1718	1409
ac-games-agent – Iteration 4	22	2850	2283
TCM web-client – Iteration 2	5	785	---
TCM web-client – Iteration 4	19	7399	---
<b>Total Project Stats – Iteration 1</b>	<b>45</b>	<b>6212</b>	<b>4732</b>
<b>Total Project Stats – Iteration 2</b>	<b>94</b>	<b>11446</b>	<b>8168</b>
<b>Total Project Stats – Iteration 4</b>	<b>148</b>	<b>24686</b>	<b>13278</b>

For the final report, I also wanted to layout all the REST endpoints and touch briefly on their configuration. I will not be explaining them all, as much of that has been done in previous

reports and is covered by the initial project architecture and description, but I believe it will prove helpful to list out all endpoints and which messages they accept:

## 1. /auto

GET – Params [ source, value, userID ]

Sample Usage:

<http://107.188.249.238:8080/ac-games-restservice-spring-1.0/auto?source=game&value=full>

## 2. /collection

GET – Params [ collectionid, topx, compact ]

PUT – Params [ collectionid ]

Body [ Collection ]

POST – Body [ Collection ]

DELETE – Params [ collectionid ]

Sample Usage:

<http://107.188.249.238:8080/ac-games-restservice-spring-1.0/collection?collectionid=1&compact=y>

## 3. /collection/add (New During Iteration 4)

POST – Body [GameToCollectionData ]

## 4. /collectionitem

GET – Params [ itemid ]

PUT – Params [ itemid, collectionid ]

Body [UpdateItemEditables ]

POST – Body [ CollectionItem ]

DELETE – Params [ itemid, userid, cascade ]

Sample Usage:

<http://107.188.249.238:8080/ac-games-restservice-spring-1.0/collectionitem?itemid=6>

## 5. /external/bggdata

GET – Params [ bggid, name, review, source, batch, sync, filter ]

PUT – Params [ bggid, review, primarypub ]

Body [ BGGGame ]

POST – Body [ BGGGame ]

DELETE – Params [ bggid ]

Sample Usage:

<http://107.188.249.238:8080/ac-games-restservice-spring-1.0/external/bggdata?review=new&source=hybrid>

## **6. /external/csidata**

GET – Params [ csiid, review, source, sync, filter ]  
PUT – Params [ csiid, review, gameid ]  
Body [ CoolStuffIncPriceData ]  
POST – Body [CoolStuffIncPriceData ]  
DELETE – Params [ csiid ]

Sample Usage:

<http://107.188.249.238:8080/ac-games-restservice-spring-1.0/external/csidata?csiid=138214&source=hybrid&sync=y>

## **7. /external/mmdata**

GET – Params [ mmid, review, source, sync, filter ]  
PUT – Params [ mmid, review, gameid ]  
Body [ MiniatureMarketPriceData ]  
POST – Body [MiniatureMarketPriceData]  
DELETE – Params [ mmid ]

Sample Usage:

<http://107.188.249.238:8080/ac-games-restservice-spring-1.0/external/mmdata?mmid=41141&source=hybrid&sync=y>

## **8. /game**

GET – Params [ gameid, batch ]  
PUT – Params [ gameid ]  
Body [ Game ]  
POST – Body [ Game ]  
DELETE – Params [ gameid ]

Sample Usage:

<http://107.188.249.238:8080/ac-games-restservice-spring-1.0/game?gameid=72293>

## **9. /gamereltn**

GET – Params [ gameid, vendor ]  
PUT – Params [ gameid ]  
Body [ GameReltn ]  
POST – Body [ GameReltn ]  
DELETE – Params [ reltnid ]

Sample Usage:

<http://107.188.249.238:8080/ac-games-restservice-spring-1.0/gamereltn?gameid=74605&vendor=csi>

## **10. /login**

PUT – Params [ userid ]  
Body [ NewUserData ]  
POST – Body [ LoginData ]

#### **11. /recommend (New During Iteration 4)**

GET – Params [ userid, mode, recnum ]  
POST – Body [ RecommendValues ]

Sample Usage:

<http://107.188.249.238:8080/ac-games-restservice-spring-1.0/recommend?userid=1&mode=mechanics>

#### **12. /stats**

GET – Params [ type, userid ]

Sample Usage:

<http://107.188.249.238:8080/ac-games-restservice-spring-1.0/stats?type=user&userid=1>

#### **13. /user**

GET – Params [ userid, username ]  
PUT – Params [ userid ]  
Body [ User ]  
POST – Body [ NewUserData ]  
DELETE – Params [ userid ]

Sample Usage:

<http://107.188.249.238:8080/ac-games-restservice-spring-1.0/user?userid=1>

#### **14. /wishlist**

GET – Params [ userid, gameid, display, topx ]  
POST – Body [ WishPost ]  
DELETE – Params [ userid, gameid ]

Sample Usage:

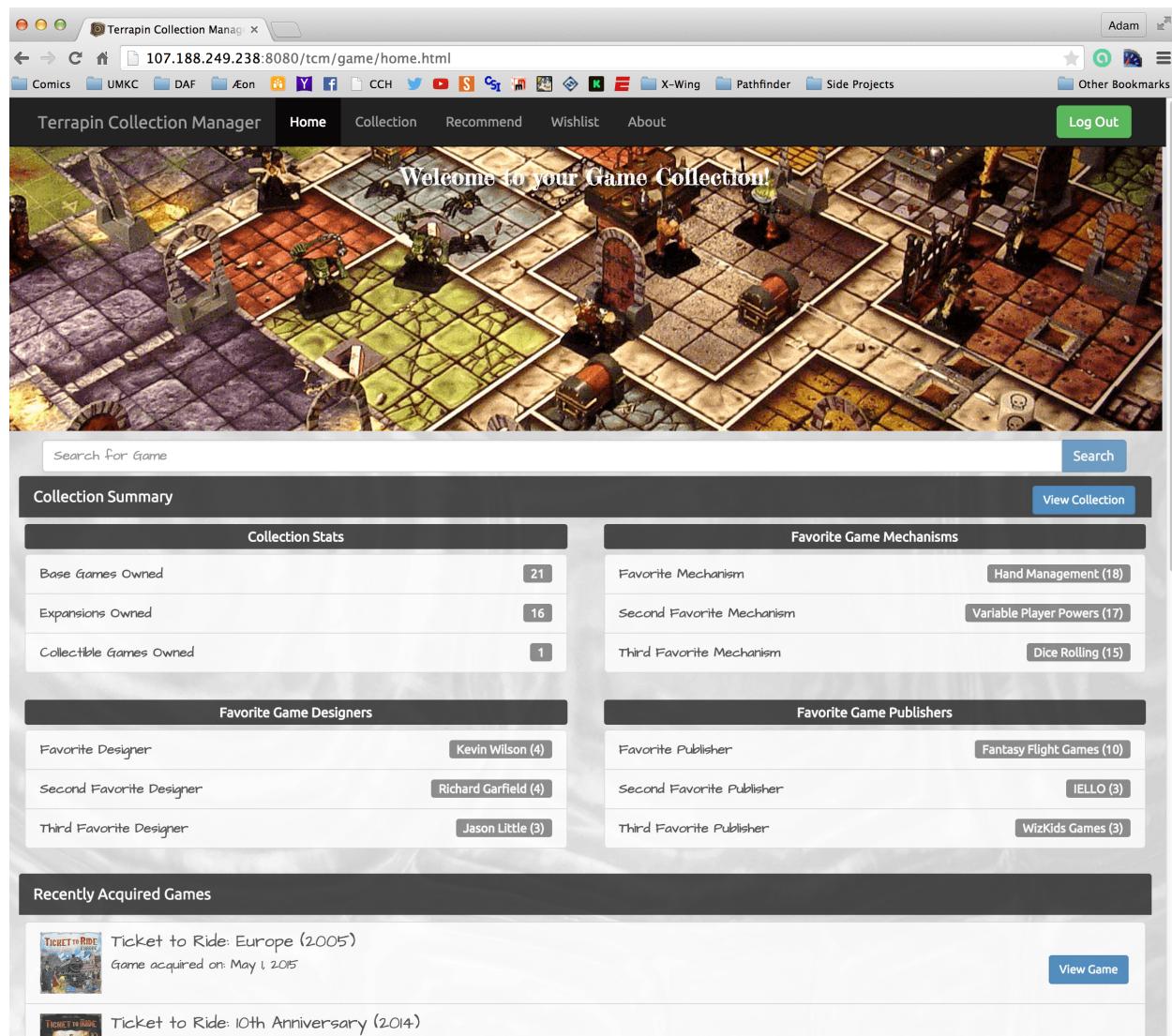
<http://107.188.249.238:8080/ac-games-restservice-spring-1.0/wishlist?userid=1&display=compact&topx=5>

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>

Presented below are a few of the screen shots for work performed during Iteration 4. For a more complete overview of the work performed, please refer to the demo video ([http://youtu.be/jVqatAzhE\\_o](http://youtu.be/jVqatAzhE_o)).



Terrapin Collection Manager x 107.188.249.238:8080/tcm/game/collection.html Adam

Comics UMKC DAF Aeon Y CCH S CS X-Wing Pathfinder Side Projects Other Bookmarks

Terrapin Collection Manager Home Collection Recommend Wishlist About Log Out

Gaze upon the Wonders of your Collection!

Collection Statistics

Base Games Owned 21 Expansions Owned 16 Collectible Games Owned 1

Full Collection List

Ticket to Ride: Europe (2005) Game ID: 57696 Player Count: 2 - 5 Players Game Weight: No Weights Selected	Game Publisher: Days of Wonder Playing Time: 60 Minutes Number of Expansions: 2	<a href="#">Remove from Collection</a> <a href="#">View Game</a>
Ticket to Ride: 10th Anniversary (2014) Game ID: 65431 Player Count: 2 - 5 Players Game Weight: No Weights Selected	Game Publisher: Days of Wonder Playing Time: 60 Minutes Number of Expansions: 0	<a href="#">Remove from Collection</a> <a href="#">View Game</a>
Takenoko (2011) Game ID: 62365 Player Count: 2 - 4 Players Game Weight: CHILDREN, FAMILY, LIGHT	Game Publisher: Asmodee Playing Time: 45 Minutes Number of Expansions: 0	<a href="#">Remove from Collection</a> <a href="#">View Game</a>
Space Cadets: Dice Duel (2013) Game ID: 45068	Game Publisher: Stronghold Games	<a href="#">Remove from Collection</a> <a href="#">View Game</a>

Terrapin Collection Manager Adam

107.188.249.238:8080/tcm/game/item.html

Comics UMKC DAF Aeon Y F CCH S CS X-Wing Pathfinder Side Projects Other Bookmarks Log Out

Terrapin Collection Manager Home Collection Recommend Wishlist About Let's take a look at this Game a little closer

Ticket to Ride: Europe (2005) Save Updates Remove from Collection

Game Information

Game ID	57696
BoardGameGeek ID	14996
Game Type	BASE
Minimum Number of Players	2 Players
Maximum Number of Players	5 Players
Minimum Playing Time	60 Minutes
Maximum Playing Time	60 Minutes
Game Weights	Children Family Social Filler Light Medium Heavy
Primary Publisher	Days of Wonder
Publishers	ADC Blackfire Entertainment, Asterion Press, Bergsala Enigma, Compaya.hu - Gamer Café Kft., Days of Wonder, Edge Entertainment, Galápagos Juegos, Hobby Japan, Hobby World, Kaissa Chess & Games, Lautapelit.fi, Nordic Games, REBEL.pl, Runadraake, Smart Ltd
Designers	Alan R. Moon

Game Art

Terrapin Collection Manager x Adam

107.188.249.238:8080/tcm/game/wishlist.html

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

Terrapin Collection Manager Home Collection Recommend Wishlist About Log Out

Anything look good here? You can never have enough of a good thing!

Your Wishlist (5 Games)

**Star Wars: X-Wing Miniatures Game - K-wing Expansion Pack (2015)**

Game ID: 74235  
Player Count: 2 Players  
Game Type: EXPANSION

Game Publisher: Fantasy Flight Games  
Playing Time: 20 - 0 Minutes  
Date Added to Wishlist: May 1, 2015

**Star Wars X-Wing - K-Wing Expansion Pack Preorder (MM ID: 44447)**  
\$3.77 [Accepting Pre-Orders]

**View at MiniatureMarket**

**Star Wars: X-Wing Miniatures Game - Hound's Tooth Expansion Pack (2015)**

**Remove from Wishlist Add to Collection View Game**

Terrapin Collection Manager x Adam

107.188.249.238:8080/tcm/game/recommend.html

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

Terrapin Collection Manager Home Collection Recommend Wishlist About Log Out

Having a Hard Time Choosing? Why not ask for help?

**Recommendation Criteria**

Desired Player Count	Desired Game Length	Number of Recommendations
4	Game Length in Minutes	Number of Recommendations
Desired Game Weight	Desired Game Mechanic	
Any	Dice Rolling	

**Generate Recommendations**

**Recommended Games**

**Takenoko (2011)**  
Game ID: G2365  
Player Count: 2 - 4 Players  
Game Weight: CHILDREN, FAMILY, LIGHT

**View Game**

**Space Cadets: Dice Duel (2013)**  
Game ID: 45068  
Player Count: 4 - 8 Players  
Game Weight: No Weights Selected

**View Game**

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

Terrapin Collection Manager



Search

Collection Summary

View Collection

Collection Stats

Base Games Owned	21
Expansions Owned	16
Collectible Games Owned	1

Favorite Game Mechanisms

Favorite Mechanism	Hand Management (18)
Second Favorite Mechanism	Variable Player Powers (17)
Third Favorite Mechanism	Dice Rolling (15)

Favorite Game Designers

Favorite Designer	Kevin Wilson (4)
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Terrapin Collection Manager

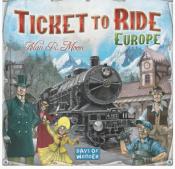


Collection Statistics

Base Games Owned	21
Expansions Owned	16
Collectible Games Owned	1

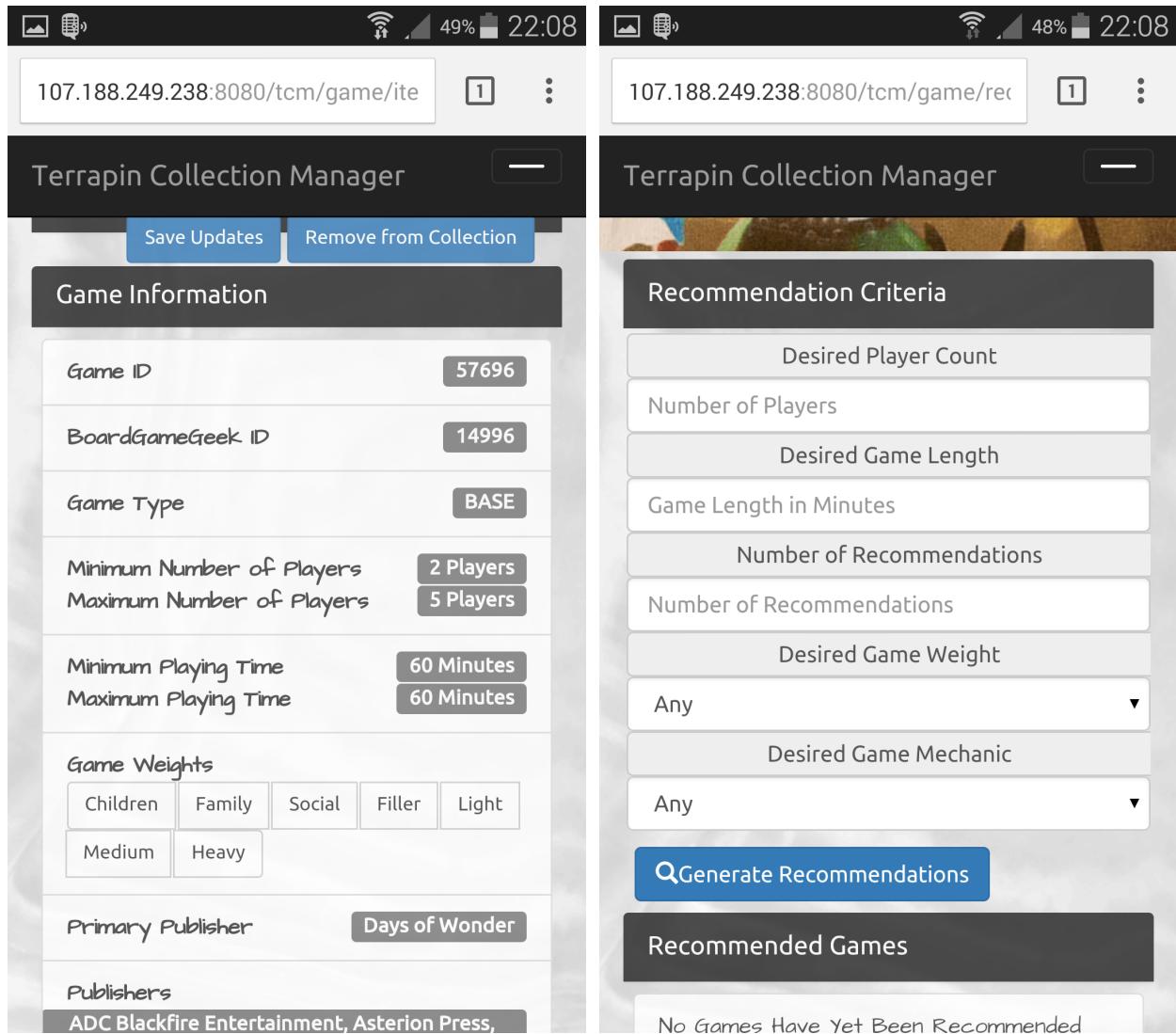
Full Collection List

Game	Game
ID:	Publisher:
57696	Days of Wonder
Player Count:	Playing Time:
4	60

 Ticket to Ride: Europe (2005)

[View Game](#)

[Remove from Collection](#)



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:

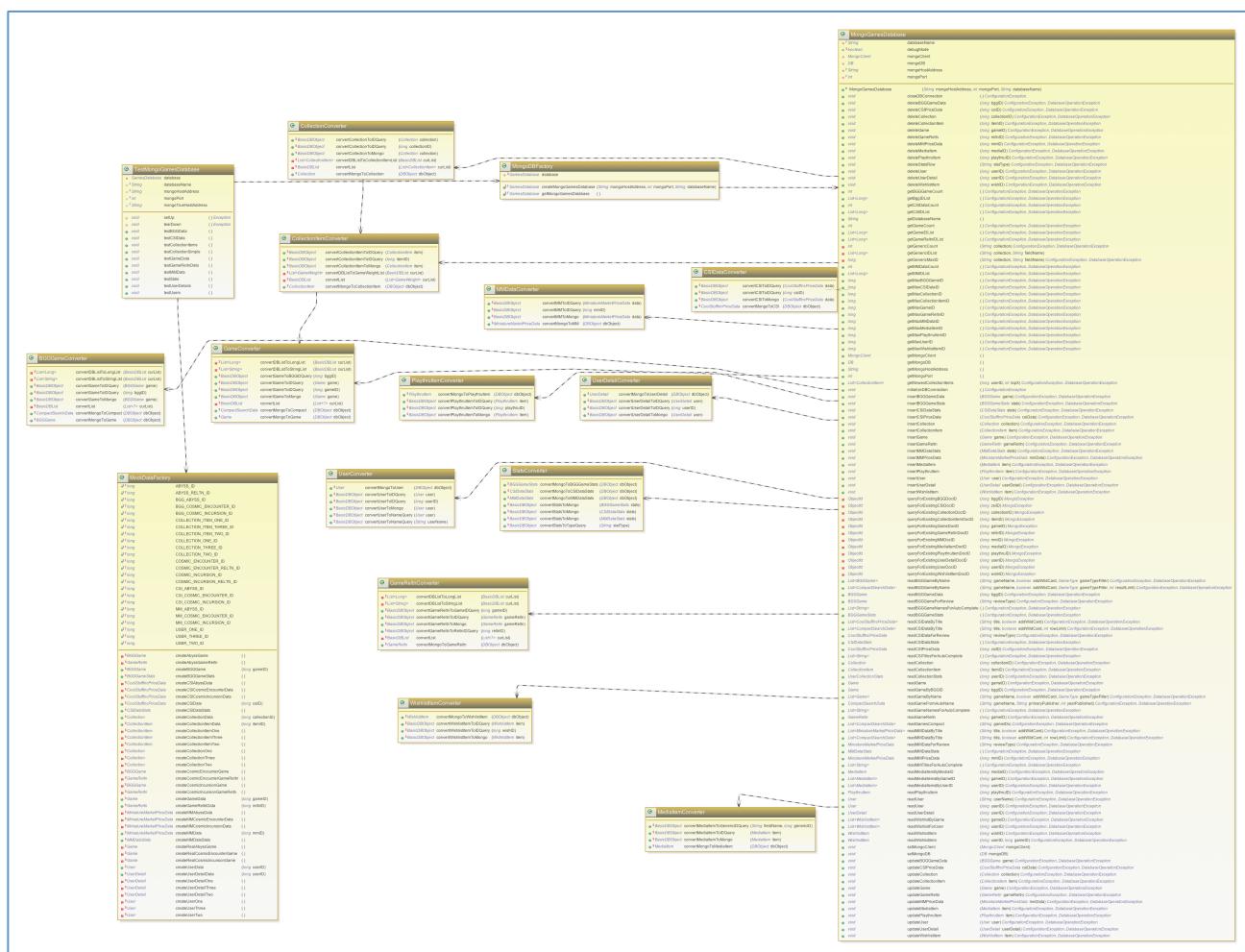
<https://github.com/apshaiTerp/ac-games-pojo/blob/master/src/models/allPojos.png>  
<https://github.com/apshaiTerp/ac-games-db/blob/master/src/model/GamesDatabase.png>  
<https://github.com/apshaiTerp/ac-games-db-mongo/blob/master/src/model/allMongo.png>  
<https://github.com/apshaiTerp/ac-games-restservice-spring/blob/master/src/model/allRest.png>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



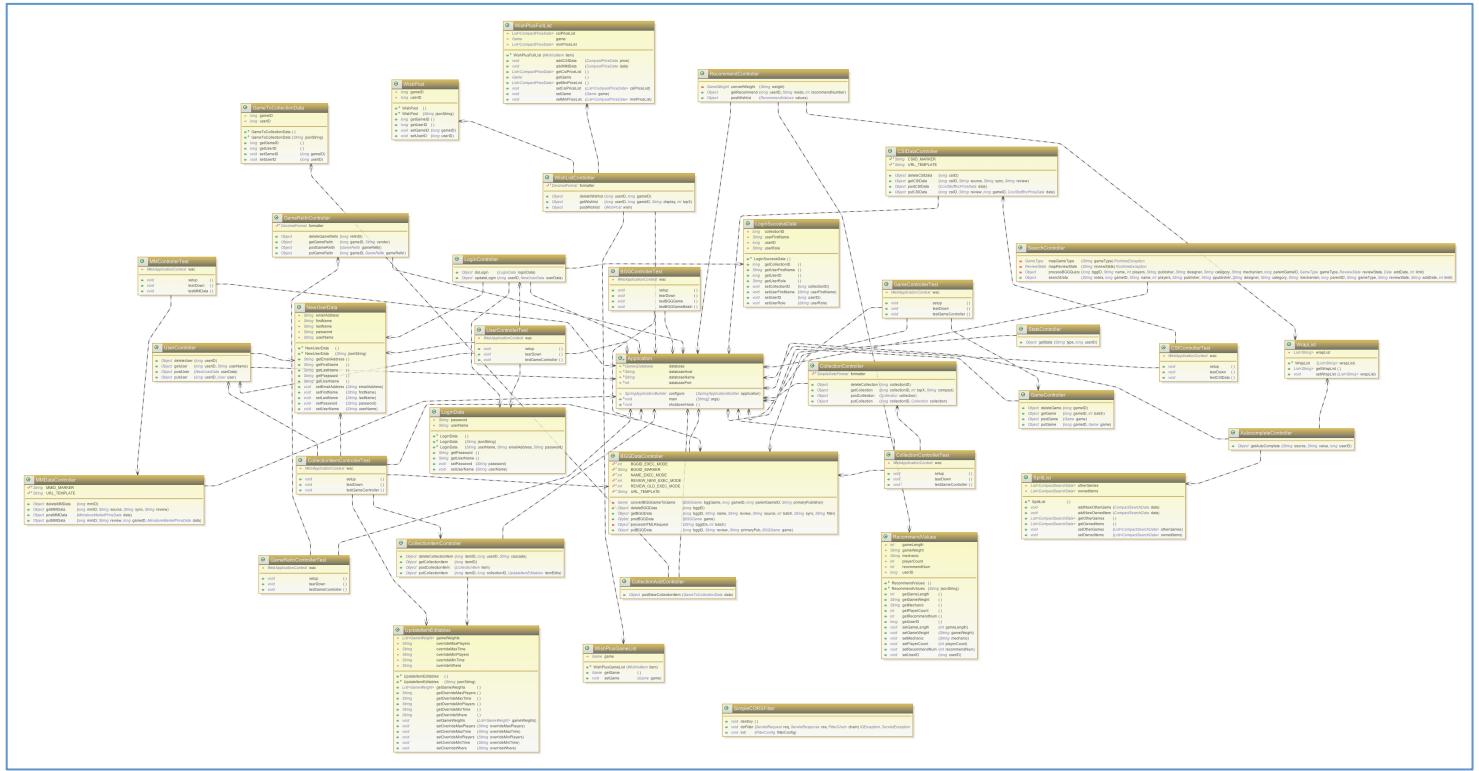
## The ac-games-pojos Class Diagram



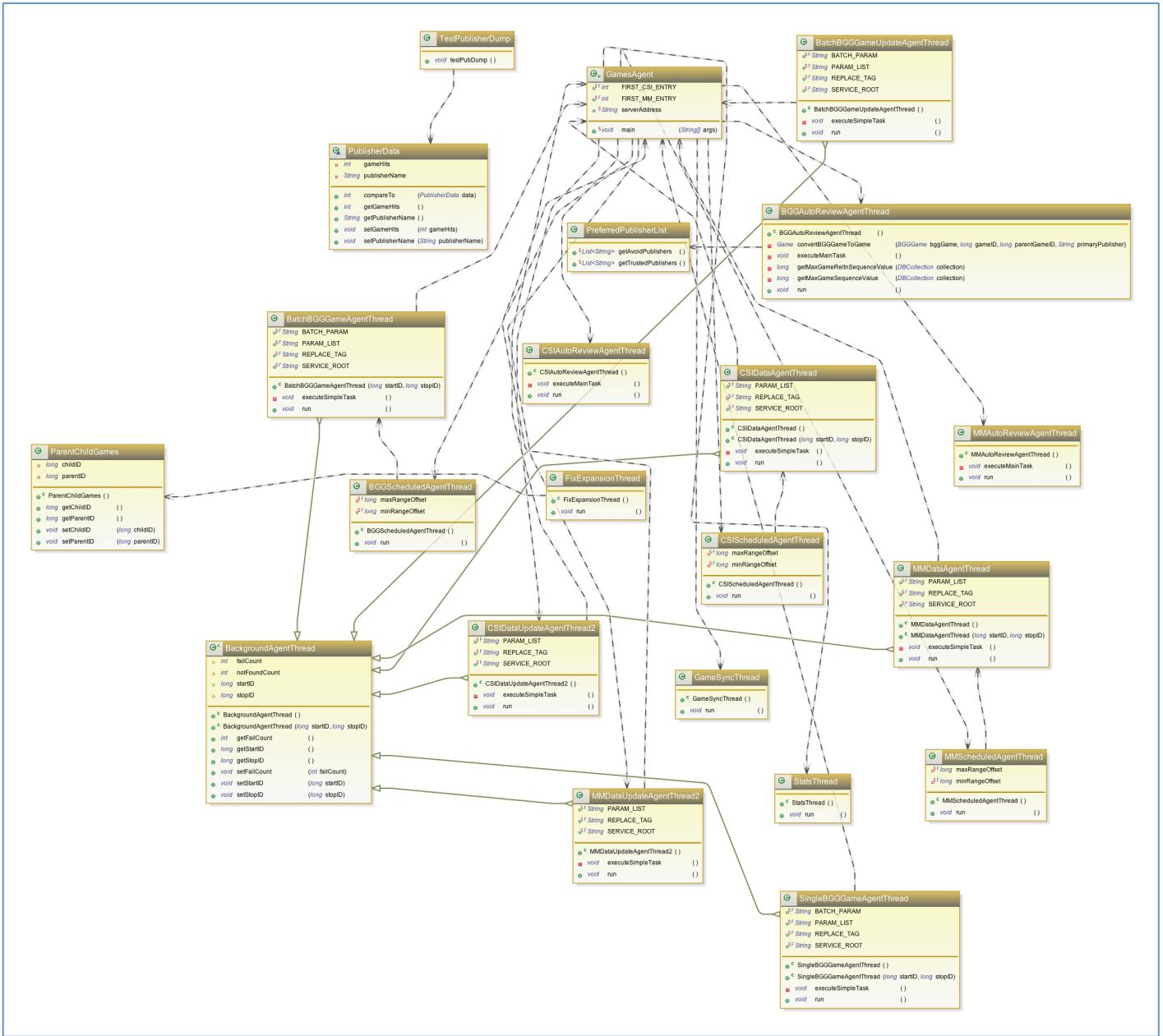
The ac-games-db Class Diagram



## 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-agent/ac-games-agent-1.0%20site/index.html>
- <https://github.com/apshaiTerp/cs-5551-documentation/blob/master/maven%20sites/ac-games-db/ac-games-db-1.0%20site/index.html>
- <https://github.com/apshaiTerp/cs-5551-documentation/blob/master/maven%20sites/ac-games-db-mongo/ac-games-db-mongo-1.0%20site/index.html>
- <https://github.com/apshaiTerp/cs-5551-documentation/blob/master/maven%20sites/ac-games-pojos/ac-games-pojos-1.0%20site/index.html>
- <https://github.com/apshaiTerp/cs-5551-documentation/blob/master/maven%20sites/ac-games-restservice-spring/ac-games-restservice-spring-1.0%20site/index.html>

## POJO library for Collection Management project

Last Published: 2015-05-01 | Version: 1.0

POJO library for Collection Management proj

**Project Documentation**

- Project Information
- ▼ Project Reports
  - JavaDocs
  - Test JavaDocs
  - Clover
- Surefire Report

Built by: 

### Surefire Report

#### Summary

[Summary] [Package List] [Test Cases]

Tests	Errors	Failures	Skipped	Success Rate	Time
42	0	0	0	100%	0.585

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%	0.585

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%	0.467
	TestCoolStuffIncParser	14	0	0	0	100%	0.057
	TestMiniatureMarketParser	14	0	0	0	100%	0.061

The ac-game-pojos Surefire Test Report

# MongoDB Database Implementation

Last Published: 2015-05-01 | Version: 1.0

MongoDB Database Implementation

Project Documentation	
►	Project Information
▼	Project Reports
JavaDocs	
Test JavaDocs	
Clover	
►	Surefire Report



## Surefire Report

### Summary

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

Tests	Errors	Failures	Skipped	Success Rate	Time
10	0	0	0	100%	4.133

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%	4.133

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%	4.133

The ac-games-db-mongo Surefire Test Report

# ac-games-restservice-spring

Last Published: 2015-05-01 | Version: 1.0

ac-games-restservice-spring

**Project Documentation**  
▶ Project Information  
▼ Project Reports  
Clover  
JavaDocs  
Test JavaDocs  
Surefire Report



## Surefire Report

### Summary

[Summary] [Package List] [Test Cases]

Tests	Errors	Failures	Skipped	Success Rate	Time
9	0	0	0	100%	16.936

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%	16.936

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%	4.881
	CollectionControllerTest	1	0	0	0	100%	0.738
	CollectionItemControllerTest	1	0	0	0	100%	0.963
	CSIControllerTest	1	0	0	0	100%	0.958
	GameControllerTest	1	0	0	0	100%	0.661
	GameReltnControllerTest	1	0	0	0	100%	0.277
	MMControllerTest	1	0	0	0	100%	7.872
	UserControllerTest	1	0	0	0	100%	0.586

## The ac-games-restservice-spring Surefire Test Report

For performance testing my web-client code, I decided to only use the YSlow analyzer this time around. Because most of my site is hidden behind an authentication wall, Google's Load Time Analyzer could only really tell me about the non-authentication sites, in which very little work is being performed.

Overall, my grade percentage decreased some, now down to an overall average of 81 out of 100 for all pages in my system. Some of the changes could be easily made, such as switching to CDN references instead of relative CSS and javascript files, and some were brand new. Given that I expected to be doing more heavy lifting this iteration in terms of web requests and resources, I'm pleased to see the grade was as high as it was.

Included below are some sample screen caps from the performance tests:

chrome-extension://ninejjcohidippngpapiiinmkglmakh/yslow.html#133

Home Grade Components Statistics Rulesets YSlow(V2) Edit Help ↴

**Grade C** Overall performance score 77 Ruleset applied: YSlow(V2) URL: http://107.188.249.238:8080/tcm/game/home.html

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

[Tweet](#) [Share](#)

**B Make fewer HTTP requests**

F [Use a Content Delivery Network \(CDN\)](#)

A [Avoid empty src or href](#)

F [Add Expires headers](#)

F [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](#)

**Grade B on Make fewer HTTP requests**

This page has 4 external Javascript scripts. Try combining them into one.  
This page has 5 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, resulting in faster page loads. Some ways to reduce the number of components include: combine files, combine multiple scripts into one script, combine multiple CSS files into one style sheet, and use CSS Sprites and image maps.

[»Read More](#)

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chrome-extension://ninejjcohidippngpapiiinmkglmakh/yslow.html#133

Home Grade Components Statistics Rulesets YSlow(V2) Edit Help ↴

**Grade B** Overall performance score 84 Ruleset applied: YSlow(V2) URL: http://107.188.249.238:8080/tcm/game/collection.html

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**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](#)

**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, resulting in faster page loads. Some ways to reduce the number of components include: combine files, combine multiple scripts into one script, combine multiple CSS files into one style sheet, and use CSS Sprites and image maps.

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chrome-extension://ninejjcohidippngpapiiinmkglmakh/yslow.html#133

Home Grade Components Statistics Rulesets YSlow(V2) Edit Help ↴

**Grade C** Overall performance score 78 Ruleset applied: YSlow(V2) URL: http://107.188.249.238:8080/tcm/game/item.html

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

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**B Make fewer HTTP requests**

F [Use a Content Delivery Network \(CDN\)](#)

A [Avoid empty src or href](#)

F [Add Expires headers](#)

F [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](#)

C [Minify JavaScript and CSS](#)

**Grade B on Make fewer HTTP requests**

This page has 4 external Javascript scripts. Try combining them into one.  
This page has 5 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, resulting in faster page loads. Some ways to reduce the number of components include: combine files, combine multiple scripts into one script, combine multiple CSS files into one style sheet, and use CSS Sprites and image maps.

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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/121584>

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-1.0.jar  
ac-games-db-1.0.jar  
ac-games-db-mongo-1.0.jar  
ac-games-restservice-spring-1.0.jar  
ac-games-agent-1.0.jar

The root URL for my service is <http://107.188.249.238:8080/ac-games-restservice-spring-1.0/>.

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

The Demo Video can be found at: [http://youtu.be/jVqatAzhE\\_o](http://youtu.be/jVqatAzhE_o).

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.

As mentioned, several stories were left incomplete during this iteration, but overall I am pleased with what I was able to accomplish and how it looks and performs. I plan to continue tinkering with this system so I can implement the remaining deficient features.

## **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>