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WWW App Development

Prof. Jones Yu

11/17/16

### Do You Suck At *Overwatch*?

<http://isuckatoverwatch.herokuapp.com/byname.php>

An Overview of the Game *Overwatch*:

*Overwatch* is a competitive first-person shooting game, where there are unique characters who possess unique weapons and abilities. The game consists of two teams of six players each, with the goal of capturing or completing an objective such as defending or overtaking a space on one of the many different stages, or escorting a payload to a destination. Players wishing to compete play competitive mode. When first starting, players play ten placement games and are assigned a rank based on their performance, and wins and losses. After that, players play against others of a similar rank and gain or lose rank based on wins and losses. The nature of competitive games can become harsh at times, which was where we drew much of our inspiration from.

The Problems:

For this project, we decided to turn our passion for the game *Overwatch* into something practical. We decided to use an API known as the LootBox API which can get statistics about a player from the *Overwatch* servers. We then set out to create a way to use those statistics to allow users to tell just how skilled a player really is. This project was inspired by a common problem in the *Overwatch* community where players get upset with one another because they perceive others to be bad at the game and dragging them down. With this tool, a player can easily search for a player, and use their results to shut down people who are being out of line and insulting. Thus our project is called, “Do You Suck At *Overwatch*?”. While our project has a facetious title, it will hopefully contribute to a more respectful community if people realize they can’t just throw out insults with no repercussions. Exposing those who wish to treat others poorly will hopefully silence them and stop some of the abuse occurring in the game’s community.

One of the biggest problems we encountered in the *Overwatch* community is when players choose to lock into a character, and won’t switch no matter what. In *Overwatch*, a team can only have one of each character, so this can create conflicts among teammates. This can be particularly problematic if this is your main character, as it can limit your effectiveness on the team. A lot of times

when a person asks to play a character another teammate has chosen, they are met with hostility, and are insulted and ridiculed. With our service, any player can search for his and another player's stats, and get a side-by-side comparison of both players, but limited to only that character. When these stats are displayed, the person may be vindicated, or proven wrong, but if they are vindicated, they can easily show the other player their stats and hopefully resolve these conflicts. Resolving these conflicts will help players get the character they want, be more effective, and hopefully reduce tension between teammates. If everyone's statistics are out in the open, no one can make baseless claims anymore, thereby reducing the toxicity of players in the community and making the game more fun for everyone.

#### Analysis:

There were two main areas of research for us in this project. The first was into how to work with the LootBox API and JSON, and the second was into advanced CSS. We had to figure out how to parse JSON data, and to normalize it into tables. This required us to learn a lot about JavaScript. We used W3 Schools a lot to help us find functionalities across many programming languages that we were previously unaware of. In addition, Stack Overflow was a great resource for us in helping us figure out how to do things like creating the loading animation for our application.

Our research came mostly from us playing *Overwatch*, and collecting data about our own experiences, and asking other players about their impressions of the game and its community. Additionally, we drew some inspiration from the YouTube channel *Unit Lost Gaming*. This person makes a lot of videos about the *Overwatch* community, and how to get better at the game. One topic he often talks about includes players who are destructive and toxic. His solutions were mostly things like trying to work with rude players as best one can, but we wanted to be able to not just work around them. We want to be able to put a stop to some players' rude behavior for the benefit of everyone just trying to have fun with the game. Lastly, we took some input from a few friends who play *Overwatch*, and got their input on what features to add.

#### Design:

The way we designed our application was quite simple, yet highly effective. Since we had such a simple concept, we were able to focus on code efficiency, designing useful features and making them easy to use. Our application has two modes that the user can easily change between. One can request statistics for quick play (the game's more casual mode), and competitive mode. For the simpler functions of our application such as searching by name and returning just raw stats, we were able to organize the tables so that it was easy to see the most important stats at the top, and the less important

data was displayed further down the page. We used regular expressions to format the keys of the compare by character section, since the raw keys were in a simple format. We also included a total section to show who had the greater totals overall. For our menu bar, we have a standard bar with links to all of our search functions, as well as the buttons to choose quick play or competitive mode. This bar sits below a banner with the application name on it, and an *Overwatch* theme. Our color scheme is also *Overwatch* themed with a dandelion sort of yellowish orange, and white text. We went with a soft gray background for the main page, and used a sort of material design motif to display our tables. These tables were a slightly darker background, and when doing comparisons, we used green and red to show which player had the better number in that stat. For the part of our application that compares players by character, we made images for each character into buttons in a small table at the top of the page. Lastly, we made a quick display (which we called a player card) at the top of the page that displays a user's vital information such as their username, player icon, rank, competitive tier, wins, losses, and play time.

#### Implementation:

The majority of our efforts were focused on implementing features with the data we obtained from the LootBox API, and implementing advanced CSS to make our web pages look presentable and work well. At first, we were trying to figure out how we were going to execute our idea. We had two options: the first was to do HTML scraping to get data from Blizzard's (the game developer's) website. However, we found the LootBox API which already did this for us. Once we decided that we were going to use this API, we had to figure out how we wanted to implement this. At first, we were doing everything in HTML and JavaScript. However, this proved to be highly repetitive and redundant. It was then that we decided to put our HTML into PHP, and make everything modular. Most everything became a function, especially our tables, and the things that appear across multiple pages were put into functions. The API returns raw JSON data that is not well formatted. This meant we had to clean it up a lot in our own code by normalizing it in JavaScript. The JavaScript then feeds data to the PHP, where the tables were generated as requests were made. Because of the way we did this, our main JavaScript files were quite short because there were a bunch of function calls from our own library of functions we defined (API.js). With this data structure, our code became as efficient as possible, and fit well with the constants and the static URLs in the LootBox API.

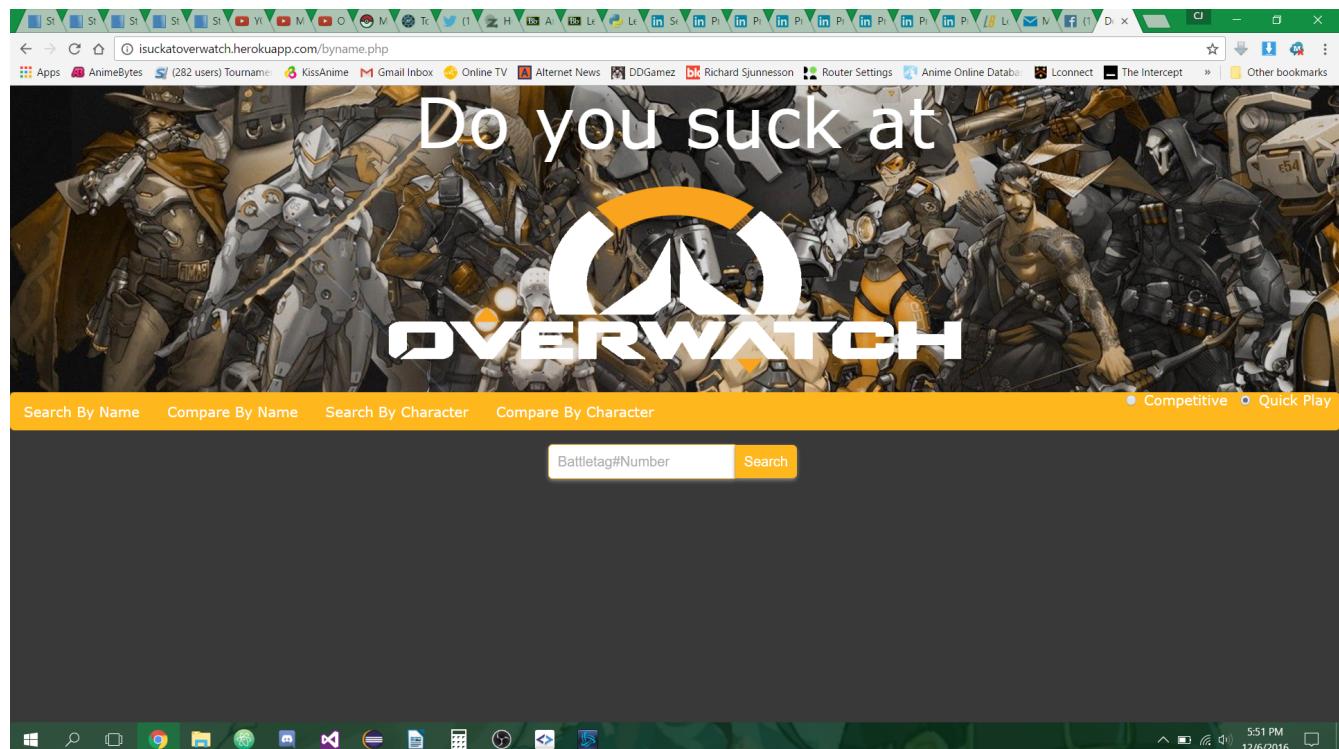
Our user interface was designed from scratch with only our own CSS, JavaScript, PHP, and HTML. As previously stated, we had to normalize all the raw data, and generate all the tables as requests came, but we went a few steps further. We used JavaScript to create our own loading

animation, and CSS to create effects such as hover and click changes to the page, a stylized character selector, clean looking tables, and an overall visually pleasing experience. We learned a lot through trial and error, and figured out what we could do with CSS, and how to label things so they'd work properly. We learned how it's not always apparent where IDs and classes should be applied in HTML so that CSS rules we made would work right. Though it took a great deal of effort, our user interface came out looking pretty well polished, and made our application easy to use and look at.

## Evaluation:

The users who tested our Application made a few major suggestions. One was that we make some or all of the tables collapsible in order to make the display easier to read. This was certainly a goal of ours that we were unable to get to due to time constraints. Our player card feature was well-liked, but it wasn't styled well as it was a last minute addition to the application. With some extra time, we would divide it up a little more with borders, and rearrange the items in order to reduce white space. Through our user testing and research, we decided to implement the comparison by character as that was highly requested by our testers, and something we also felt was a necessary addition. Lastly, user input was essential to the design of the user interface, and helped us design something easy to look at, yet highly functional and effective.

## Screenshots:



Lelouch84-1771

Search

Lelouch84 2063  
177

Competitive 57-74  
Quick Play 445  
27 hours 118 hours

Average Game	
Eliminations	11.45
Melee Final Blows	0.15
On Fire	00:31
Solokills	1.95
Objective Time	00:42
Objective Kills	4.25
Healing Done	545
Final Blows	5.84
Deaths	5.45
Damage Done	4,229

Most in Game

isuckatoverwatch.herokuapp.com/compare.php?uname1=Lelouch84-1771&uname2=Crucible-11923&mode=quickplay

Lelouch84-1771 Vs. Crucible-11923 Search

Average

	Lelouch84-1771	Crucible-11923
Eliminations	11.45	12.41
Melee Final Blows	0.15	0.16
On Fire	00:31	00:57
Solokills	1.95	1.7
Objective Time	00:42	00:44
Objective Kills	4.25	4.57
Healing Done	545	1,218
Final Blows	5.84	6.71
Deaths	5.45	6.58
Damage Done	4,229	5,172
Totals	2	8

Most in Game

Eliminations	43	49
Final Blows	29	32

isuckatoverwatch.herokuapp.com/hero.php

Do you suck at OVERWATCH?

Search By Name Compare By Name Search By Character Compare By Character Competitive Quick Play

Battletag/Number Search

Choose your Hero

5:52 PM 12/6/2016

isuckatoverwatch.herokuapp.com/hero.php?uname=Lelouch84-1771&hero=DVa&mode=quickplay

Apps AnimeBytes (282 users) Tournament KissAnime Gmail Inbox Online TV Alternet News DDGamez Richard Sjunnesson Router Settings Anime Online Database Lconnect The Intercept Other bookmarks

Lelouch84-1771 Search

Choose your Hero

DVa

Mechs Called	560
Mechs Called Most in Game	11
Damage Blocked Most in Game	15,656
Damage Blocked	1,107,149
Mech Deaths	714
Melee Final Blows Most in Game	2
Mechs Called Average	3.67
Damage Blocked Average	7,265
Eliminations	2,655
Final Blows	952

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isuckatoverwatch.herokuapp.com/comparehero.php

Apps AnimeBytes (282 users) Tournament KissAnime Gmail Inbox Online TV Alternet News DDGamez Richard Sjunnesson Router Settings Anime Online Database Lconnect The Intercept Other bookmarks

# Do you suck at

OVERWATCH

Search By Name Compare By Name Search By Character Compare By Character

Competitive Quick Play

Battletag#Number Vs. Battletag#Number Search

Choose your Hero

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isuckatoverwatch.herokuapp.com/comparehero.php?uname1=Lelouch84-1771&uname2=Crucible-11923&mode=quickplay&hero=DVa

Lelouch84-1771 Vs. Crucible-11923 Search

Choose your Hero

	Lelouch84-1771	Crucible-11923
Mechs Called	560	768
Mechs Called Most in Game	11	12
Damage Blocked Most in Game	15,656	13,628
Damage Blocked	1,107,149	913,931
Mech Deaths	714	1,085
Melee Final Blows Most in Game	2	6
Mechs Called Average	3.67	4.49
Damage Blocked Average	7,265	5,349
Eliminations	2.655	2.715

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isuckatoverwatch.herokuapp.com/comparehero.php?uname1=Lelouch84-1771&uname2=Crucible-11923&mode=quickplay&hero=DVa

	Lelouch84-1771	Crucible-11923
Damage Done Average	6,142.88	6,191.04
Deaths	459	747
Environmental Deaths	16	27
Medals Bronze	120	150
Medals Silver	143	187
Medals Gold	220	231
Medals	483	568
Cards	79	72
Time Played	21 hours	21 hours
Games Won	83	97
Objective Time	03:01:02	02:47:50
Time Spent on Fire	01:41:43	01:52:54
Self Destruct Kills	311	279
Self Destruct Kills Most in Game	9	8
Multikill Best	5	4
Self Destruct Kills Average	2	2
Totals	32	40

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## Team Members' Roles:

In this project, CJ was responsible for the bulk of the CSS, page layout, feature design and visual design. In addition, CJ was tasked with writing this report, and creating the majority of the

slideshow. CJ used Nathan's web pages to create CSS rules that could be applied across multiple pages, created the tables that separated the data, and designed the color scheme. CJ also edited the HTML, and manipulated the existing code to make the CSS work. Finally, CJ worked with Nathan's PHP to implement his design and some features of the application.

Nathan was tasked with implementing the LootBox API, parsing the JSON from the API into tables, writing the majority of the PHP, JavaScript, and HTML. Nathan put most of the HTML into PHP code so that most of the web pages displayed were generated at run time. This made the code extremely modular and efficient. Nathan also helped CJ to write and edit the essay and participated in the presentation to the class.