SSBracket

Team Jaguar

Vision

In the Smash community, 1v1 tournaments, concurrent games, and online play are all common practices, but none are well supported by Nintendo or existing bracket makers. The built-in tournament functionality in the game is only for offline, one-game-at-a-time play, and the game provides only play-time statistics.

We are making SSBrackets, an online tool that merges bracket making, statistic tracking, character info, and friend functionality. We will also provide statistics and data about the game characters, so newer players can compare characters and learn more about the game.

Existing bracket makers do not satisfy these needs. We focus on Challonge as our main competitor. Challonge's user interface is difficult to navigate - tournaments are not clearly labeled as public, private, or invitation only, and invitations cannot be sent within the site. Tournaments can only be found by searching, as Challonge lacks a tournament list. Challonge is also game generic - the only statistics it stores is overall win/loss rate, which makes it difficult for users to assess their overall performance. Finally, Challonge lacks social integration, and users cannot add friends to invite to tournaments within the site.

Users will be able to make public and invitation-only brackets, with specifications about game rules and configurations. Bracket makers will have the option to invite friends to participate or to manually input usernames. Also, we will add an anonymous mode, so users can make basic brackets without creating login information. Brackets will also support multiple tournament styles, like round-robin, single, and double elimination.

For statistics, users will input their performance on each tourney game they play, and we will store these in a database. Users will be able to control who can see their statistics, and they will be able to add other users as friends. Friends can share information, and invite each other to tournaments. Also, the users with the best statistics will be featured in a top-ranking page site.

Our site will incorporate Twitter for additional social functionality. For each tournament, the owner can associate a hashtag, which we will scrape Twitter for, and incorporate a live Twitter feed on the tournament page. Users can also incorporate Twitter feeds into their profiles as well.

This site and service are directed towards players of Super Smash Bros Ultimate who want to organize their competitions and players who want to understand their performance. We want to serve all users, from those who want to quickly put together a tournament to those who want to establish more dedicated groups for playing the game.

Data and Sources

We will use a MySQL database to store our data. Specifically, this is how we will use it:

Data Source	URL	Specific Data Points
The User	N/A	● Time played as each character ● Wins/Losses ● Optional Statistics (K/Os, time survived, damage) ● Tournaments created and played in
Twitter	twitter.com	● Feeds from associated hashtags

		● Feeds from specific users
SSB World	ssbworld.com	● Data about professional Smash players ● Character data: wins/losses, use by professionals
SSB Wiki	ssbwiki.com	● Character weight and speed ● Character dodging effectiveness and friction

We will use Twitter's API and Python to scrape the bottom three sources. We will store the data in a MySQL database, likely on GCP.

Requirements

Our users will be Super Smash Bros Ultimate players that want to organize a competition and learn about the game. These users will have varying levels of skill and dedication, and have different expectations and want accordingly.

Our non-functional requirements are light; our app will not require heavy computation, but it must be able to generate a bracket relatively quickly - less than thirty seconds. We aren't storing a great deal of multimedia on this site, so storage shouldn't grow very quickly. Cost per user does need to be minimized as much as possible since this cannot be monetized (see feasibility section for more details).

User Stories

- As someone hosting a party, I want to quickly make a bracket so I can host an informal tournament with my friends.
- As a new Smash player, I want to see which characters have the highest winning percentage so I know who to play.
- As an experienced Smash player, I want to keep track of my win loss ratio with different characters so I know who I'm best with and where I can improve.
- As a professional Smash player, I want to compare my win loss ratio to other pro players to see where I rank among my competition.
- As a player looking for others to join online, I want to search for tournaments so I can join in and find similar players to fight with.
- As a player looking to form a Smash-playing organization, I want to be able to find other players in my area to form teams and tournaments with so I don't need to rely upon less-reliable external modes of communication.
- As a host for pro Smash tournaments, I want to make brackets with fair matches so that players are matched initially with others of similar skill level.

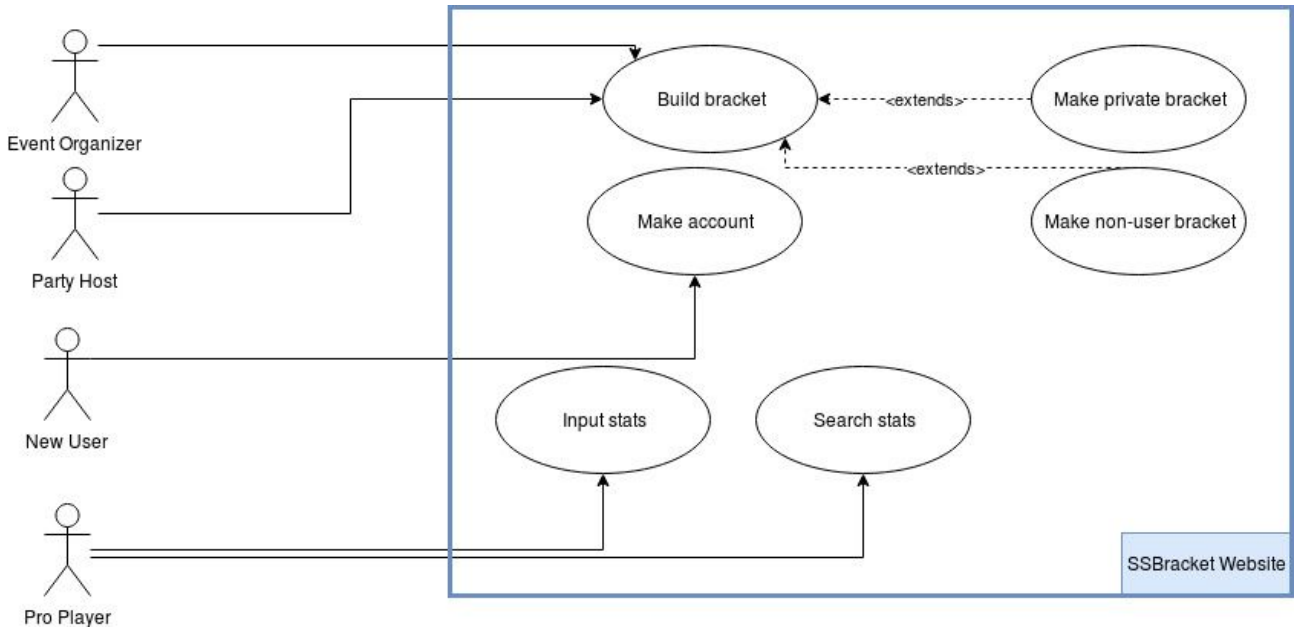
Formal Use Case

Goal: Curious user wants to know the character a professional player uses the most
Primary actor: User searching
Precondition: Player is on search page
Success end condition: User finds stats page of pro player.
Failure end condition: Pro player's stats aren't available.
Trigger: User hits search button.
1.) User enters pro player's name into the search bar.
2.) User hits search button.

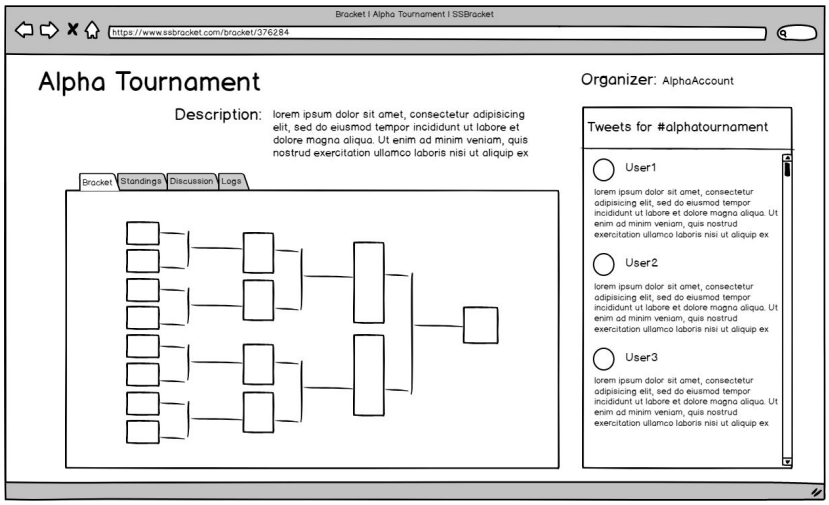
3.) User is presented with a list of players that match the search input.

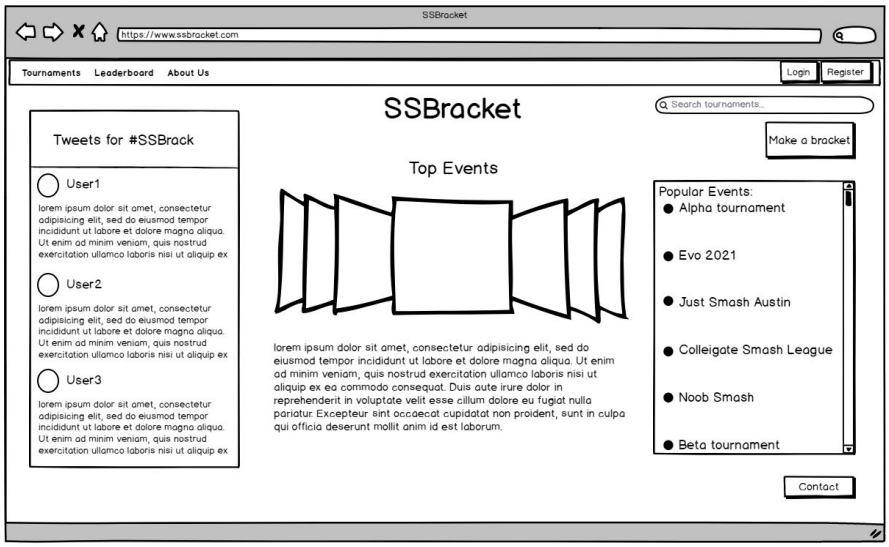
3a.) System can't find any results for input and informs user.

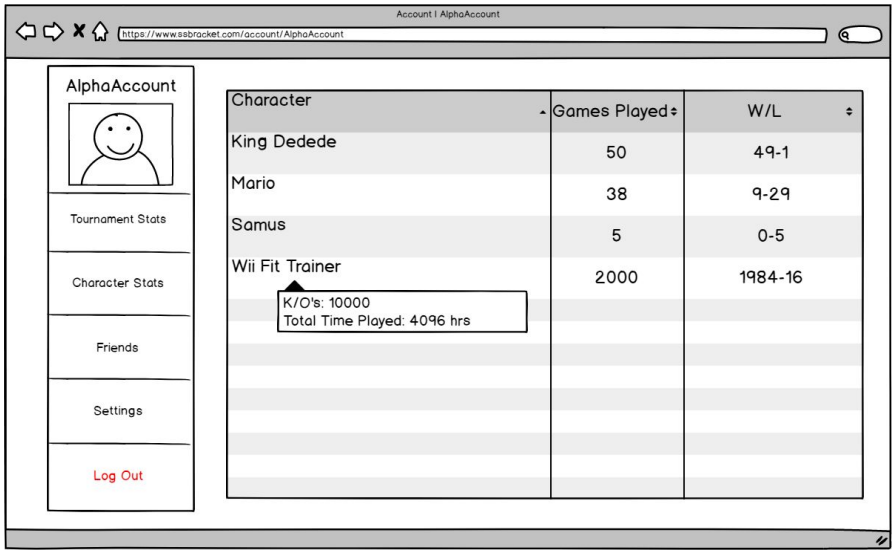
Use Case Diagram



Interface







Planning and Scheduling

Below is our plan across the four phases of the project:

Phase (leader)	Overview	Details

Phase 1 (Tyler)	Static Bracket application with 7 basic pages	• 5 User Stories
		• Custom URL from a hostname provider
		• The following pages on GCP:
		  ○ Home page
		  ○ About page with dynamic stats from GitHub
		  ○ Bracket creation page
		  ○ Account pages (login, registration, settings, friends)
		• All static pages thoroughly tested with Selenium
		• Design a REST API with Postman for the following:
		  ○ Account data
		  ○ Tournament data

Phase 2 (Arthur)	Data scraping and database	● 10 total user stories ● Dynamic website: ○ Pages for each character with stats ○ Top users page ○ Full Bracket creation ● Web scraping ○ Character Data from 1 source ● Complete unit testing ○ REST API with Postman ○ JavaScript with Mocha ○ Python with unittest ○ GUI with Selenium
Phase 3 (Takuma)	Additional character stats and data, Twitter integration, search functionality	● 15 user stories ● Refine character stats pages from other data source ● Integrate Twitter feeds ● Add searching for public tournaments and user profiles ● Refine and update all unit testing ● Website has complete functionality
Phase 4 (Nick)	Refactoring and design patterns	● Apply 3 refactorings and 3 design patterns ● Complete testing on above refactoring and design patterns

For phase 1 specifically, these are the time estimates for each task:

- 5 User stories: 1.0 hours
- Custom URL: 0.5 hours
- Static pages: 3.0 hours
- User Account Functionality: 3.0 hours
- Testing: 2.5 hours
- Designing the REST API: 3.0 hours

These are the tools and technologies that we will need to learn, with time estimates:

- HTML/CSS/Javascript with jQuery (5 hours)
    - Javascript tested with Mocha, UI with Selenium (4 hours)
- Python for web-scraping (2 hours)
    - Tested with unittest (2 hours)
- RESTful (4 hours)
    - Tested with Postman (2 hours)
- MySQL (2.5 hours)
- Google Cloud Platform for hosting (3 hours)

Feasibility

Several issues could prevent success in this project. The first and foremost is the legality issue of using Nintendo character images on our website. The following excerpt is taken directly

from Nintendo's Copyright Policy page. "All content on this website, including articles, artwork, screen shots, graphics, logos, digital downloads and other files, may not be used on any other web site, in any publications, in public performances, in connection with any product or service that is not Nintendo's, in any manner that is likely to cause confusion among customers, in any manner that disparages or discredits Nintendo, or in any manner that is otherwise exploitative for any commercial purpose or that otherwise infringes on Nintendo's intellectual property rights." We will make sure to have copyright disclaimers on every page and not monetize our site so that we follow their guidelines.

Another issue is that of learning new technologies. Designing a web application requires integrating several separate systems that many of our team members have little to no experience using. Learning how to use and integrate these tools and technologies will take time; additionally, since we have limited experience with them, we lack a good understanding of what their capabilities and limitations are - thus, making time estimates for modules is also difficult.

Super Smash Bros Ultimate is an evolving game, still undergoing active development and patching. Thus, this site will also face the issue of incomplete or outdated data related to characters. In searching for data for this proposal, many possible sources were identified as being out-of-date or otherwise missing data. Finding quality data sources may take extra time; there may be no well-maintained data sources for parts of our project.

Each of these issues is intimately related to time and timeliness - although this project lasts for most of the semester, the schedule is not lax. Should multiple of these issues present themselves simultaneously, we face a serious risk of running behind schedule. Thus, we are focusing on modular development, so our website has a form of functionality at all times.

Feedback

We have taken into account all of the feedback that we received. We made sure to have per-character info (top players, win rates, etc.) in addition to player profiles. We will also scrape tourney and player info where possible. All data will be stored in a database.

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