

Proposal

TEAM VERMILLION

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Github Link: <https://github.com/garzarobm/EE461L>

Google doc Link: [Google Doc](#)

Vision

LineDriveBetting is a website that will provide people with aggregate information on sports betting lines and game predictions, and allow users to share and discuss their own personal thoughts or predictions in a forum. The website will have coverage of the NFL, NBA, MLB, and college football games. There are many people who are interested in or involved with sports betting and also tons of sports fans that are desperate to know the chances that their team will win. Our website will be a single destination that will give these people the opportunity to see what a variety of different sources are predicting for games they follow and give them the opportunity to discuss their feelings with others in the sports community.

As of now, informational sports betting websites will typically only provide the betting line for the games, without much additional information. On ESPN, for example, the "Odds and Daily Lines" page simply provides the money line as a number (e.g +125, -220). For those that are not too familiar with sports betting or money lines in general, the number provided by these websites will have little to no meaning. For those that are familiar with betting lines, it would be nice to have even more data so that they can make an informed decision on the game they are interested in. Our website would be able to provide this additional data by showing the changes in the betting line over time, win predictions outside of the betting lines, and through the community-driven forum where some users might have additional insight on a game. Users will also be able to track their own betting win/loss ratio, giving themselves and others the opportunity to find and follow veterans with high betting success rates. Also, most betting websites are severely lacking in visual appeal, only providing tables with text and numbers. Our website can improve the user experience by having a more visually appealing layout to show the betting lines, predictions, and trends over time. We can achieve this with the use of graphics, nicely designed UI components, and graphs.

Data Sources, Scraping, Database

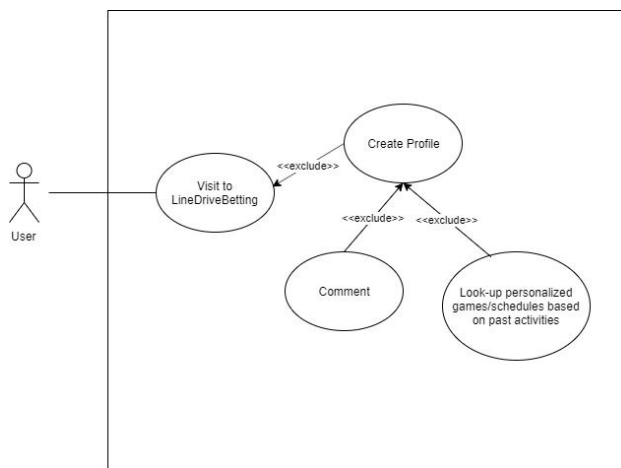
To achieve our vision for LineDriveBetting we will need to collect a lot of line-betting data and store it in a format that allows for quick queries without wasting disk space. To solve the issue of data we will be scraping information from multiple line-betting sources: ESPN.com,

FiveThirtyEight, as well as Bleacher Report. We have verified that FiveThirtyEight has an available API and open data-sets for the public to use, and that both ESPN and Bleacher Report have public APIs to use. To ensure our data is as accurate as possible we will be scraping data from these sites every half-hour to check for changes and update the database if there is a change. To tackle the issue of efficient storage of large amount of data we will be using a MongoDB database. The database will be used so that we can keep the large amount of data we have in an ordered, persistent, managed system that allows for quick access and short, simple query strings. Scraping ideally will be done using GET requests and parsing out the HTML for the data we need, but for websites that require javascript to generate their content we will use Selenium running in headless mode.

There are several things that we plan to store in our database. First, we will store user data, such as a username, betting win/loss ratio, and comments. Second, we will store the games that are being played in a given week for the NBA, NFL, MLB, and College Football. Third, we will store identifiers for each of the betting sources that we are scraping from and their corresponding money line and win predictions.

Requirements

1.

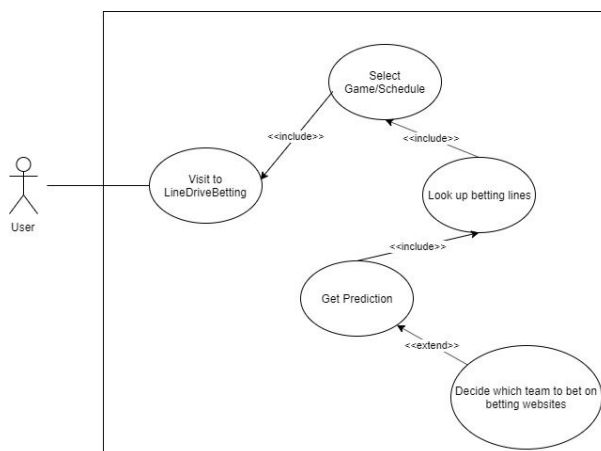


Users: People who are interested in or involved with sports betting

User Story:

- As a user, I want to have “create profile” option so that I can comment
- As a user, I want a profile where I can have personalized choices of games/schedule based on my past activities

2.

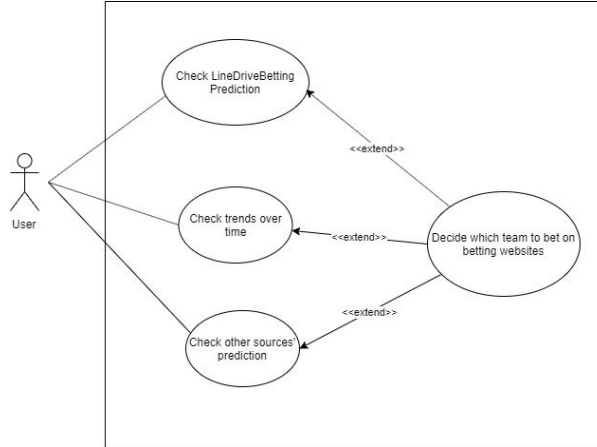


Users: People who are interested in or involved with sports betting

User Story:

- As a user, I want to see lists of games/schedules so that I can look up betting lines to get a prediction

3.

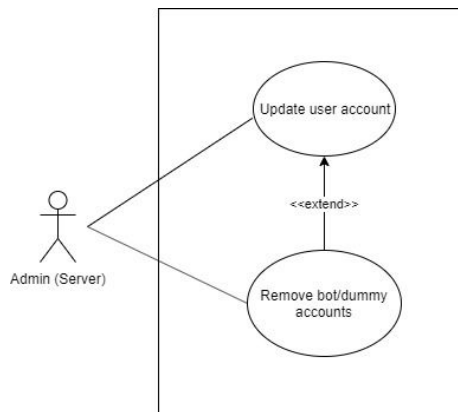


Users: People who are interested in or involved with sports betting

User Story:

- As a user, I want to use LineDriveBetting's prediction, other sources' prediction and check trends over time to decide which team to bet on betting websites

4.

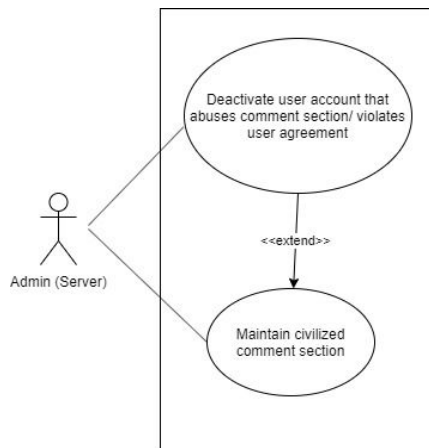


Users: People who will be administering our website

User Story:

- As an admin, I want to update lists of user accounts so that I can remove bot/dummy accounts to maintain the integrity of LineDriveBetting's website

5.

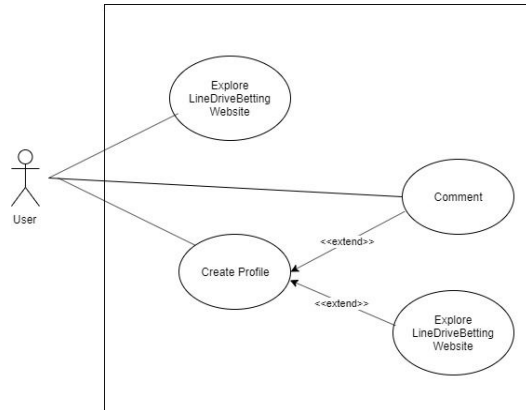


Users: People who will be administering our website

User Story:

- As an admin, I want to deactivate or block user accounts that violate comment section or overall user agreements rules so that I can maintain civilized comment section and integrity of LineDriveBetting's website

6.



Users: People who are interested in or involved with sports betting

User Story:

- As a user, I want to have the freedom to use the website without creating any profile
- As a user, I want to have the option of creating a profile so that I can interact with other people

Formal Use Case

Goal: User wishes to look-up betting lines of selected game/schedule

Primary actor: User

Precondition: Patron is at the website frontpage

Success end condition: Betting lines are found

Failure end condition: Betting lines are not found

Trigger: User goes to LineDriveBetting website

1. User enters game name/schedule
2. System verifies
3. System presents catalog of betting lines with similar game name/schedule
4. User checks for desired game name/schedule
5. User finds his/her game name/schedule
6. User selects game name/schedule
7. System displays betting lines of selected game name/schedule

Extensions (error scenarios):

3a. System can't find any catalog of similar to game name/schedule

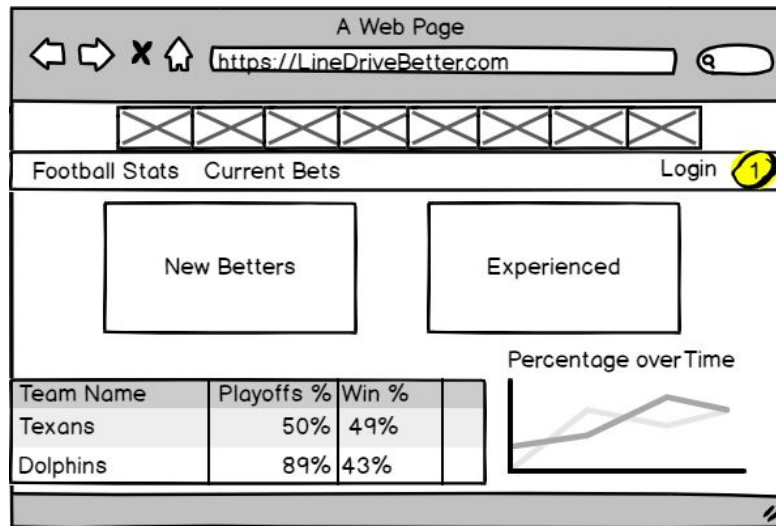
3a1. System returns an empty screen displaying "Unable to find results. Please try again."

3a2. User backs out or tries again

5a. User cannot find his/her game name/schedule from the catalog

5a1. User backs out or tries again

Interface



Planning and Scheduling

Phase	Overview	Details
1	Static LineDriveBetting Website with 6 pages after mockup hosted on GCP	<ul style="list-style-type: none">• Create static website with at least 6 pages hosted on GCP• Fetch and display line-betting data from MongoDB• Design REST API with Postman• Complete testing on static website using Selenium• Obtain a URL from a hostname provider
2	Data Scraping/Databa se and Forum Creation?	<ul style="list-style-type: none">• Collect/store data from Bleacher Report, FiveThirtyEight, ESPN• Use MongoDB as a DB• Create dynamic website with many pages hosted on GCP• Test Express/Node.js with Mocha, test our webpage with Selenium
3	Implement rating system, user profiles, and testing	<ul style="list-style-type: none">• Refine the data on many instances of each model• Add user profiles to the website• Add searching so that user profiles can be found easily• Add code coverage tests in Selenium and Mocha• Application is fully functioning after this phase
4	Refactoring & Applying Design Pattern	<ul style="list-style-type: none">• Refactor design based on user feedback to improve UI and UX

		<ul style="list-style-type: none"> • Create and implement code coverage tests for any refactoring
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Phase 1: 2.5 weeks

- Learn our front end tools/languages : React/React Bootstrap/Mocha (1 week)
- Implement and test our front-end design (1.5 weeks)

Phase 2: 5 weeks

- Learn how to collect/scrape data from betting sites (2 week)
- Learn to use and set up our own MongoDB database (1 week)
- Create REST API to get resources from backend to frontend (2 weeks)

Phase 3: 2 weeks

- Implement user profiles that includes comment history and user profile search (1 week)
- Implement code coverage tests in Selenium and Mocha (1 week)

Phase 4: 1 - 1.5 weeks

- Refactor UI and UX based on user feedback (1 week)
- Add code coverage tests for refactored UI (0.5 weeks)

Tools, Software, Frameworks

- **React:** Front-end web framework for building the user interface of our website
- **MongoDB:** document-based open source database we will use to store user data and betting/win prediction data
- **Express/Node.js:** Server-side web application framework for building our backend/API
- **React Router:** Routing library for React
- **React Bootstrap:** Front-end framework for React that will provide UI components
- **Create React App:** Allow for easy creation of React app without having to individually set up tools like Babel and Webpack.
- **Balsamiq:** Create mockup designs for our user interface
- **Draw.io:** Build UML diagrams
- **Selenium WebDriver:** Used for automated testing of our web application
- **Mocha:** JavaScript test framework to test Node.js programs

Feasibility

The majority of the features that we wish to provide with this website should be pretty feasible, however there are a couple of challenges we may face during development. Most notably, there are some smaller sources that we are looking to scrape data from that do not have a convenient API that allows for simple retrieval of data. As a result, the data may be difficult to parse properly. Also, because we will be continuously scraping data from these websites, we may face challenges in the future if the format of the data from these websites is ever changed. Another issue related to scraping data is the fact that we may be denied access for attempting to request the betting and prediction data continuously.

Feedback

We were able to answer the feedback given to the LineDriveBetting creators.