

Plugr: A Centralized Platform to connect soccer leagues, teams, and players

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Abstract— Through this document the scope, objectives and plans of the Plugr project is examined and reviewed. Plugr being a centralized platform will aim to bring together soccer leagues, teams, and player in New York City through personalized profile features. Additionally, Plugr will construct a well rounded architecture for both business and software; and will bring an aspect of professional to the average or casual athlete that is only seen on the highest level of soccer.

I. PROJECT CONTEXT

Plugr is a centralized platform for soccer leagues, teams, and players. Plugr aims the break the chains players have to teams and teams to leagues by creating well-rounded personalized profiles for each type of user.

On this platform, leagues will be provided with a personalized profile where to showcase their purpose and content, rankings, and registration system. A personalized profile is similarly created for teams; Plugr will track their statistics and performance throughout the seasons therefore given them the unique opportunity for them to stay compact and truthful to the team ideology. Finally, player profiles will act as a way to showcase the athlete's activity and achievements in the sport with up to date stats.

Implementing a centralized platform allows for flawless transition of teams to different leagues, players to different teams and/or leagues, and for leagues to reach a larger customer base. Plugr can be described as “the LinkedIn for soccer” where companies are leagues and a department or branch in a company is a team, and the individual is the athlete. This comparison allows for basic understanding of the platform. Plugr doesn't aim to become a gateway to professional soccer but rather a place for athletes, and leagues to enjoy the game of soccer through team management, statistics, and a simple join-and-play process.

A. Registration Process

Registration can be considered a top priority for any league organizer. Upon league organizers joining the platform, Plugr will handle the registration process of their teams and players. The platform will provide a transparent payment system where the money in its entirety will be transferred to the organizer's account with no attached fees. As the

registration of a team is handled by the system, not only team profiles are automatically created but player profiles as well. This asynchronous action facilitates the team and player profile features Plugr offers.

Figure 1.1 Plugr home page showing toggle between login and sign up (tentative)

B. League Profile

Each soccer league subscribed to the platform will have their respective league profile that best describes their purpose, rules and conditions. Descriptions of the league is the kind of information that does not always come from the organizers themselves, but from the players that have played in the league for more than a couple of seasons.

1. League Profile will include generic information about the league and what they are all about provided by organizers.
2. League reviews written by players with clear evidence of their substantial participation.
3. Team rankings showcasing all the data gather from the games.
4. Display data showing former league champions, team of the week, player of the week, and photo gallery.
5. Provide a management system for organizers to handle teams and players.

League Name	League Size	League Rank
CTP League	4 Teams	1
Noob League	4 Teams	13
Amateur League	2 Teams	23
Noob League	1 Team	34

Figure 1.2 Plugr leagues list page

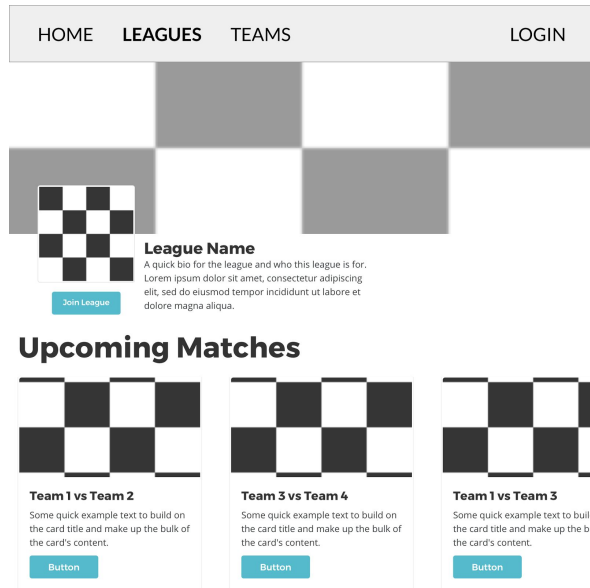


Figure 1.3 Plugr league profile page

C. Team Profile

Plugr will create team profiles upon registration to a league. If a team is registering for a second time to the same or other leagues in the platform under the same name then the stats from the previous season rolls over to the new season.

1. Team profiles will include team photo and related achievements, player profiles for each team member, team ranking and stats in the current league/s they are participating.
2. Team profiles are not bound to a particular league. In this platform teams will remain compact and all their stats, achievements, and progress can carry on to different leagues.

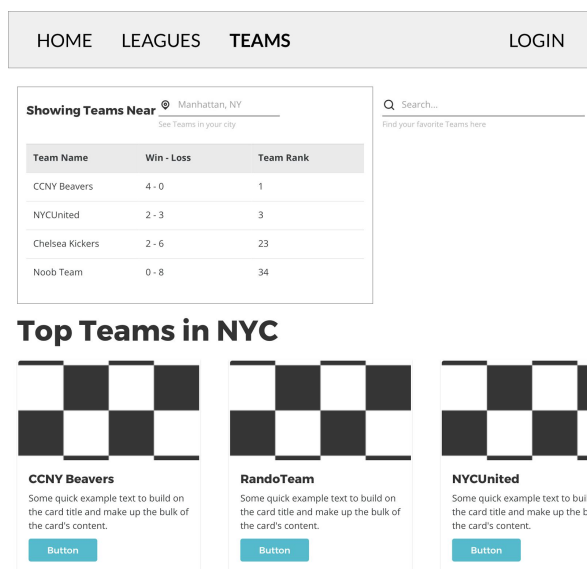


Figure 1.4 Plugr team list page

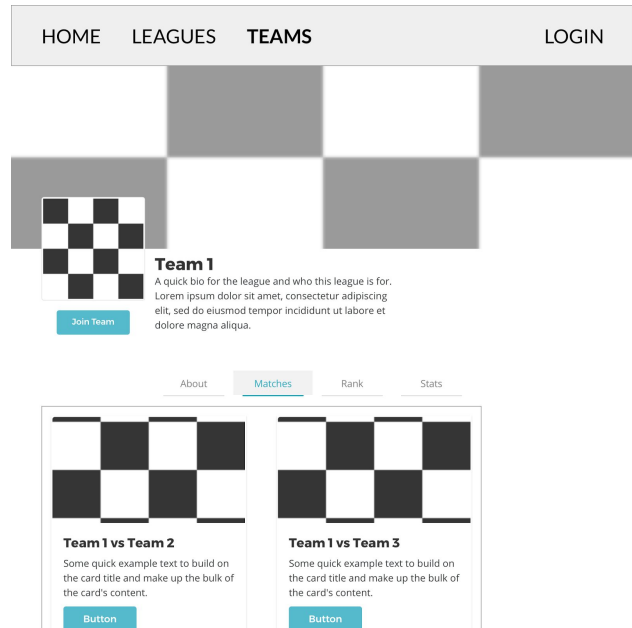


Figure 1.5 Plugr team profile page

D. Player Profile

This profiles allows for player's skills to be showcased. Whether the athlete is a casual or a determined player, it is important to keep track of progress and activity in the sport. This feature targets the individual and will make sure player satisfaction is achieved.

1. Player profile will include profile picture, personal achievements e.g. goals scored, top league scorer, championship winner, defender of the week, etc.
2. Similarly to the team profile structure - these achievements will be transferable to other teams and most importantly other leagues.

E. In real-time updates for league, team and player profile

Plugr plans to develop a system which will record in real-time fashion game statistics. To achieve this, a mobile platform will be implemented that can only be accessed by league organizers or the referees hired. The functionality of this mobile application is to record game stats as it is happening or shortly after the game has ended. Stats include winning team, goals scored, players on the scoring sheet, team members that assisted the game, etc. Once all stats are collected by an authorized person, the data is submitted to the database. Once data is received it will be available and displayed to league, team, and player profiles to be viewed by anyone with account to the platform. The structure of this feature needs to be carefully implemented as it can lead to

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errors causing the platform to roll back data that was previously inputted.

The ideal scenario for this feature to work is to have referees use their mobile device. The mobile device will have Plugr's Statistics Recorder application running which allows the referee to record game events as they are happening. These game events can be updated soon after the game is finished and posted at any point in time.

F. *Player Market & Transfer Window*

Plugr will provide a sub platform in which teams or players will be able post requests. In the scenario that a team is falling short of players for the next upcoming season, it is important to provide a place where individual players can showcase their skills listed in their profiles for teams to view and recruit. Newly formed teams also benefit from this feature because they can shape their team with people that will best complete their squad. Once again this feature will not be particular for each league but for all leagues in general. Players transferring from one team to another is a level of professionalism that is only seen on the professional level. Plugr aims to bring that professionalism to the average, casual or determined athlete.

G. *Create your own league*

This feature ties all the pieces together as it becomes the root for all the other features. Individuals joining Plugr not only can join as a player but have the opportunity to create an account as a league organizer. They will receive same features as other leagues but more benefits for choosing to start their league with our platform. Additional features can consist of better marketing of their league in our platform, discounts, etc.

II. PROBLEM DESCRIPTION

Passion for the sport of soccer is increasing in the United States. There exists countless soccer leagues for every borough in New York City. However, they operate individually from each other. There are no platforms or applications for leagues, teams and players to communicate between each other. At the moment, if a player or an individual wants to join a favorable soccer league, he or she has to resort to the internet and search through several links and pages or be referred to by a friend. Word-of-mouth is the most convincing way of acquiring customers, yet it does not guarantee whether the choice taken is the most adequate for the individual.

Since these soccer leagues work independently from each other; they do not provide the flexibility an athlete needs to join another league or team that fits his/her abilities. Additionally, these leagues do not provide a way to keep track of a player's performance and activity for each season played.

When organizing a league, owners often face a tough time finding people who are willing to form a team with no background context of the league or players. Even if a league finds players to join a team, there are no guarantees that the team will remain consistent and the players feel comfortable

playing amongst each other. Additionally, league organizers have no knowledge whether the teams are reliable and/or have conduct issues. A sport like soccer has a plenty of physical contact which can lead to common altercations between players. Learning how to encourage fair play and good conduct is something only seen on the professional level.

III. PROJECT ORGANIZATION

The organization of this project will be divided into four phases. The following is a detail description of each phase.

A. *Analysis*

In this phase of the project, Plugr will determine the scope of the problem. From there we will decide what features the application will have and identify the requirements for this project. The final deliverable of this phase will be a basic outline of the basic features that the application will have and the audience the application will cater to.

B. *Design*

Plugr will reach out to some leagues to receive some feedback of how the application can make their jobs easier. Once basic analysis and discussion with leagues are done we will create diagrams of how different pages of the application will look, and begin designing the database. During this phase we will also determine which technologies will be used and how they will interact with each other. The final deliverable this phase will be a design artifact that will show how everything in the application interacts with each other and how different sections will be linked to each other.

C. *Construction*

The construction phase will receive demanding attention, therefore become the most time consuming phase. In order to work efficiently we will implement the *Agile* software development process. We will setup a list of milestones that will be necessary to meet and conduct sprints of about two weeks and work collectively towards our designated milestone. During weekly meetings team will discuss current progress made towards the milestone and issues that are preventing us from making any progress. These meetings will be informative to how the development is going and will also help us work through issues to optimize development time. The deliverable of this phase would be a fully working application.

D. *Deployment*

The major goal of this phase is to migrate our application from a development environment to a production environment. This will be the final phase of our development process and will deliver an application that is ready to be used by the public.

<https://github.com/FootballPlugr>

Plugr Phases	Estimated Start	Estimated Finish
Analysis	10/1/2017	10/20/2017
Define scope, discuss features	10/1/2017	10/7/2017
Identify competitors, possible clients	10/1/2017	10/10/2017
Identify different ways to obtain data	10/10/2017	10/20/2017
Design	10/20/2017	11/21/2017
Discuss optimal interface design and features with potential clients	10/20/2017	11/5/2017
Create the optimal database structure	10/20/2017	11/10/2017
Create diagrams that show how different webpages will look	11/10/2017	11/21/2017
Construction	11/21/2017	4/1/2018
Iteration I - MVP	11/21/2017	1/10/2018
Iteration II - MVP	1/10/2018	2/10/2018
Iteration III- MVP	2/10/2018	3/10/2018
Iteration IV - Additional Features	3/10/2018	4/1/2018
Transition	4/1/2018	4/19/2018
Transition to production	4/1/2018	4/9/2018
Complete transition	4/9/2018	4/19/2018

IV. TECHNOLOGY LANDSCAPE

We must consider the level of technology this project will encapsulate in order to properly deliver the solutions its proposing. As previously explained, Plugr will launch its initial platform as a web application. Plugr is currently in the development stage going through page creations, unit testing and maintenance.

A. Plugr Technology Scope

Plugr will be built on top of bleeding edge technologies that goes through constant improvements and important updates.

1. Plugr will built on top of a Python Django back-end server and will be linked with a PostgreSQL database. Django's purpose for our application is to serialize our database models, which then becomes accessible to our front-end server through API calls.
2. Plugr will use React and Redux as the front-end framework. Both have a large community behind it to support its productivity and innovation. The combination of these to frameworks allows for the state of the application to be flexible and work in a functional manner.
3. Plugr aims deploy the platform using AWS (Amazon Web Services). AWS provides the necessary building tools that will meet the scope of the application. The first one is the Content Delivery Network (CDN) for securely delivering our data across various platforms. Another tool is their Cloud Hosting Solutions for

deployment phase.

4. The team considers that AWS will have a large learning curve. In order to understand all their tools and being able to apply them effectively we will begin the development stage on an ubuntu server provided by Prof. Vo. The team will be given sudo privileges to a server that consists of 8GB of RAM, 20 GB of SSD storage, and 2 CPU Core.

B. Plugr Epics

Epics for this application are elements that require a large scale of supervision and must be handled with attention as they are considered the building blocks.

A. Front-End Architecture

1. In order to display information in an organized and easy to read manner we will have to create basic profile templates for leagues, teams and players. These templates will make it easy to view achievements, statistics, matchups and any other important fields that are unique to these entities.
2. Payments will also be integrated into our application so creating a secure payment view will be important. This page will also have to implement a payment API service.
3. Redux will create reducers which will be the line of communication with Plugr's database. Reducers will manage and organize data coming from our backend by creating immutable application states.

B. Marketing to potential users.

1. This epic will become the business aspect of Plugr. The first task in the agenda is to market Plugr to potential users/clients such as current league organizers and athletes. They will become the driving force for the success of the business. Contacting potential clients will occur on the late stages development and all throughout production phase. During the late stages of development we aim to have a working prototype to demo to potential first clients. Finally, during production phase, we will heavily move our efforts into marketing and less into development.
2. In order to provide our clients with a breakdown of Plugr - a business model must be developed. This model must appeal to the client's needs and solve their recurring problems. During the development stage, the Plugr's business model will be adjusted depending on the progress of the platform. Also, we plan to use best business and marketing practices in order to plan an effective pitch template which will be used to target potential clients.
3. The business model will be accountable for bringing revenue to the business and and provide sustainability. We aim to use the revenue obtained from the model to expand our application to other sports.

<https://github.com/FootballPlugr>

C. Scalability and Database Architecture

1. For the front-end application to communicate with our database we will need to create API endpoints on the back-end server. These endpoints will interact with the database to post and pull data.
2. Our database will also need to be designed in a way to handle scaling. This design will handle a large number of users as well as making it easy to expand our application to handle multiple sports.
3. We also plan to integrate Amazon Web Services to take advantage of their integrated features such as their Content Delivery Network and Server Hosting. Implementing Amazon Web Services will also help us to efficiently handle traffic among the application.

D. Statistic Management System

1. We will create and manage a simple, easy to use mobile application for league administrators. The purpose of this application is to collect statistics and update player information in real time. This mobile application will be created using the React Native framework to support both iOS and Android operating systems.
2. To make it easy for leagues to migrate to our platform we will also have to implement an additional feature that will allow them to easily import their statistics to our platform.

V. FINAL DELIVERABLE

This project will deliver a use-friendly application that will help players get in touch with many leagues and vice versa. With the application having user profiles players can also keep track of people they have interacted with in the past and possibly team up with them in the future. The application will be user friendly and accessible to everyone so leagues that currently exist will have an application that will help them manage their current players and recruit more players which will benefit both parties.