# **Requirements Specification Document**

# **Ballpark Bookie**

# **Major League Baseball Prediction Application**

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# **1** **Introduction**

## **1.1** **Identification**

This Software Requirements Specification (SRS) documents the requirements for the Major League Baseball Prediction Application, called **Ballpark Bookie**.

## **1.2** **System Overview**

Ballpark Bookie is a React based web page, consisting of information to help the user know the outcome of a baseball game.

The web page will consist of key games and their estimated outcomes while also allowing the player to select two teams to compare that estimated outcome. The information will include the favorite team’s percentage of winning, each team’s estimated score, and the estimated difference between the winner and loser.

If we get ahead of schedule there is more information we would like to provide our user with. Like projections for how individual players will do, or another example is the probability that a selected team will make the playoffs.

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# **Requirements Specification**

# **2** **CSCI Component Breakdown**

2.1 Home Page CSU

2.1.1 The Home Page shall display the buttons which are used to operate the application.

2.1.2 The Home Page shall display the buttons in a color which is easily read.

2.1.3 The Home Page shall have buttons for all operations, including updating itself.

Home Page buttons will include, but not be limited to, the following:

+ Home - When clicked on the user will be taken to the home page or the home

page will be refreshed if already there. Displayed to the right of the title.

+ Big Predictions - When clicked the user will be taken to the Big Predictions page

or it will be refreshed if already there. Displayed to the right of “Home”.

+ Search - Displayed at the top right of the screen, will be a search bar that

opens up a new tab with a teams information when a team is correctly typed in

and searched for.

+Ballpark Bookie Title- Displayed at the top left of the screen, will be the clickable

title of our application. This title shall refresh the home page.

+ Calculate - Below the title shall be a “calculate” button which will be used

to get the outcome of the game. The new information will appear directly below

this.

2.1.4 The Home Page shall have forms for all user input. Home Page forms will include,

but not be limited to, the following:

+ Team One - Below the title but above the Calculate button, the user shall be

prompted to type in a team name that they will chose to compare.

+ Team Two - Below the title but above the Calculate button, the user shall be

prompted to type in a team name that they will chose to compare.

+ Search - Displayed to the left of the search button, the user shall be

prompted to type in any information that they will choose to search.

2.1.5 The Home Page shall have links to every Major League Baseball team to view there

schedule. This Column will be displayed to the right side of the page next to the

compare team forms.

2.2Big Predictions Page CSU

2.2.1 The Big Predictions Page shall display the buttons which are used to operate the application.

2.2.2 The Big Predictions Page shall display the buttons in a color which is easily read.

2.2.3 The Big Predictions Page shall have buttons for all operations, including updating itself.

Big Predictions buttons will include, but not be limited to, the following:

+ Home - When clicked on the user will be taken to the home page or the home

page will be refreshed if already there. Displayed to the right of the title.

+ Big Predictions - When clicked the user will be taken to the Big Predictions page

or it will be refreshed if already there. Displayed to the right of “Home”.

+ Search - Displayed at the top right of the screen, will be a search bar that

opens up a new tab with a teams information when a team is correctly typed in

and searched for.

+Ballpark Bookie Title- Displayed at the top left of the screen, will be the clickable

title of our application. This title shall refresh the home page.

+ Calculate (Playoff Chances) - Below the Playoff Chances title there shall be a

“calculate” button which will be used to get the data on how likely it is that a team

will make the playoffs.

+ Calculate (World Series Chances) - Below the World Series Chances title there

shall be a “calculate” button which will be used to get the data on how likely it is

that a team will make it to the World Series.

2.2.4 The Big Predictions Page shall have forms for all user input. Big Predictions forms will

Include, but not be limited to, the following:

+ Playoff Chances Form - Below the title and next to the Calculate Playoff Chances

button, the user shall be prompted to type in a team name that they will chose

to view that teams chance of making the playoffs.

+ World Series Form - Below the title and next to the Calculate World Series

button, the user shall be prompted to type in a team name that they will chose

to view that teams chance of making the World Series.

+ Search - Displayed to the left of the search button, the user shall be

prompted to type in any information that they will choose to search.

2.2.5 The Big Predictions Page shall have links to every Major League Baseball team to

view their schedule. This Column will be displayed to the right side of the page next to

the compare team forms.

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# **3** **Functional Requirements**

3.1 A team versus team algorithm for money line bets

3.1.1 Win Prediction : The most obvious use of Ballpark Bookie will be to determine the estimated chances each team has of winning. We will use a regression algorithm to do so. The goal is to take into account as many variables correlated with a team winning. For example, a player’s batting average, number of injured players etc… We will compare two teams equivalent variables, and this difference (delta) shall be fed into our algorithm. For each variable, a correlation coefficient shall be weighted to ensure the maximum accuracy. The collection of all variables shall be summed into a single equation that shall evaluate an estimation of a team winning. With sufficient data points, we should be able to give a precise estimate of a team winning on a given day. This method is used for money line wagering, or betting on a team winning. Eventually, we could also collect information regarding sports betting websites that could give users the most profitable bets.

3.2 Over/Under bets : Same concept as 3.1.1 however, we shall change the outcome variable. In other words, we shall conserve all our input variables and use them in the same way. The only difference is in the coefficients that are weighed regarding a different outcome, here the difference between the two teams scores.

3.2.1 Combined Score bets : Same concept as 3.1.1 however, we shall change the outcome variable. In other words, we shall conserve all our input variables and use them in the same way. The only difference is in the coefficients that are weighed regarding a different outcome, here the sum of two teams scores.

3.3 A team’s complete season: Our Algorithm shall compare the current season (record, team batting average, etc.) and previous seasons against other teams (especially against other teams in the same division and same league) to find the probability of the selected team making it to the playoffs or even the World Series.

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# **4 Performance Requirements**

4.1 Calculate Team Comparison returned in under 30 Seconds.

4.1.1 This result will be returned in under 30 seconds due to the users internet

speed and varies due to the complexity of the data required for the algorithm.

4.2 Calculate Playoff Chances returned in 30 Seconds.

4.2.1 This result will be returned in under 30 seconds due to the users internet

speed and varies due to the complexity of the data required for the algorithm.

4.3 Calculate World Series Chances returned in under 30 Seconds

4.3.1 This result will be returned in under 30 seconds due to the users internet

speed and varies due to the complexity of the data required for the algorithm.

4.4 Home Page Button redirects to Home Page in under 10 Seconds.

4.4.1 This result will be returned in under 30 seconds due to the users internet

speed

4.5 Ballpark Bookie redirects to Home Page in under 10 Seconds

4.5.1 This result will be returned in under 30 seconds due to the users internet

speed.

4.6 Big Predictions Button redirects to Big Predictions Page in under 10 Seconds

4.6.1 This result will be returned in under 30 seconds due to the users internet

speed

4.7 Search Button results returned in under 30 Seconds.

4.7.1 This result will be returned in under 30 seconds due to the users internet

speed and varies due to the complexity of the data required for the algorithm.

4.8 Team Schedule Link redirects to team schedule page in under 10 Seconds.

4.8.1 This result will be returned in under 30 seconds due to the users internet

speed

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# **5 Environmental Requirements Section**

5.1 Computing hardware Requirements

5.1.1 Ballpark Bookie shall not require any special computing hardware to operate.

5.2 Computing Software Requirements

5.2.1 Ballpark Bookie shall be able be able to execute using any standard web browser.