Requirements Specification Document

Ballpark Bookie

Major League Baseball Prediction Application

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 allow users to compare two teams, and they will see our calculations to how the game will end.

We also want to present our users with an overall estimation on how a team will do throughout the season.

2 Functional Requirements

2.1 A team versus team algorithm for money line bets

2.1.1 **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.

2.1.2 **Data Collection** : Ballpark Bookie collects data by taking into account as many variables correlated with a team winning. For example, a player’s batting average, number of injured players etc…

2.1.3 **Data Normalization :** Ballpark Bookie normalizes the data collected by translating our data to normal form, or the number of standard deviations each data point is away from the mean.

2.1.4 **Data Comparison** : Both data sets are subtracted : one team minus the other. This returns one long list.

2.1.5 **Data Analysis** : Once the data is normalized and compares, a machine learning regression function is used to compare the data with the list of wins of each team, and an accuracy score is returned.

2.2 **Over/Under bets** : Same concept as 3.1.1 however, but the outcome variable is changed. In other words, we have conserved 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.

2.2.1 **Combined Score bets** : Same concept as 3.1.1 however, but the outcome variable is changed. In other words, we have conserved all our input variables and are using 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.

2.3 **A team’s complete season**: Our Algorithm compares 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.

Requirements Specification

3 CSCI Component Breakdown

3.1 Home Page CSU

3.1.1 The Home Page displays the buttons which are used to operate the application.

3.1.2 The Home Page displays the buttons in a color which is easily read.

3.1.3 The Home Page has buttons for all operations, including updating itself.

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

+ Home - Takes the user to the home page or the home

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

+ Big Predictions - Takes the user to the Big Predictions page

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

+ Search – Is displayed at the top right of the screen, is in the form of a search bar that

opens a new tab with a team’s information when a team is correctly typed in

and searched for.

+Ballpark Bookie Title - Is displayed at the top left of the screen; is the clickable

title of our application. This title refreshes the home page.

+ Calculate - Below the title is a “calculate” button which is used

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

this.

3.1.4 The Home Page has forms for all user input. Home Page forms includes,

but is not limited to, the following:

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

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

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

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

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

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

3.1.5 The Home Page has links to every Major League Baseball team to view their

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

compare team forms.

3.2 Big Predictions Page CSU

3.2.1 The Big Predictions Page displays the buttons which are used to operate the application.

3.2.2 The Big Predictions Page displays the buttons in a color which is easy to read.

3.2.3 The Big Predictions Page has buttons for all operations, including updating itself.

Big Predictions buttons includes, but is not limited to, the following:

+ Home - When clicked, the user is taken to the home page or the home

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

+ Big Predictions - When clicked the user is taken to the Big Predictions page

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

+ Search - Displayed at the top right of the screen is a search bar that

opens a new tab with a team’s information when a team is correctly typed in

and searched for.

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

title of our application. This title refreshes the home page.

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

“calculate” button which is 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

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

that a team will make it to the World Series.

3.2.4 The Big Predictions Page has forms for all user input. Big Predictions forms include, but are not limited to, the following:

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

button, the user is prompted to type in a team name that they chose

in order to view that team’s chance of making the playoffs.

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

button, the user is prompted to type in a team name that they chose in order to

to view that team’s chance of making the World Series.

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

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

3.2.5 The Big Predictions Page has links to every Major League Baseball team to

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

the compare team forms.

4 Performance Requirements

4.1 Calculate Team Comparison returned in under 30 Seconds.

4.1.1 This result is returned in under 30 seconds based on the user’s internet

speed and can vary 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 is returned in under 30 seconds based on the user’s internet

speed and varies according 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 is returned in under 30 seconds based on the user’s internet

speed and varies according 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 is returned in under 30 seconds based on the user’s internet

speed.

4.5 Ballpark Bookie redirects to Home Page in under 10 Seconds

4.5.1 This result is returned in under 30 seconds based on the user’s internet

speed.

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

4.6.1 This result is returned in under 30 seconds based on the user’s internet

speed

4.7 Search Button results returned in under 30 Seconds.

4.7.1 This result is returned in under 30 seconds based on the user’s internet

speed and varies according 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 is returned in under 30 seconds based on the user’s internet

speed.

5 Environmental Requirements Section

5.1 Computing hardware Requirements

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

5.2 Computing Software Requirements

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