

## Progress Report - Final Project

### **Problem Description**

Currently, there is no visually interactive tool that allows you to view aggregated NBA statistics for every NBA team over the last 20 years. Most prior works are incomplete, in the sense that they only focus on a few NBA teams and a few on the major NBA statistics. Examples of this can be seen in the following Bleacher Report article (<http://bleacherreport.com/articles/1282804-how-the-nba-game-has-changed-over-the-last-decade>). In this article, only a few factors such as size and style of play are analyzed across only a few teams in the NBA. Most of the prior work in this space follows an article-like format that focuses on only a few NBA teams and statistics. .

The few websites that do show more of the aggregated NBA statistics for every team are only in a spreadsheet format (Basketball-Reference.com). Both of these examples do not have a visual component to them, and both are not interactive with the user.

Ultimately, we hope that our tool allows users to interact with the NBA data in a way that is highly visual. We want users to be able to learn about any team or any stat of interest across any year in just a few clicks. Moreover, we hope that users can easily see the trends of the NBA for any team during the last two decades.

### **Current Progress**

We have decided to do either an iOS or Mac desktop app due to their ability to generate a pleasing and intuitive UI. We have rudimentary graphs displaying data we read in from files; our next step is to update the graphic seamlessly as the user specifies. The data we are using is largely from basketball-reference.com, and is publicly available on many NBA related sites.

### **Literature Review**

Basketball-reference.com has a rather comprehensive set of stats from the past several decades. Many stats, such as blocks and steals, didn't exist until relatively recently, and the 3 pointer was introduced in the 1979-1980 season, which is why we are going to focus on the past two decades. Sports statistics are widely analyzed, but where many websites and blogs fall short is in their visualization; there are very few sites, if any, that have aggregated a wide array of stats into an application that allows dynamic visual queries. We intend to allow the user to select teams and stat categories from the past 20 NBA seasons, and see a concise visualization accordingly. This way, a user can click their way through a significant chunk of NBA history without having to spend hours collecting data and looking at spreadsheets.

<http://www.nbaminer.com/changes-in-teams-play-part-1/>

The above article discusses how teams changed in four major categories, but only from the 2013-14 to the 2014-15 seasons. Scholars and fans around the world have beaten

most statistics to death, but they are often hidden in esoteric blog posts and website archives and not really making the kind of waves they should. Having a centralized medium to visually absorb this data, and dynamically query as opposed to hopefully typing in search terms to Google, will allow trends to shine through to the viewer immediately.

## **Project Plan**

We want to start looking at major ways in which the NBA has changed, namely more teams are taking 3 point shots outside the 24 ft arch from the basket as opposed to 2 pointers inside and offenses and defenses are now more complex with more moving parts than their contemporaries in the late 90's. This could lead to things like more assisted baskets per game (more players catch and pass the ball as opposed to hold and dribble) as well as type of plays utilized most often (in the early 2000's, tall players near the basket would power through multiple defenders to score, whereas now, smaller, faster players shoot 3 pointers from beyond 24ft from the basket).

Once we have a simple way for the user to dynamically query data for a specific set of teams and years, with the set of statistics limited, and update the graphic accordingly, we can then iterate to provide more comprehensive statistics or more abilities for the user to manipulate and display the data. The first part of this plan should only take a few days of work, which would be a solid milestone.

Ian is most familiar with Mac apps, so he will do the brunt of the coding.

John and Kush will do most of the research, analysis, and storyboarding.

## **Questions**

What do you think of displaying our visualization through an app? Are there any drawbacks to going this route?

How can we display multiple statistics? Should we limit the number of statistics that can be displayed at a time?

Are you interested in trends of the NBA in the last 20 years?