Capstone Project 1: Project Proposal

Then...



Image by Sacramento Bee

Now...



Image by u/bokilok via Reddit

Weber. Divac. Stojakovic. Bibby. To most people, these names mean nothing; to Sacramento Kings fans though, they conjure images of the glory days, when the Kings were one of the best teams in the Western Conference, and arguably the NBA.

I can still remember making the roughly one hour drive down to Arco Arena for one of my birthdays when I was younger. Watching the star players that I mentioned above, along with the cowbells and 18,000 other Kings fans, made for an experience that will live forever etched in my memory. One thing that I took for granted at the time though was the excitement surrounding the team. There was a certain vibe, a sense of swagger so to

speak, that allowed one to proudly exclaim, "I'm a Kings fan!" (and people wouldn't get it confused with the hockey team either).

Little did we know that by the mid-2000s, this exciting era of Sacramento Kings basketball would come to pass. There have been a few occasions where it looked like things might be on the up and up but unfortunately, Kings fans everywhere would often be harshly reminded that it was a different era, with more L's than W's.

The organization has endured a tumultuous last decade or so. From the Maloof's complete mismanagement of the franchise (which is putting it nicely...) to the very-near relocation out of Sacramento, being a Kings fan has seen a lot of ups and downs with the downs resembling the Grand Canyon.

Yet, there is still reason to be optimistic. Things look to be on the up-and-up, and for the first time in a (very) long time, the team looks to have a solid foundation with an awesome new downtown stadium (Golden 1 Arena), new ownership (Vivek Ranadivé) and a coach (Dave Joerger) that looks to be connecting with a young, but talented, roster.

That being said, as of this writing, the Kings have a 25-25 record and are in 10th place, with the 8th and final playoff seed within their grasp. While the team just down the road in Oakland has known nothing but playoffs and NBA titles these past few years, a spot in the playoffs would be a huge success considering their last appearance was twelve seasons ago in 2006. Not only that, it would be a nice cherry on top considering that ESPN projected that they would be the worst team in the NBA this season. (*quick side note: ESPN predicted they would finish with 25.4 wins, which they've already matched this season)

With a rising sense of excitement surrounding the team, and seeing as we're about half-way through the NBA season, I wanted to answer one question: Are the Sacramento Kings going to make the NBA playoffs in 2019?

Data analytics and data science have completely revolutionized sports, basketball in particular. Look at the Golden State Warriors for example, who've won three NBA titles since 2015, and credit much of that success to the use of analytics. So hopefully, with a little bit of luck and a lot of data wrangling, cleaning, and machine learning we can figure out how the odds are looking for the team in Sacramento.

Seeing as this is the starting point for the project, there are still a lot of questions to be answered, like:

- Where do we collect the data from?
- Do we collect data with the focus being on team statistics or on individual player statistics?
- What are the most important variables on a team and individual level?
- What variables contribute most to wins?

These are just a few of the unanswered questions at this point. Yet, we still need a rough sketch of how we're going to approach this.

At this moment I believe the best route to go in regards to the data would be on an individual player basis. More specifically, we'll take a look at players statistics from years past and compare that to whether or not their team made the playoffs. Luckily, this may be easier than expected (fingers crossed!).

Basketball-reference.com looks to be a treasure trove of data with stats on both a team and individual basis. This looks to be a great starting point. The next thing to look into would be an API that allows us to access up-to-date NBA statistics. Hypothetically, this may offer us an even better picture of the Kings that they make the playoffs as we could update the prediction after each game.

Once we've collected the data, and cleaned it up, we can start experimenting with the machine learning component. Since we're looking at a problem with two possible outcomes (i.e. the Kings make the playoffs or they don't), the technique we'll focus on is logistic regression. This algorithm is the go-to method for binary (i.e. two-outcomes) classification problems.

In regards to deliverables for this project, it will include the following:

- Jupyter Notebook(s) that detail the data wrangling/cleaning process and the development of the machine learning algorithm created to make the prediction.
- A paper providing more detail on how the project went, from start to finish, and its results.
- A blog post giving a high-level overview of the project and its findings.

So without further ado, let's see if 2019 is the year the Sacramento Kings will finally be making an appearance in the NBA playoffs!