Beta Squad
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Project Proposal:

Basketball Trade Optimizer

Given two NBA basketball teams (these could be real teams or Fantasy League teams; we have yet to decide), our code will decide the optimal trades between them based solely on statistics (ie we don't care about age, draft picks, salary cap (that said, we don't envision trading Lebron James for Javale McGee…)).

Our data will be taken from the internet (see below for the exact site). We plan on scraping team and individual statistics for the NBA and loading it into a database. Regarding queries, we see this project going two ways that vary in complexity. One direction goes as follows: if a team has poor stats in certain category but is above average in another, we look to match that team with another imbalanced team to create an optimal trade. However, if that gets too complicated, we could decide our trade match as user inputs.

We plan to assign values for each statistical category based off of the deviation of that stat from the league average. For example, if the league points per game average is 12, a player with 20 ppg would score a high in our ranking system and a player with 5 ppg would score low. The sum of a player's individual stats in all categories (points, rebounds, assist/ turnover, steals etc) gives his overall value.

Regarding trades, we look to create trades where both teams benefit. We will run a function that will consider all possible trades for each pair of teams (could a greedy function be a good idea?). When we sample a possible trade, we will examine how a potential trade changes the overall team point rankings in order to decide an optimal trade for both parties. The trade option that creates the largest net gain for both team's rankings is the option we choose.

We plan to weight our point ranking system by team mean statistics. That way, a team with low rebounding will value a high rebounding player a lot more than a team filled with centers. Depending on our progress on the project, we can then expand it to sample out of possible trade scenarios between all teams and list the trades with the greatest mutual benefit for both teams (based off of net +/- of overall values for each team).

Objective:
Parse data from publicly available data on NBA teams and players to create a database of relevant statistics.

Data Sources:

http://stats.nba.com

Possible future steps:

Time Line: We have four weeks without programming assignments to work on this.

(By end of each week)

4th Week: Scrape data from Nba statistics site and save them. Most likely we will save the data opposed to searching for it each time.

6th Week: Create database. First for all the data. Then separate data out for individual teams and individual players.

8th Week: Build trade algorithm. Come up will how to adequately value players to determine if a trade would be mutually beneficial. Most likely this will be derived from a team's values for each statistical category as to assess relative benefit of a additional player.

10th Week:Work on displaying data. Most likely will implement various tables. Use an internet page?