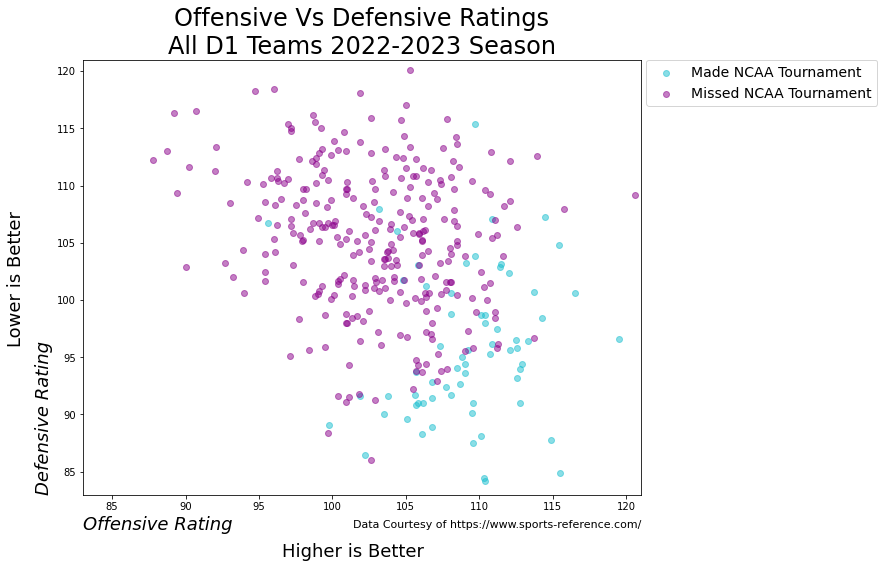
Have you ever wondered how someone made a graph that used pictures or logos instead of just plain boring dots? Well I did, you see for those that do not know me I love college basketball, to those that do know me it is pretty obvious. Every year when college basketball season rolls around I see some kind of chart that depicts college basketball statistics with the teams logos on the scatter plot. I always found those graphs interesting. This year, curiosity got the best of me and I started researching how these graphs could be made. Low and behold, I was extremely excited when I came across a [tutorial](https://fcpython.com/visualisation/creating-scatter-plots-with-club-logos-in-pytho) on how to make a scatterplot using English Premier League soccer teams using matplotlib and python. As a working data analyst I use python a lot.

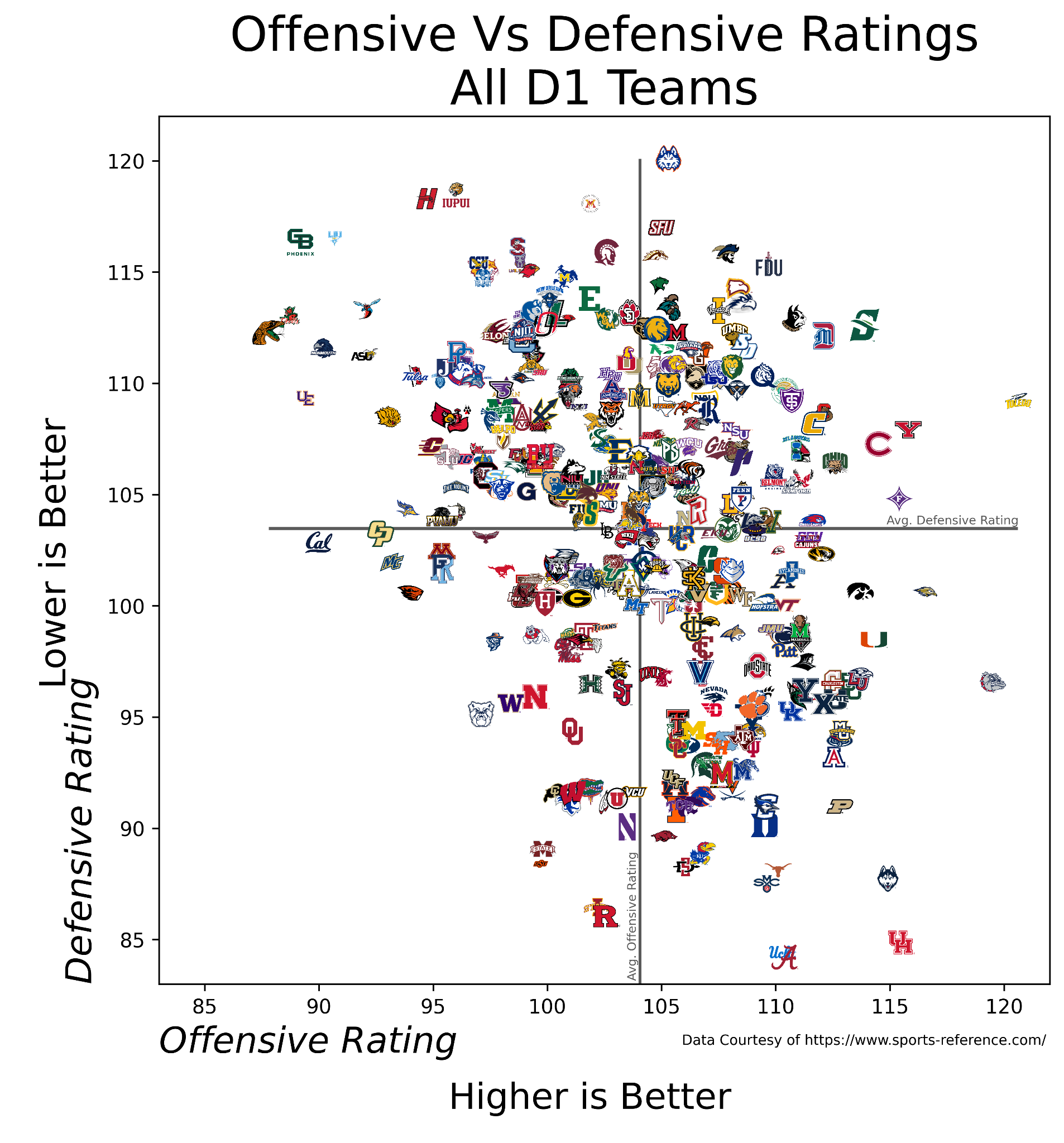
To start we do need some data, those of you that look at sports data a lot may be familiar with [Sports Reference](https://www.sports-reference.com/) a website meant to democratize sports data. The data I used to showcase this method of analysis is taking college basketball Offensive and Defensive Ratings from the 2022-2023 Regular Season. Those stats can be found [here](https://www.sports-reference.com/cbb/seasons/men/2023-ratings.html) on Sports Reference. Sports Reference defines the two metrics as:

* [Offensive Rating](https://www.sports-reference.com/cbb/about/glossary.html#srs) (ORtg): for schools it is points scored per 100 possessions. The formula for schools is 100 \* (PTS / Poss).
* [Defensive Rating](https://www.sports-reference.com/cbb/about/glossary.html#srs) (DRtg): points allowed per 100 possessions. The formula for schools is 100 \* (Opp PTS / Poss).



This is your simple run of the mill scatterplot. The colors indicate whether or not a basketball team made the coveted NCAA tournament. From the scatter plot we can see that most of the teams that made the tournament have elite level Defensive Ratings. We generated this plot using this code:

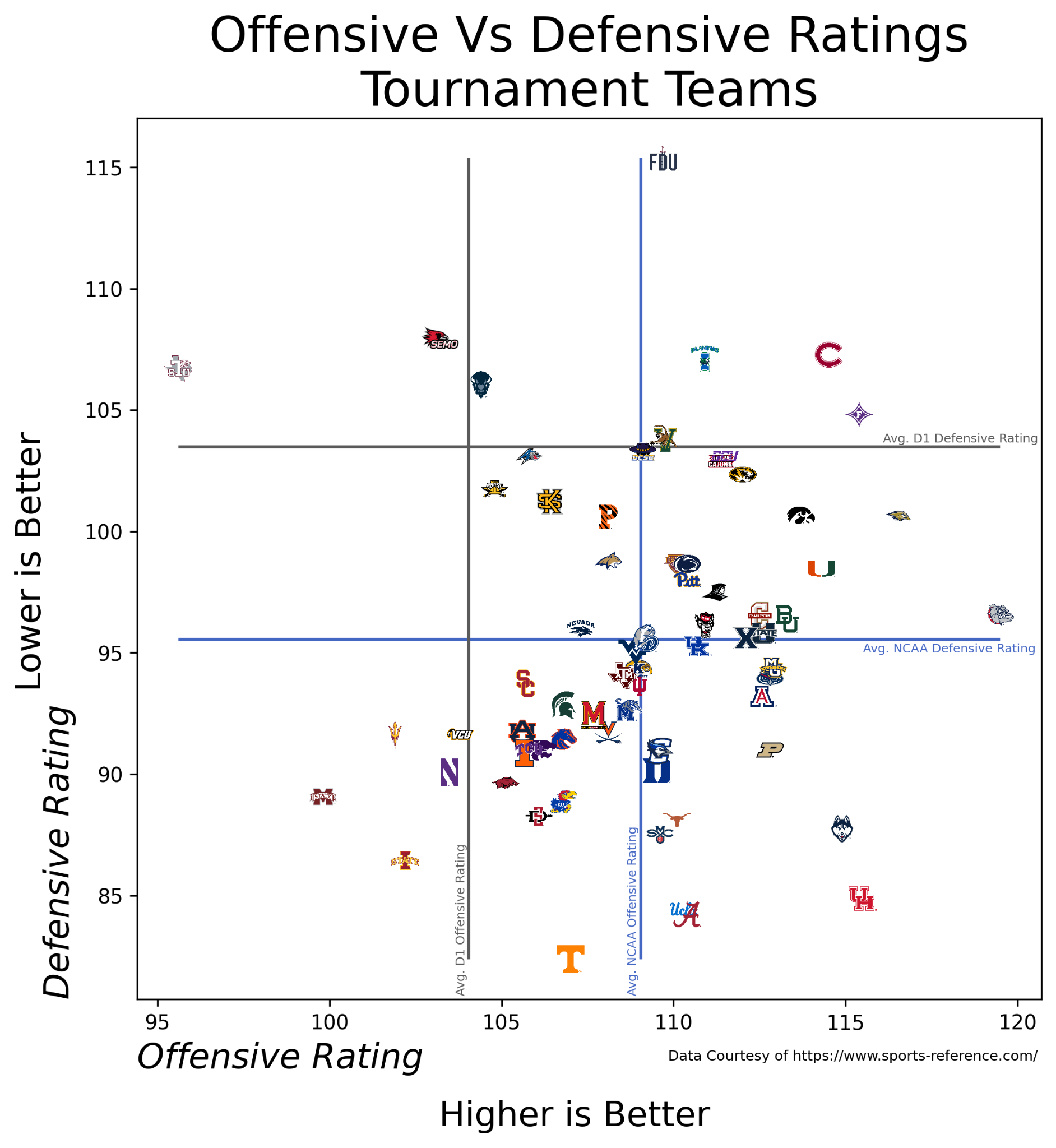
Code block

This is not why you clicked on this article though. Here is the scatterplot using college logos.

The logos are courtesy of [SportsLogos.net](https://www.sportslogos.net/) a self [described](https://www.sportslogos.net/faq/): “virtual museum dedicated to the past, present, and future of graphic design in the world of sports.” This graph is generated by this code:

Code block

The two grey lines indicate the averages of defensive and offensive rating throughout all of D1 Basketball. This means that we can split the teams into 4 quadrants: Bad Offense and Bad Defense (top left quadrant), Good Offense and Bad Defense (top right quadrant), Bad Offense and Good Defense (bottom left quadrant), and Good Offense and Good Defense (bottom right quadrant). This graph is a little messy because there are 363 logos for all the D1 teams. To get some insight from this visual, I filtered to just the teams that made the NCAA Tournament:



In this visual the grey lines still indicate the average Offensive and Defensive ratings for all of D1. We can see that most of the teams fall into the bottom right quadrant of good defense and good offense. You could also have a lot of different insights from this visual, for example the teams that may not have deserved a bid based on their offensive ratings: Mississippi State, Iowa State,Northwestern, and Arizona State. I am sure you have your own insights and questions from this visual, if so please leave a response.

<https://fcpython.com/visualisation/creating-scatter-plots-with-club-logos-in-python>

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