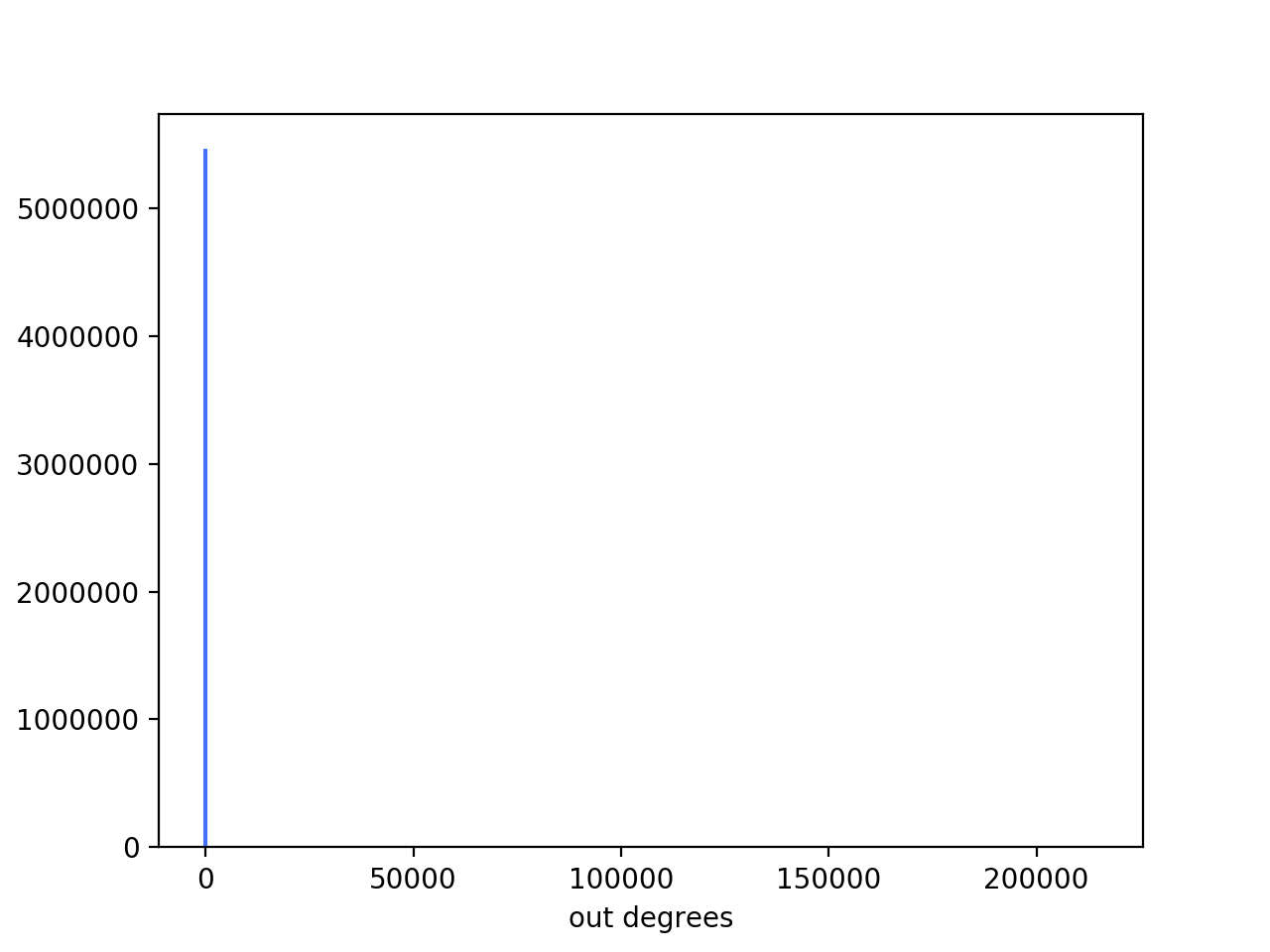
CSC443 Assignment 1 Part2 Research Report

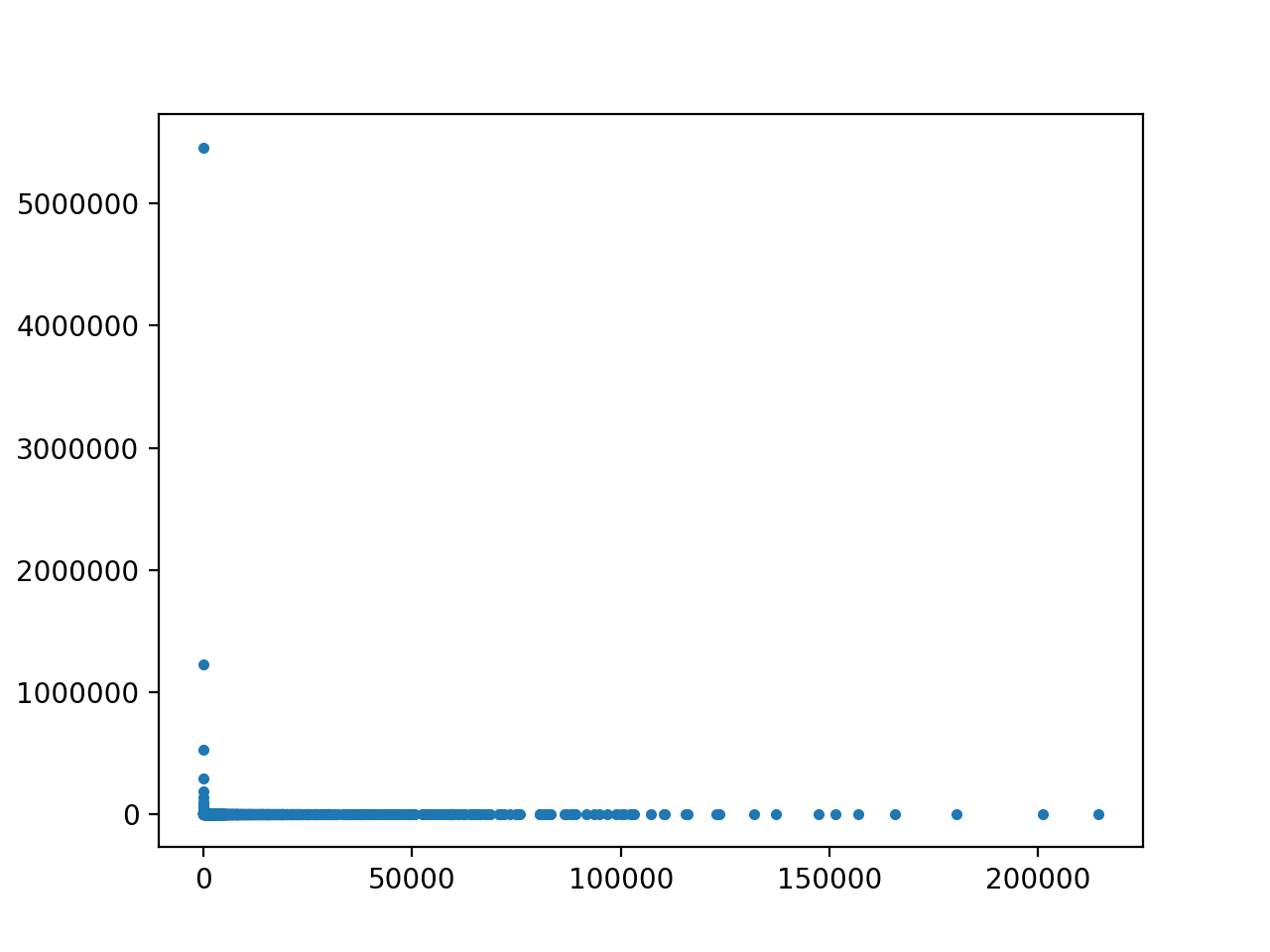
Fangzhou Yu

Yu Xie

3.1

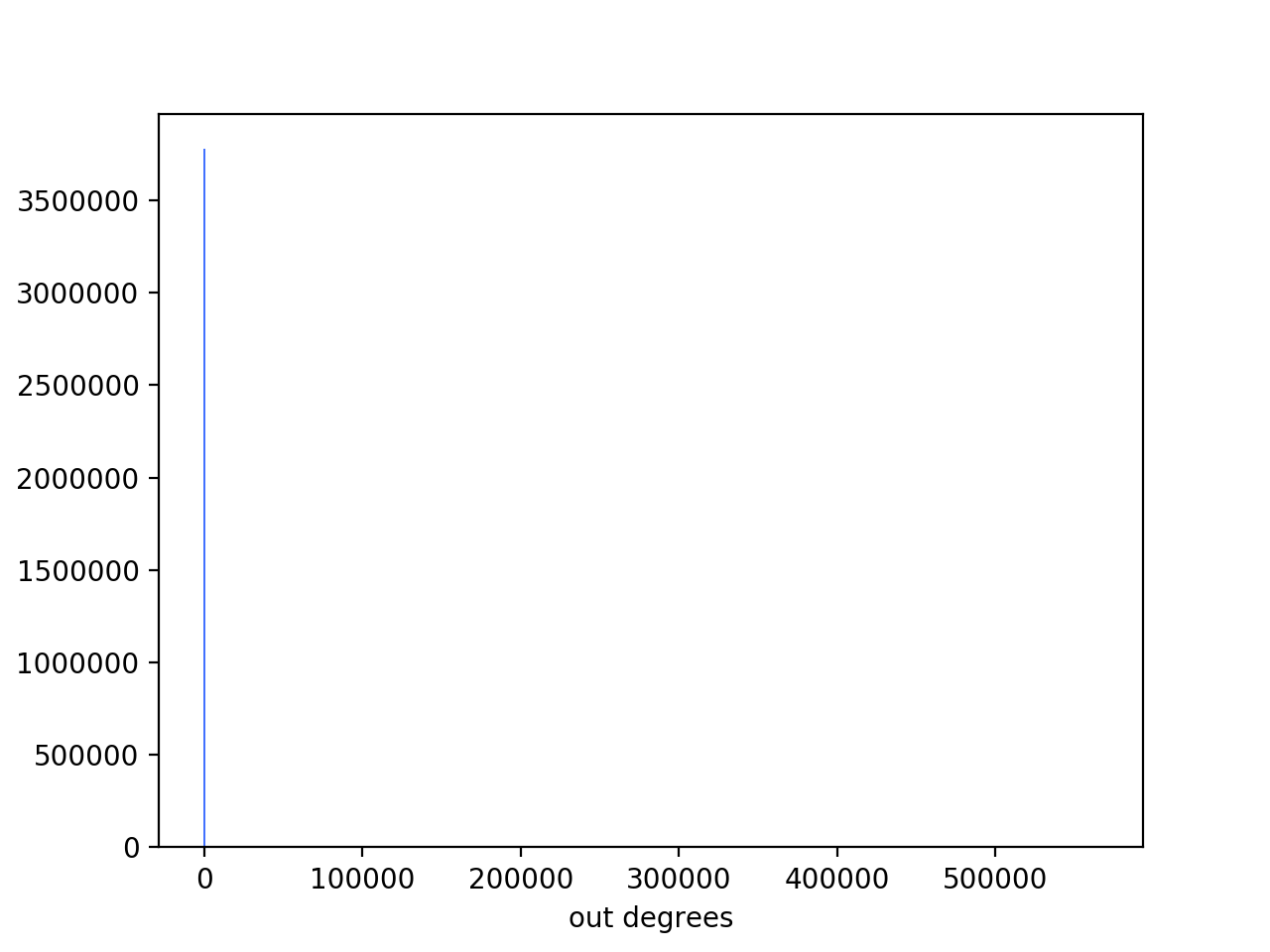
Out degree Histogram

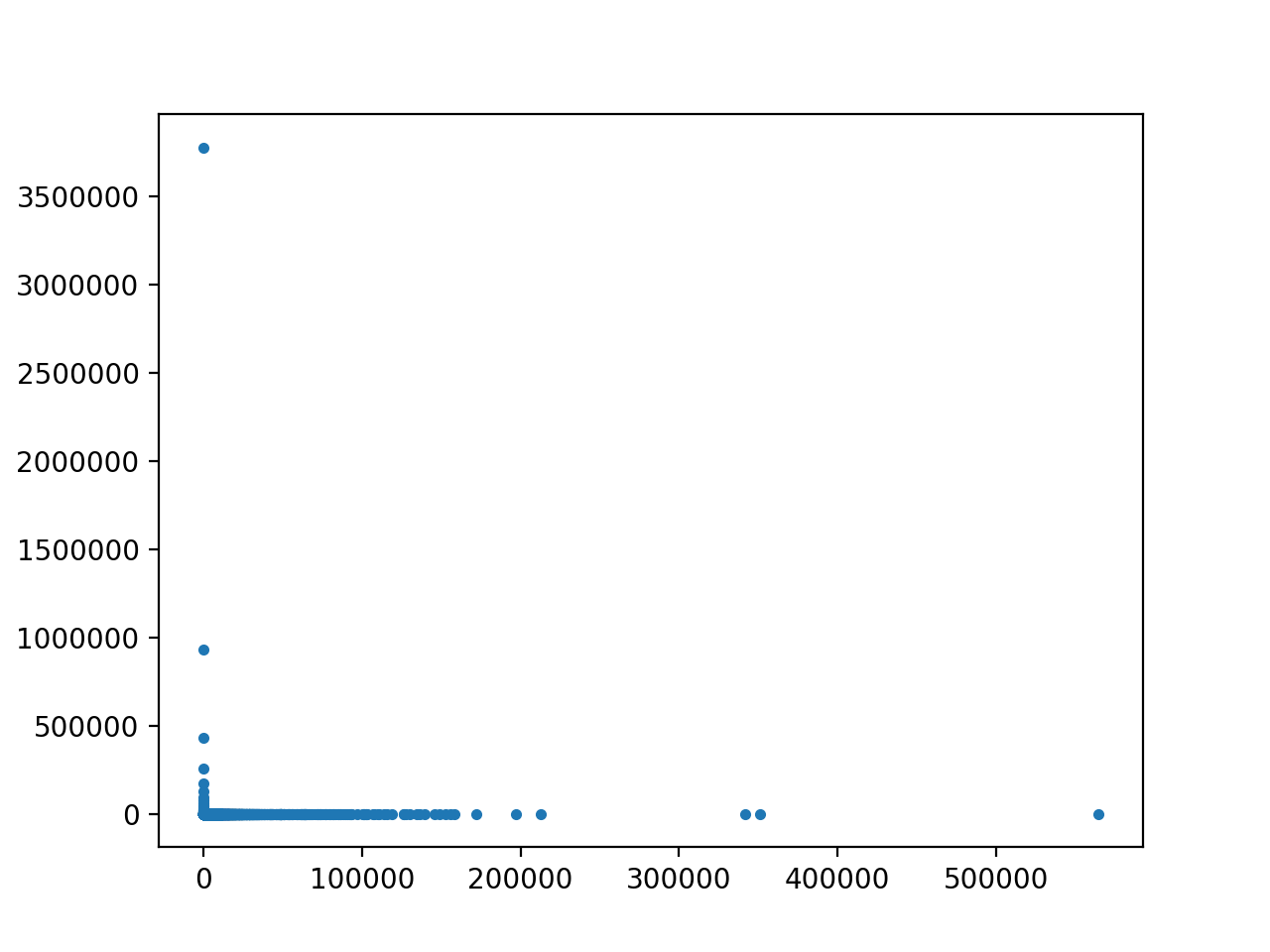




Due to a lot data is close to 1 in the y value, the histogram does not show them very well, I used a plot to show this.

In degree histogram





3.2

Out degree power law distribution



In degree power law distribution



Summary:

For out-degree distribution, we count total number of users with that out-degree number from 0 to max-out degree. Then we remove all the out-degree with count 0 from the list. Then we take log from count number of users with that out-degree and out-degree. And we using linear regression try to find a line that fits the data. We got the slope of the line and then adjusted the slope of the line to get the line which best fits our plot graph. Same for in-degree distribution.

Out degree has power law distribution with exponent 1.86176923903. In degree has power law distribution with exponent 1.79842304061. Because most of the data is has y value close to 0 as x increases. The linear regression does fit well here. we can see there is a straight line can fit the data. Thus, in-degree/out-degree has a power law distribution with number of users.