Question 1.1, Homework 0, CS224W

The number of nodes in the network is 7115.

Question 1.2, Homework 0, CS224W

The number of nodes with a self-edge (self-loop) is 0.

Question 1.3, Homework 0, CS224W

The number of directed edges in the network is 103689.

Question 1.4, Homework 0, CS224W

The number of undirected edges in the network is 100762.

Question 1.5, Homework 0, CS224W

The number of reciprocated edges in the network is 2927.

The number of nodes of zero out-degree is 1005.

The number of nodes of zero in-degree is 4737.

Question 1.8, Homework 0, CS224W

The number of nodes with more than 10 outgoing edges is 1612.

Question 1.9, Homework 0, CS224W

The number of nodes with fewer than 10 incoming edges is 5165.

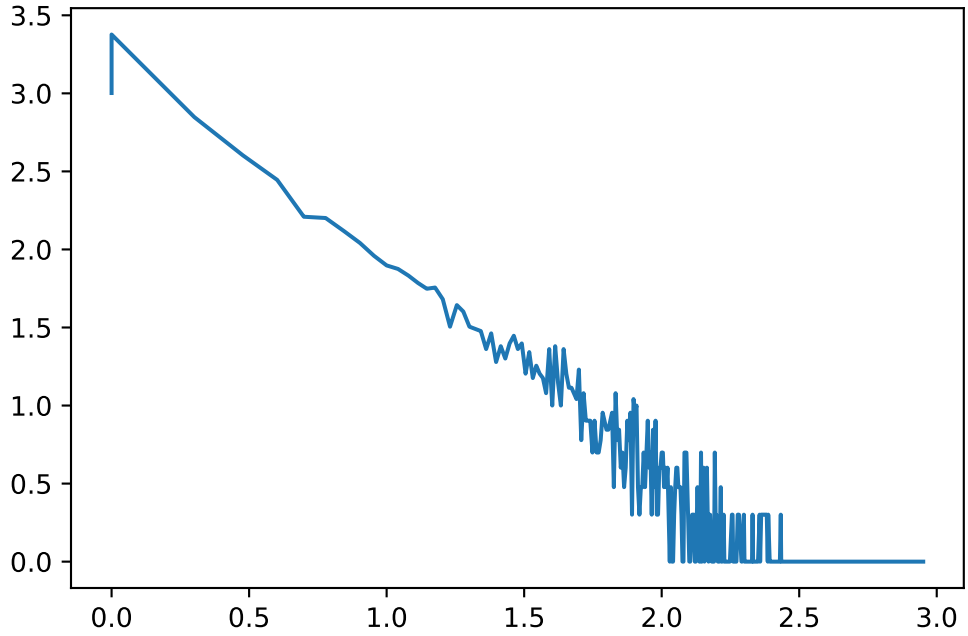

Figure 1: Degree distribution

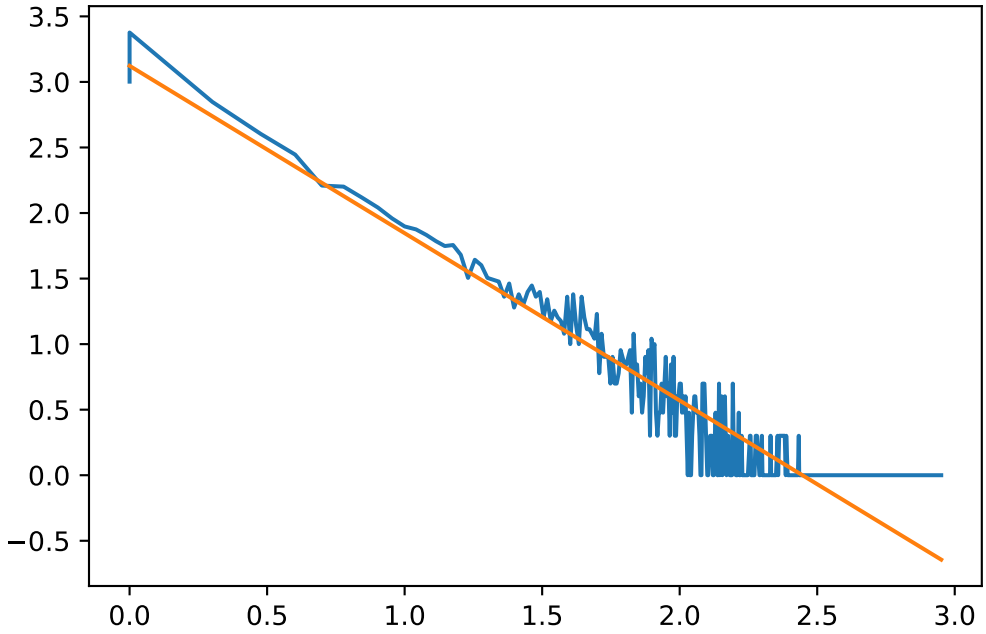

Figure 2: Regression

The coefficients of a is -1.2764599647257473 and b is 3.1227358640570393

Question 3.1, Homework 0, CS224W

The number of weakly connected components in the network is 10143.

Question 3.2, Homework 0, CS224W

The number of edges in the largest weakly connected component is 347297.
The number of nodes in the largest weakly connected component is 131188.

Question 3.3, Homework 0, CS224W

IDs of the top 3 most central nodes in the network by PageRank scores:
992484 0.014487640265633013
135152 0.009713897354211635
139985 0.0075449138999974545

Question 3.4, Homework 0, CS224W

IDs of the top 3 hubs and top 3 authorities in the network by HITS scores

IDs of the top 3 hubs
614141 0.25893819769439114
240337 0.17952104555814175
100516 0.16955401992174304

IDs of the top 3 authorities
157882 0.7990595928120374
22656 0.312252491402458
203907 0.21661194242000273

Information sheet
CS224W: Machine Learning with Graphs

Assignment Submission Fill in and include this information sheet with each of your assignments. This page should be the last page of your submission. Assignments are due at 11:59pm and are always due on a Thursday. All students (SCPD and non-SCPD) must submit their homework via GradeScope (http://www.gradescope.com). Students can typeset or scan their homework. Make sure that you answer each (sub-)question on a separate page. That is, one answer per page regardless of the answer length. Students also need to upload their code on Gradescope. Put all the code for a single question into a single file and upload it.

Late Homework Policy Each student will have a total of *two* late periods. *Homework are due on Thursdays at 11:59pm PT and one late period expires on the following Monday at 11:59pm PT*. Only one late period may be used for an assignment. Any homework received after 11:59pm PT on the Monday following the homework due date will receive no credit. Once these late periods are exhausted, any assignments turned in late will receive no credit.

Honor Code We strongly encourage students to form study groups. Students may discuss and work on homework problems in groups. However, each student must write down their solutions independently, i.e., each student must understand the solution well enough in order to reconstruct it by him/herself. Students should clearly mention the names of all the other students who were part of their discussion group. Using code or solutions obtained from the web (GitHub/Google/previous year's solutions etc.) is considered an honor code violation. We check all the submissions for plagiarism. We take the honor code very seriously and expect students to do the same.

Your name: _____

Email: _____ **SUID:** _____

Discussion Group: _____

I acknowledge and accept the Honor Code.

(Signed) _____