Part I: R vs Gephi Comparison:

- With R, the mean degree is calculated as 18.0262 which means that on average Facebook links to itself 18 times
- This value is equivalent to the Gephi weighted degree value 18.026.
- The both code's histogram graphs showed the similar Power-Law distribution.
- KS.p = 0.9992188 is high enough to confirm that the test cannot reject that the fb_degree_list data could have been drawn from the fitted Power-Law distribution.
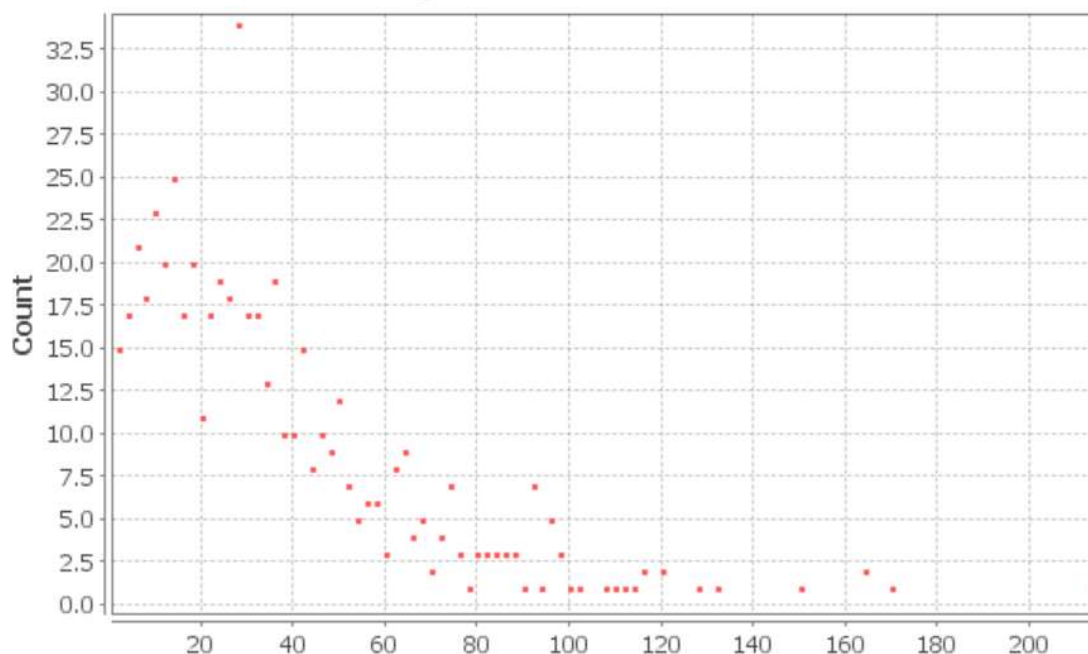
Gephi Results

HTML Report

Degree Report

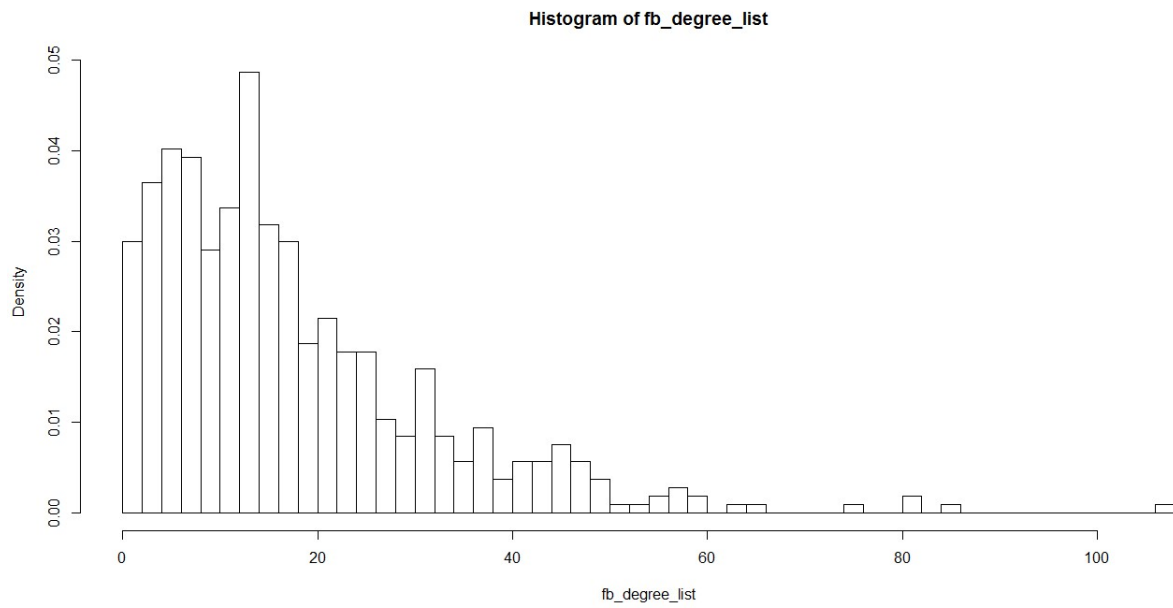## Results:

Average Degree: 36.052

Degree Distribution

Weighted Degree Report

Results:

Average Weighted Degree: 18.026

R Results

R Results

Histogram of fb_degree_list

Part II, Perform a K-S test:

- The K-S test results showed that the distribution of degrees is not Poisson since the p-value is predicted as 0.001

- KS.p value is calculated as 0.008063914 which is not very high. According to the test description (?power.law.fit) small p-values (less than 0.05) indicate that the test rejected the hypothesis that the original data could have been drawn from the fitted power-law distribution. We can also observe the same behavior from k_s_distribution histogram profile below. Therefore, the k-s distribution cannot be accepted as a Power-Law.

Histogram of k_s_distribution