Bonus Assignment

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1 Problem 1

1.1)
i)
The number of nodes in graph G is 9918.
The number of edges in graph G is 14131.

ii)
The number of connected components of graph G is 7.

iii)

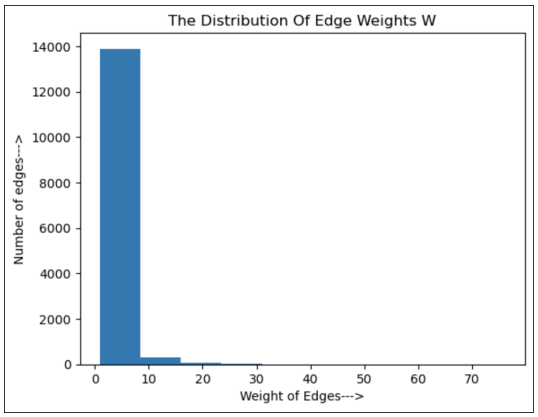

Figure 1: The Distribution Of Edge Weights W

In the histogram,there are many edges which have edge weight between 1 and around 9.

Then, we can see some edges have higher edges weight.

Furthermore, we can see that number of edges decreases with the increasing edge weights as shown in the picture.

Finally, there are extremely few edges that have edge weight of around 32 to 76. (these are not seen with our naked eyes because they are very few of them, probably like 1, 2 or 3, when the scale of y-axis is 2000 units.)

The value of 75% quantile of the distribution of weights W is 2.0 which is w1.

The value of 90% quantile of the distribution of weights W is 4.0 which is w2.
Brief Comments:
There are many reviewer-author pair who had co-authored papers of around 1 to around 15.

1.2)
i)
The number of edges of G1 is 5855.

The number of edges of G2 is 1806.

ii)
The number of connected components that contain at least one edge in G1 is 23.

The number of connected components that contain at least one edge in G2 is 83.

Note: Because the number of edges are higher in these graphs, the number of connected components will be smaller.

Brief Comments:
There are many reviewer-author pair with more than 2 co-authored paper in the past 3 years compared to the review-author pair with more than 4 co-authored paper in the past 3 years.