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## Question 4: Technical Report

The three configurations are: (1000, 0.1), (3000, 0.01), (5000,0.02)

| | n = 1000, p = 0.1 | | n = 3000, p = 0.01 | | n = 5000, p = 0.02 | |
|---|---|---|---|---|---|---|
| | Generated Values | Theoretical Values | Generated Values | Theoretical Values | Generated Values | Theoretical Values |
| Average Clustering | 0.099948 | 0.1 | 0.009957 | 0.01 | 0.02 | 0.02 |
| Average Path length | 1.900085 | 1.5 | 2.723463 | 2.35 | 2.11 | 1.85 |
| Average Degree | 99.8548 | 99.9 | 30.044133 | 29.99 | 99.97 | 99.98 |

The three configurations ran 30 times and the respected values for clustering, path length and average degree were averaged over the 30 iterations. The generated average values are very close to theoretical values. While the clustering and degree distribution is slightly greater in theoretical values but the average path length is lesser in the theoretical framework. The generated graph obeys the theoretical model for the erdos-renyi network.
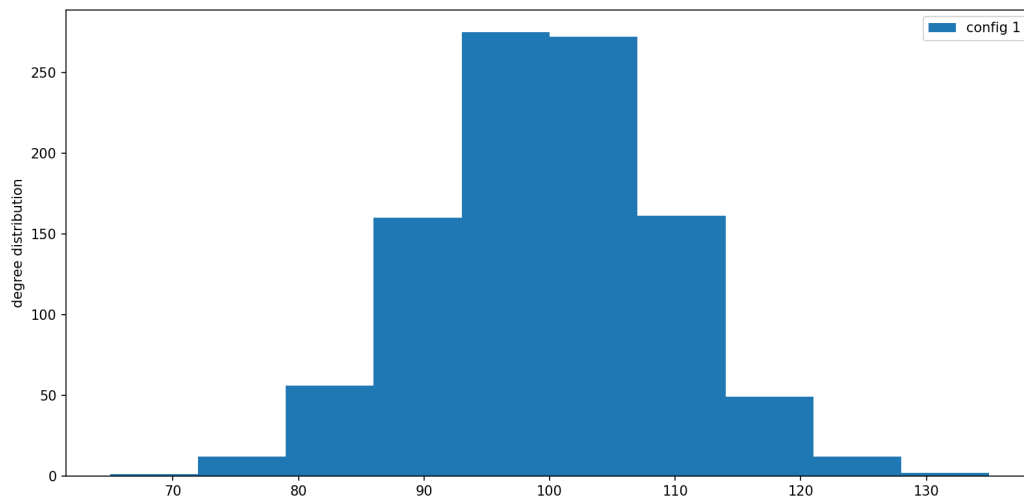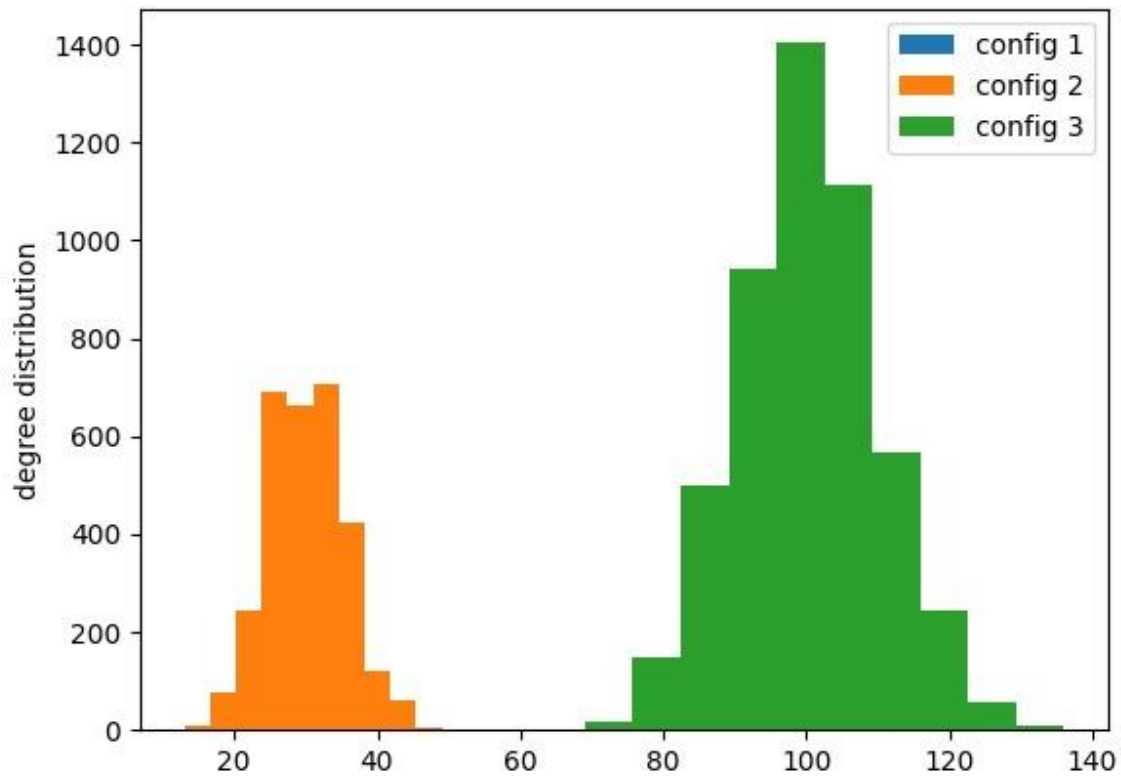
The degree distribution of all three configurations follow binomial distribution as in the theoretical model. The degree distribution also seems to be centered around the average degree generated and theoretically calculated.