# **Part 1: Facebook network**

**1.4 Friend recommendation in personalized networks**

In this part, we used three different neighborhood-based measure for friend recommendation. We defined the notations as follow:

* is the neighbor set of node in the network.
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Three friend recommendation algorithms which we used:

* Common Neighbor Measure
* Jaccard Measure
* Adamic-Adar Measure

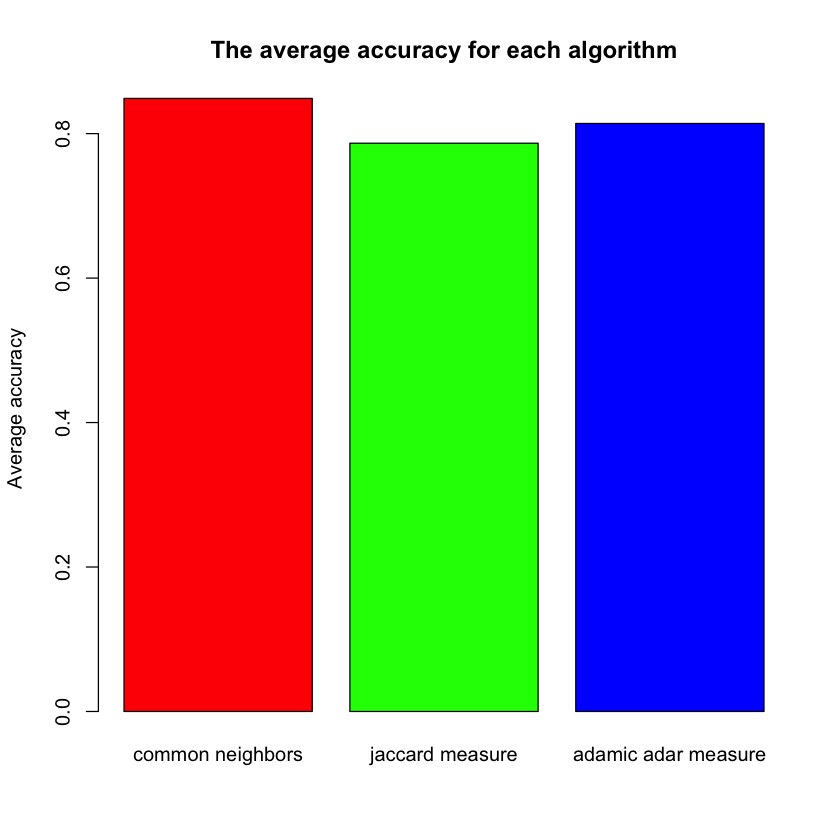
**Quesiton 16:**

In this question, we analyzed the personalized network of node ID 415 and created a list by picking all nodes with degree 24 in this personalized network.

**Question 17:**

In this question, we applied three friend recommendation algorithms to user in list . We computed the average accuracy for each user in the list Then, we took the mean of the average accuracies of the users in the list The mean value is the average accuracy of the friend recommendation algorithm.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Common Neighbors | Jaccard | Adamic Adar |
| Average accuracy | 0.8487698 | 0.7867424 | 0.8140689 |



**Figure 1.4.1** The average accuracy of each algorithm