**ASSIGNMENT-1 REPORT **

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**Course:** Social Media Analytics

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* **Requirement 1:** Present the results in a table with the datasets as rows and the statistics as columns.

| **Statistics** | **Nodes (N)** | **Edges (M)** | **Average Path Length** | **Average Clustering Coefficient** |
| --- | --- | --- | --- | --- |
| **Karate Club Network** | 34 | 78 | 2.40819 | 0.57 |
| **Dolphin Social Network** | 62 | 159 | 3.35695 | 0.25 |
| **Jazz musicians network** | 199 | 2743 | 2.2480 | 0.61 |

* **Requirement 2:** Comparison among different community detection Algorithms for all the datasets.

1. Karate Club Network

| **Statistics** | **Number of Clusters** | **Modularity Score** | **Runtime** |
| --- | --- | --- | --- |
| **Girvan-Newman EBC** | 2 | 0.3599 | 0.1074 |
| **Modularity Maximization** | 3 | 0.3806 | 0.0057 |
| **Spectral Clustering using Graph Laplacian** | 4 | 0.4101 | 0.2491 |

2. Dolphin Social Network

| **Statistics** | **Number of Clusters** | **Modularity Score** | **Runtime** |
| --- | --- | --- | --- |
| **Girvan-Newman EBC** | 2 | 0.3787 | 0.200 |
| **Modularity Maximization** | 4 | 0.49 | 0.0124 |
| **Spectral Clustering using Graph Laplacian** | 4 |  |  |

3. Jazz Musicians Network

| **Statistics** | **Number of Clusters** | **Modularity Score** | **Runtime** |
| --- | --- | --- | --- |
| **Girvan-Newman EBC** | 2 | 0.0036 | 7.85 |
| **Modularity Maximization** | 4 | 0.43 | 0.01256 |
| **Spectral Clustering using Graph Laplacian** | 4 |  |  |

* **Requirement 3:** Which algorithm performs the best w.r.t. both efficiency and quality.