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Big Data Management and Analytics

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Tutorial 12: Community Detection

Assignment 12-1 *Modularity*

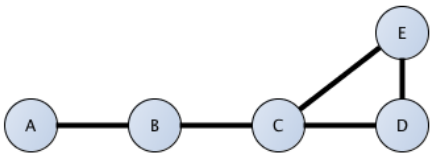

Figure 1: Example Graph

Compute the modularity Q according to the following partitionings of the graph $G(V, E)$:

1. What do you expect to be the best partitioning of the graph? Why?
2. Remove edges (C, D) and (C, E) and compute Q for $s_1 = \{A, B, C\}$ and $s_2 = \{D, E\}$
3. Remove edge (B, C) and compute Q for $s_1 = \{A, B\}$ and $s_2 = \{C, D, E\}$
4. Compare the results with your intention from subtask 1.

Assignment 12-2 *Betweenness*

Consider the following graph:

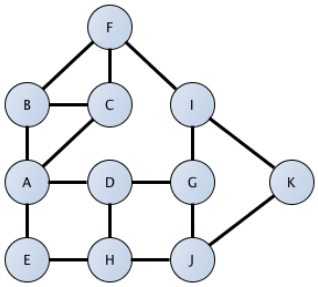

Figure 2: Example Graph

Apply the *Girvan-Newman Algorithm* and compute the betweenness of paths starting at node A.