Data Analytics

ARNAB DEY

Assignment 1

Toy Graph example

For checking correctness of the algorithm, the following graph with 14 nodes was used.

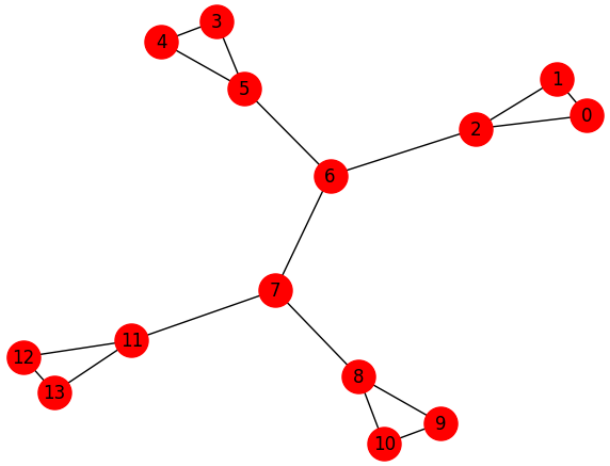

Figure 1: Small Graph

Applied the Girvan Newman algorithm on the small graph.

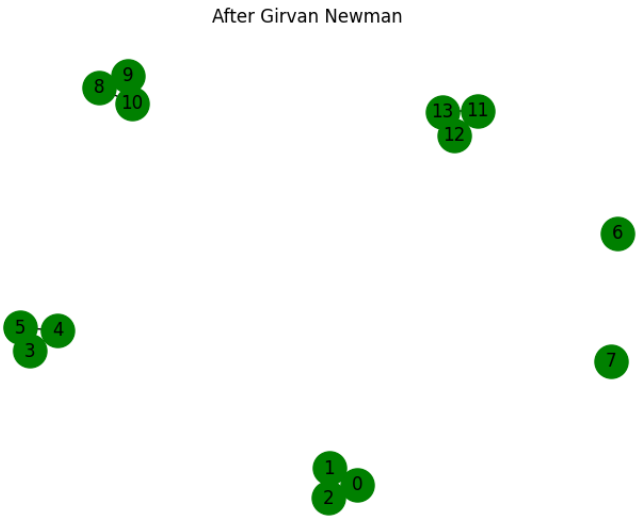

Figure 2: Girvan Newman on Toy Graph

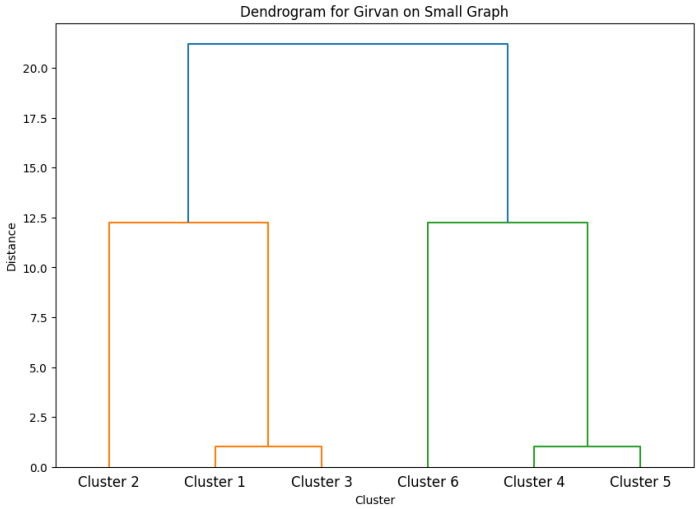

Figure 3: Dendrogram

Applied the Louvain algorithm on the toy example.

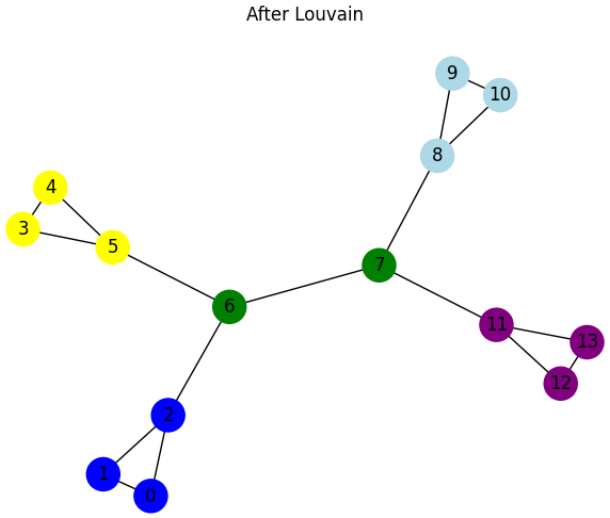

Figure 4: Louvain on Toy Graph

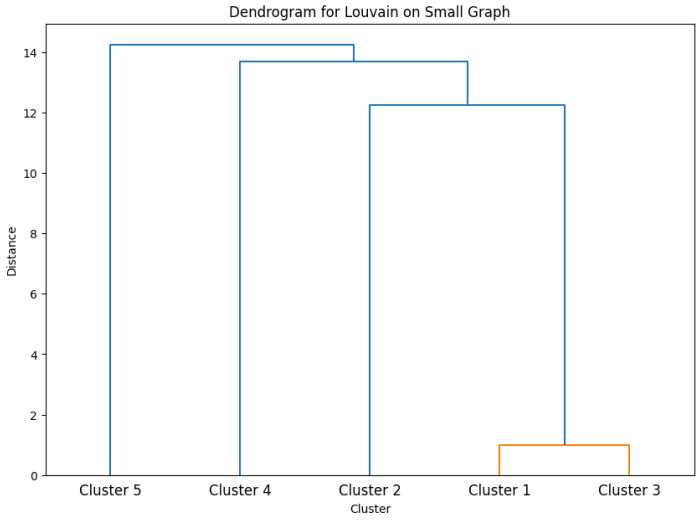

Figure 5: Louvain on Toy Graph

Wiki Graph

The Girvan Newman algorithm ran for 2 hours 13 minutes for one iteration and the following dendrogram was generated.

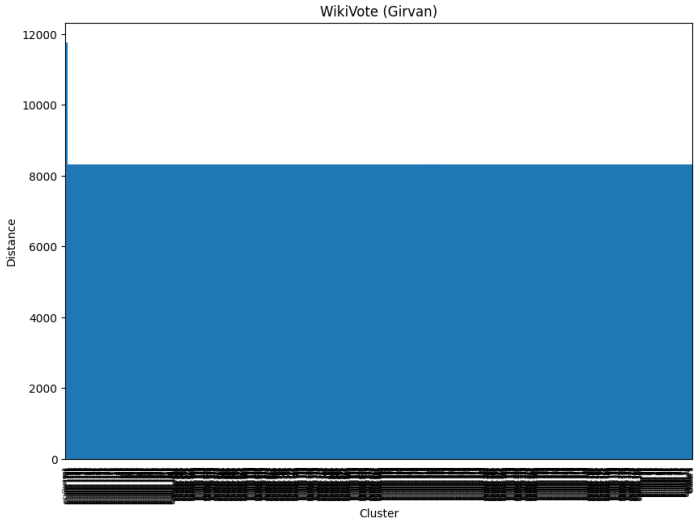

Figure 6: Girvan Newman on Wiki-Data

Ran the Louvain algorithm on the wiki data, and the following dendrogram was produced.

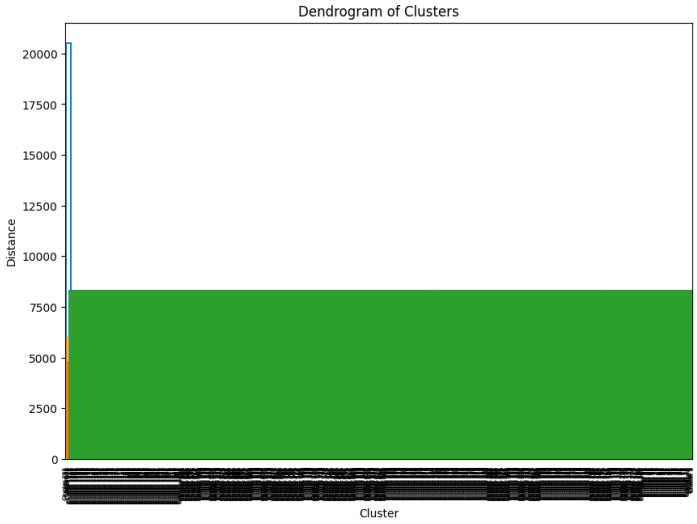

Figure 7: Louvain on Wiki-Data

LastFM-Asia Graph

Ran the Louvain algorithm on LastFM graph and the following dendrogram was obtained.

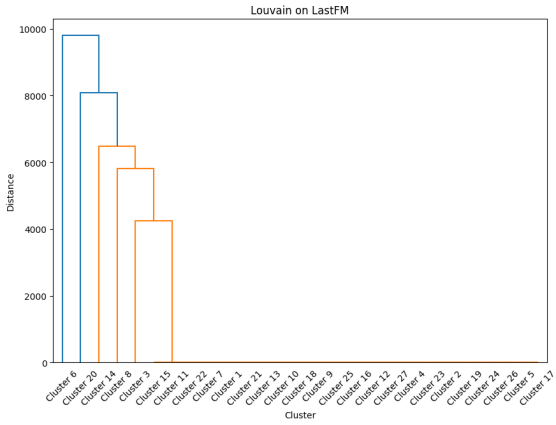

Figure 8: Louvain on LastFM

Due to insufficient computing resources, the Girvan Newman algorithm is calculated to require ≥ 60 days.