

ABSTRAK

M. ANANDA RIZKI TAMBUNAN, NIM 4193550021. Penggunaan K-Means Clustering untuk Segmentasi Tokoh Politik Berdasarkan Potensi Kepemimpinan di Sumatera Utara.

Penelitian ini membahas penerapan algoritma K-Means Clustering untuk mengelompokkan tokoh politik di Sumatera Utara berdasarkan potensi kepemimpinan mereka. Permasalahan yang diangkat meliputi kesenjangan pembangunan antarwilayah, kompleksitas evaluasi kandidat, serta keterbatasan metode penilaian tradisional yang cenderung subjektif. Data yang digunakan merupakan data sekunder dari KPUD Sumatera Utara, Kemendagri, dan media sosial, dengan tiga variabel kuantitatif utama: tingkat pendidikan, pengalaman kepemimpinan, dan tingkat elektabilitas. Proses analisis meliputi normalisasi data, penentuan jumlah kluster optimal menggunakan metode elbow, dan penerapan algoritma K-Means untuk menghasilkan pengelompokan tokoh politik. Hasil penelitian menghasilkan beberapa kluster dengan karakteristik berbeda yang dapat memberikan gambaran profil kepemimpinan potensial di Sumatera Utara. Penelitian ini diharapkan dapat menjadi referensi objektif bagi masyarakat dan pemangku kepentingan dalam pengambilan keputusan politik, sekaligus memberikan kontribusi teoretis terhadap penerapan machine learning dalam analisis politik lokal.

Kata kunci : K-Means Clustering, potensi kepemimpinan, Sumatera Utara, analisis politik, machine learning

ABSTRACT

M. ANANDA RIZKI TAMBUNAN, NIM 4193550021. The Use of K-Means Clustering for Segmentation of Political Figures Based on Leadership Potential in North Sumatra.

This study examines the application of the K-Means Clustering algorithm to group political figures in North Sumatra based on their leadership potential. The research addresses issues such as regional development disparities, the complexity of candidate evaluation, and the limitations of traditional assessment methods that tend to be subjective. The data used are secondary data obtained from the Regional General Election Commission (KPUD) of North Sumatra, the Ministry of Home Affairs, and social media, with three main quantitative variables: educational level, leadership experience, and electability. The analysis process includes data normalization, determining the optimal number of clusters using the elbow method, and applying the K-Means algorithm to generate groupings of political figures. The results reveal several clusters with distinct characteristics that provide insights into potential leadership profiles in North Sumatra. These findings are expected to serve as an objective reference for the public and stakeholders in political decisionmaking and contribute theoretically to the application of machine learning in local political analysis.

Keywords : K-Means Clustering, leadership potential, North Sumatra, political analysis, machine learning.