ABSTRAK

Perkembangan teknologi informasi yang pesat menyebabkan kebutuhan kompetensi di Industri, Dunia Usaha, dan Dunia Kerja (IDUKA) terus berubah. Kondisi tersebut menuntut perguruan tinggi untuk melakukan evaluasi kurikulum agar kompetensi lulusan tetap selaras dengan kebutuhan industri. Penelitian ini bertujuan untuk menganalisis tingkat keselarasan kurikulum Program Studi Sistem Informasi Universitas Muhammadiyah Gorontalo dengan kebutuhan IDUKA menggunakan teknik Natural Language Processing (NLP). Data penelitian berupa dokumen kurikulum Program Studi Sistem Informasi dan data lowongan kerja yang diperoleh melalui proses web scraping pada platform JobStreet. Tahapan penelitian meliputi text preprocessing (cleaning, case folding, tokenizing, dan stopword removal), pembobotan Term Frequency-Inverse Document Frequency (TF-IDF), serta pengukuran tingkat kemiripan menggunakan Cosine Similarity.Hasil penelitian menunjukkan bahwa mata kuliah BI/Big Data memperoleh skor keselarasan tertinggi sebesar 46, diikuti Pemrograman Berbasis Web sebesar 44, dan Data Mining sebesar 43, yang termasuk dalam kategori relevan tinggi. Mata kuliah Sistem Informasi Manajemen memperoleh skor 36, Keamanan Jaringan 35, dan Sistem Operasi 34, yang termasuk dalam kategori relevan sedang. Sementara itu, Pemrograman Aplikasi Bergerak memperoleh skor 30, Analisis dan Perancangan Sistem Informasi 29, Sistem Basis Data 15, dan Audit Sistem Informasi 12, yang termasuk dalam kategori relevan rendah. Hasil tersebut menunjukkan bahwa sebagian mata kuliah telah sesuai dengan kebutuhan IDUKA, namun beberapa mata kuliah masih memerlukan pembaruan materi dan kompetensi agar lebih mengikuti perkembangan teknologi dan kebutuhan industri.Penelitian ini menyimpulkan bahwa teknik NLP yang dikombinasikan dengan metode TF-IDF dan Cosine Similarity mampu memberikan gambaran objektif mengenai tingkat keselarasan kurikulum dengan kebutuhan IDUKA. Hasil penelitian diharapkan dapat menjadi dasar dalam evaluasi dan pengembangan kurikulum Program Studi Sistem Informasi sehingga menghasilkan lulusan yang lebih kompeten dan sesuai dengan tuntutan dunia kerja.

Kata Kunci: *Natural Language Processing (NLP), TF-IDF, Cosine Similarity, Kurikulum, IDUKA, Sistem Informasi, JobStreet.*

Abstract

The increasingly rapid development of information technology requires the Information Systems Study Program to produce graduates with competencies aligned with the needs of Industry, the Business World, and the World of Work (IDUKA). The dynamics of skills needs in the world of work require regular curriculum evaluation to ensure the learning materials provided remain relevant to industry developments. This study aims to analyze the level of suitability of the Information Systems Study Program curriculum with IDUKA needs by identifying and comparing competencies found in the curriculum and job vacancy data. This study uses Natural Language Processing (NLP) techniques with the Term Frequency-Inverse Document Frequency (TF-IDF) and Cosine Similarity methods. The research data are in the form of curriculum documents for the Information Systems Study Program and job vacancies in the Information Technology field obtained through web scraping on the Jobstreet platform. The research stages include data collection, text preprocessing consisting of cleaning, case folding, stopword removal, and tokenizing, TF-IDF weighting, and measuring the level of similarity using Cosine Similarity. From the data collection process, 2,956 job vacancy data were obtained, which after going through a selection process and removing duplicate data resulted in 1,981 valid data for analysis. The results of the study show that the TF-IDF and Cosine Similarity methods are able to objectively measure the level of suitability between competencies in the curriculum and IDUKA needs. The Cosine Similarity score indicates that the Web Programming category received a score of 0.79, indicating high relevance, Basic Programming received a score of 0.56, and Databases received a score of 0.49, indicating moderate relevance. The Analysis and Tools and Network Infrastructure categories received scores of 0.22 and 0.20, respectively, indicating low relevance. The results of this study indicate that the Information Systems Study Program curriculum aligns well with the core competencies in programming, but still requires development in several competency areas to better align with IDUKA's needs.

Keywords: *Information Systems Curriculum, IDUKA, Natural Language Processing (NLP), TF-IDF, Cosine Similarity, Web Scraping.*