ABSTRAK

ANALISIS *HARD SKILL* PELATIHAN DAN SERTIFIKASI BIDANG INFORMATIKA MENGGUNAKAN *ALGORITMA SUPPORT VECTOR MACHINE (SVM)* DAN *K-NEAREST NEIGHBORS (KNN)* UNTUK PEMETAAN *CAREER PATH*

Oleh

MURTI SARI DEWI

Transformasi digital telah meningkatkan permintaan terhadap keterampilan teknis (*hard skill*) di bidang informatika. Namun, masih terdapat kesenjangan antara kompetensi lulusan dan kebutuhan industri. Penelitian ini bertujuan untuk menyusun jalur pembelajaran (*career path*) berbasis data lowongan kerja dan kursus daring dengan pendekatan *CRISP-DM*. Metode yang digunakan meliputi *algoritma Support Vector Machine (SVM)* untuk mengklasifikasikan kategori pekerjaan, serta *K-Nearest Neighbors (KNN)* untuk merekomendasikan kursus yang relevan. Dataset yang digunakan terdiri dari 628 data lowongan kerja dari *Tech in Asia* dan 623 kursus dari *Coursera.* Hasil penelitian menunjukkan bahwa keterampilan seperti *data analysis, Python,* dan *backend development* merupakan yang paling dibutuhkan oleh industri. Jalur pembelajaran berhasil direkomendasikan sebanyak 2086 baris kursus, terutama pada bidang *data science* dan *machine learning*. Sistem ini diharapkan dapat membantu alumni dalam merencanakan pengembangan keterampilan yang sesuai dengan kebutuhan pasar kerja.

Kata kunci: *CRISP-DM, SVM, KNN, career path,* keterampilan teknis, rekomendasi kursus.

ABSTRACT

ANALYSIS OF TECHNICAL SKILLS TRAINING AND CERTIFICATION IN INFORMATICS USING SUPPORT VECTOR MACHINE (SVM) AND K-NEAREST NEIGHBORS (KNN) ALGORITHMS FOR CAREER PATH MAPPING

By

MURTI SARI DEWI

Digital transformation has significantly increased the demand for technical Skills (hard Skills) in the field of informatics. However, a gap still exists between graduates' competencies and industry requirements. This study aims to develop a career path recommendation system based on job vacancy data and online training courses using the CRISP-DM approach. The methods employed include the Support Vector Machine (SVM) algorithm to classify job categories and the K-Nearest Neighbors (KNN) algorithm to recommend relevant courses. The dataset consists of 628 job postings from Tech in Asia and 623 courses from Coursera. The results show that Skills such as data analysis, Python, and backend development are among the most in-demand in the industry. A total of 2,086 course recommendations were generated, particularly in the fields of data science and machine learning. This system is expected to assist graduates in planning their skill development more effectively, aligning with the current demands of the job market.

Keywords: CRISP-DM, SVM, KNN, career path, technical Skills, course recommendation.