

ABSTRAK

Kesehatan mental mahasiswa semakin menjadi perhatian akibat tekanan akademik, pola tidur yang tidak teratur, dan rendahnya keseimbangan aktivitas sehari-hari. Namun, belum tersedia sistem yang mampu mengelola dan menganalisis data wellness mahasiswa secara terintegrasi untuk menghasilkan insight dan rekomendasi yang personal. Penelitian ini merancang *pipeline ETL* berbasis *Medallion Architecture* menggunakan *MongoDB*, *PostgreSQL*, *Apache Airflow*, dan *Streamlit* untuk mengelola data wellness mahasiswa berbasis *kuesioner* dengan pendekatan *CRISP-DM* serta *pipeline Bronze*, *Silver*, dan *Gold Layer*. Proses analisis dilakukan menggunakan pendekatan *risk prediction* berbasis indikator wellness seperti tekanan akademik, durasi tidur, kepuasan belajar, jam belajar atau kerja, dan tekanan finansial, yang menghasilkan kategori risiko *Low*, *Moderate*, dan *High*. Hasil tersebut digunakan dalam *rule-based recommendation* untuk menghasilkan rekomendasi gaya hidup yang kontekstual. Penelitian ini menunjukkan bahwa sistem mampu mengelola data secara terstruktur, menghasilkan estimasi risiko yang dapat diinterpretasikan, serta menyajikan visualisasi dan rekomendasi melalui platform *WellnessTrack*.

Kata Kunci : *Medallion Architecture*, *Risk Prediction*, *Rule-Based Recommendation*, *Wellness Analytics*, *WellnessTrack*

ABSTRACT

Student mental health has become an increasing concern due to academic pressure, irregular sleep patterns, and poor balance in daily activities. However, there is still a lack of systems capable of managing and analyzing student wellness data in an integrated manner to generate personalized insights and recommendations. This research proposes an ETL pipeline based on Medallion Architecture using MongoDB, PostgreSQL, Apache Airflow, and Streamlit to manage questionnaire-based student wellness data. The study adopts the CRISP-DM methodology and implements Bronze, Silver, and Gold data pipeline layers. The analysis process employs a risk prediction approach based on wellness indicators such as academic pressure, sleep duration, learning satisfaction, study or working hours, and financial pressure, resulting in three risk categories: Low, Moderate, and High. The prediction results are further utilized in a rule-based recommendation system to provide contextual lifestyle recommendations. The proposed system demonstrates the ability to manage wellness data in a structured manner, generate interpretable risk estimations, and deliver visualizations and personalized recommendations through the WellnessTrack platform.

Keywords: Medallion Architecture, Risk Prediction, Rule-Based Recommendation, Wellness Analytics, WellnessTrack