

INTISARI

KLASIFIKASI DEPRESI PADA MAHASISWA MENGGUNAKAN *MACHINE LEARNING* DENGAN PENERAPAN *CONTINUOUS INTEGRATION* DAN *CONTINUOUS DEPLOYMENT* DI AWS

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Depresi pada mahasiswa merupakan salah satu permasalahan kesehatan yang perlu ditangani secara dini. Teknologi yang semakin berkembang menjadi salah satu solusi untuk mendeteksi depresi pada mahasiswa secara dini. Penelitian ini bertujuan untuk merancang dan mengimplementasikan *pipeline* CI/CD (*Continuous Integration/Continuous Deployment*) pada *machine learning* secara otomatis serta membangun *website* prediksi depresi mahasiswa sebagai media penerapan model. Metode yang digunakan meliputi tahap pelatihan model *machine learning*, evaluasi performa, penyimpanan dan *versioning* model, serta pembaruan model yang digunakan untuk *website* secara otomatis. Algoritma *machine learning* yang digunakan adalah *Logistic Regression*, *Decision Tree*, *Random Forest*, dan *K-Nearest Neighbor* (KNN). Pipeline CI/CD dijalankan pada lingkungan GitHub dan Cloud AWS (*Amazon Web Services*). Hasil penelitian menunjukkan bahwa *pipeline* CI/CD mampu mengotomatisasi pelatihan model hingga pembaruan model yang digunakan oleh *website* secara lebih cepat dibandingkan proses manual, serta menjaga konsistensi sistem prediksi seiring dengan bertambahnya variasi data, sehingga mendukung pemeliharaan model yang lebih efisien dan andal.

Kata kunci: Pembelajaran mesin, *Pipeline* CI/CD, Prediksi depresi, Situs web, Komputasi awan.

ABSTRACT

CLASSIFICATION OF DEPRESSION IN STUDENTS USING MACHINE LEARNING WITH THE IMPLEMENTATION OF CONTINUOUS INTEGRATION AND CONTINUOUS DEPLOYMENT IN AWS

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Depression among students is one of the health issues that needs to be addressed at an early stage. Rapid technological advancements have become a potential solution for early detection of depression among students. This study aims to design and implement a Continuous Integration/Continuous Deployment (CI/CD) pipeline for machine learning in an automated manner, as well as to develop a depression prediction website as a medium for model deployment. The proposed method includes machine learning model training, performance evaluation, model storage and versioning, and automatic model updates used by the website. The machine learning algorithms employed in this study are Logistic Regression, Decision Tree, Random Forest, and K-Nearest Neighbor (KNN). The CI/CD pipeline is implemented using GitHub and Amazon Web Services (AWS) cloud infrastructure. The results show that the proposed CI/CD pipeline is able to automate the model training and deployment processes more efficiently than manual approaches, while maintaining the consistency of the prediction system as data variability increases, thereby supporting more efficient and reliable model maintenance.

Keywords: *Machine learning, CI/CD pipeline, Depression prediction, Website, Cloud computing.*