

ABSTRAK

Judul : Pengembangan Prediksi Kelulusan Mata Kuliah Berbasis Web dengan Algoritma C5.0 (Studi Kasus Program Studi Teknik Informatika Universitas Esa Unggul)
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Selama pembelajaran daring, Universitas Esa Unggul menggunakan *platform e-learning* sebagai sarana pendukung pembelajaran yang meliputi distribusi materi, tugas, UTS, dan UAS. Namun, penggunaan *e-learning* ini tidak memperhatikan perbedaan karakter dan pemahaman antar mahasiswa/I, sehingga dianggap kurang efektif. Upaya untuk mengatasi masalah tersebut ialah personalisasi dalam *e-learning*. Personalisasi diharapkan menjadi solusi yang relevan serta efektif. Untuk menerapkan personalisasi dalam *e-learning*, dilakukan prediksi kelulusan sebagai salah satu pendekatan. Algoritma C5.0 dipilih sebagai metode prediksi kelulusan, dan *AI project cycle* digunakan untuk mendukung proses implementasinya. Algoritma C5.0 merupakan algoritma turunan dari *decision tree*. Hasil pengujian menunjukkan tingkat akurasi algoritma C5.0 sebesar 0.88 berdasarkan 94 data *training* dan 24 data *testing*. Dalam analisis atribut, ditemukan bahwa atribut UTS memiliki pengaruh paling signifikan terhadap kelulusan dengan korelasi 0.49, diikuti oleh atribut kedua tugasonline dengan korelasi 0.34, dan atribut terakhir quizonline dengan korelasi 0.15. Tahap akhir penelitian menghasilkan pengembangan model prediksi kelulusan menjadi sebuah *API*. Penggunaan *API* ini memungkinkan integrasi model ke dalam *platform e-learning*, sehingga personalisasi pembelajaran dapat dilakukan secara lebih efisien dan efektif. Dengan demikian, penggunaan personalisasi dalam *e-learning* melalui prediksi kelulusan berbasis algoritma C5.0 dan *API* diharapkan dapat meningkatkan kualitas pembelajaran secara keseluruhan, mengakomodasi perbedaan antar mahasiswa, dan memberikan pengalaman belajar yang lebih baik.

Kata kunci : *E-learning*, Personalisasi, prediksi kelulusan, algoritma C5.0, *AI project cycle*.

ABSTRACT

Title : *Development of Web-Based Course Graduation Prediction with C5.0 Algorithm (Case Study of Informatics Engineering Study Program, University of Esa Unggul)*
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During online learning, Esa Unggul University uses the e-learning platform as a means of supporting learning which includes the distribution of materials, assignments, UTS, and UAS. However, the use of e-learning does not pay attention to differences in character and understanding between students, so it is considered less effective. Efforts to overcome these problems are personalization in e-learning. Personalization is expected to be a relevant as well as effective solution. To implement personalization in e-learning, graduation predictions are carried out as one approach. The C5.0 algorithm was chosen as the graduation prediction method, and the AI project cycle was used to support the implementation process. The C5.0 algorithm is an algorithm derived from the decision tree. The test results show that the accuracy of the C5.0 algorithm is 0.88 based on 94 training data and 24 testing data. In the attribute analysis, it was found that the UTS attribute had the most significant influence on graduation with a correlation of 0.49, followed by the second online assignment attribute with a correlation of 0.34, and the last attribute quizonline with a correlation of 0.15. The final stage of the research resulted in the development of a graduation prediction model into an API. The use of this API enables the integration of models into the e-learning platform, so that personalized learning can be carried out more efficiently and effectively. Thus, the use of personalization in e-learning through prediction of graduation based on the C5.0 and API algorithms is expected to improve the overall quality of learning, accommodate differences between students, and provide a better learning experience.

Keyword : *E-learning, Personalization, graduation prediction, C5.0 algorithm, AI project cycle.*