

**PLACEMENT OF TEACHERS BASED ON SCHOOL NEEDS USING
ITERATIVE DICHOTOMISER 3**

JURNAL

**Diajukan Kepada
Fakultas Teknologi Informasi UKSW
Untuk Memperoleh Gelar Magister Komputer**

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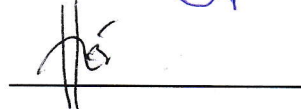
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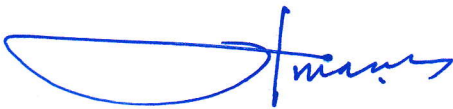
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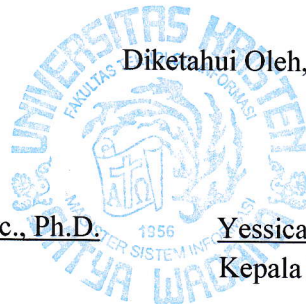


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**FAKULTAS TEKNOLOGI INFORMASI
UNIVERSITAS KRISTEN SATYA WACANA
SALATIGA**

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PLACEMENT OF TEACHERS BASED ON SCHOOL NEEDS USING ITERATIVE DICHOTOMISER 3

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Abstract. This research aims to develop an effective teacher placement model based on school needs using the Iterative Dichotomiser 3 (ID3) algorithm. The right placement of teachers can improve the quality of education and ensure equal distribution of human resources in the school environment. The ID3 algorithm builds a decision tree that helps determine optimal teacher placement. The research results show that using ID3 in the teacher placement process can produce more structured and fair decisions, compared to traditional methods. Test and Score results in 100x experiments, with the model or method used as Tree, showing that the AUC value is 0.950. The CA value is 0.934. The F1 value is 0.93. The Precision value is 0.934. The Recall value is 0.934. It is predicted that 1 subject teacher can teach the number of students per class in class 10 around 32 people, and class 11 around 31 people, and class 12 around 37 people. It is hoped that the implementation of this model can support educational policies in improving the distribution of educational quality in various classes and subjects.

Keywords: Teacher Placement, School, ID3



I. INTRODUCTION

Education is one of the key factors in the development of a country [1]. Teacher performance and competence have a major influence on the quality of education. In addition, the even distribution of teachers across schools also affects the quality of education. However, in many countries, including Indonesia, there is still an imbalance in teacher placement which causes some schools to lack qualified teachers, while others have an excess. This imbalance has a negative impact on student learning outcomes and the overall quality of education. Inappropriate placement can result in an imbalance in the quality of education between schools in various regions [2]. Therefore, a method is needed that can ensure that teachers are placed according to the needs of each school.

The central government involves local governments in the management and supervision of education. One of the administrative authorities of local government education lies with the education department. Similar to Law Number 20 of 2003 concerning the National Education System, Article 41(3) states: "The government and local governments appoint educators and education personnel who are responsible for ensuring the provision of quality education." [3]. Article 14 Paragraph 1 of Law Number 32 of 2004 on Regional Government stipulates that the provision of education is an obligation, so that it is one way for the central government to regulate regional education in the education sector which is the authority of the local government [4], so that education becomes the main priority and receives special attention during its implementation. Having the right teachers is very important for education. To ensure equality and quality of education, the government enacted Law Number 14 of 2005 concerning Teachers and Lecturers, which in Article 24 Paragraph 3 states that comprehensive competence to ensure the continuity of basic and early childhood education through formal education based on authority. [5].

The Central Kalimantan Provincial Education Office is an agency under the authority of the Central Kalimantan Provincial Government, with the office managing educational activities in Central Kalimantan Province. The number of districts/cities in the Central Kalimantan region is 13/1, the number of sub-districts is 136, the number of sub-districts/villages is 138/1,434, and the area is 153,564.50 km² [6]. In 2016, the number of students in the Central Kalimantan region was 475,810 people, the number of teachers was 34,712 people, and the number of school buildings was 3,741 people. Due to the vast area of Central Kalimantan, the Provincial Education Office must work hard to regulate education in the region. From the results of interviews with the Director of Supervision and Director of Education of the Central Kalimantan Provincial Education Office, it can be seen that the number of teachers needed in Central Kalimantan Province is still very limited. This was conveyed because no new teachers were recruited and the number of teachers in the city was too many. For example, there are 11 public schools in Lamandau Regency with only 140 teachers, while in Palangkaraya City there are 10 public schools with 394 teachers. Of course, this is contrary to the competitiveness of each region and the mission of the Central Kalimantan Provincial Education Office to provide easily accessible and quality education. This is because there are still many teachers who only teach in metropolitan areas. So far, teachers in Central Kalimantan tend to choose to teach in cities/district capitals due to the geographical conditions and very lacking public facilities in remote areas, which makes schools in the outermost areas lack teachers.

Decision Tree Learning is a method that attempts to find functions that have discrete value functions and are resistant to data that has errors (data noise) [7]. This problem can be overcome by the Iterative Dichotomiser 3 (ID3) method, which is a machine learning algorithm that aims to produce decisions based on data. ID3 can help in identifying key factors to meet and optimize the teacher placement process.