DESIGN AND DEVELOPMENT OF CIREBON DISTRICT/CITY ECONOMIC STATUS CLASSIFICATION SYSTEM USING RANDOM FOREST METHOD TO HELP BETTER COMMUNITY MAINTENANCE

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ABSTRACT

The economic status of an area is a very important thing to pay attention to in order to determine the welfare of its people. Based on data published by the Central Statistics Agency (2022), the number of poor people in Cirebon Regency during the period March 2019 to March 2021 continues to increase. In March 2019 the number of poor people was 217.6 thousand people, until in the March 2021 period there was an increase to 271.0 thousand people. Similar to Cirebon Regency, the number of poor people in Cirebon City has increased during the period March 2019 to March 2021. The number of poor people in March 2019 was 26.8 thousand people and in March 2021 there was an increase in the number of poor people to 32.0 thousand people. Apart from that, the poverty line in Cirebon Regency/City continues to increase every year. In the March 2019 period, the poverty line in Cirebon Regency and City was IDR 381.37 and IDR 444.57 thousand per capita per month. Experienced an increase to IDR 393.45 and IDR 457.95 thousand per capita per month in the March 2020 period and continued to increase to IDR 404.64 and 467.25 thousand per capita per month in March 2021. This research classifies the economic status of households in Districts/Cities Cirebon uses the Random Forest method. Data class imbalance in this study was resolved using Synthetic Minority Oversampling Technique (SMOTE). The best model performance was obtained by the Random Forest method with SMOTE which obtained an accuracy of 90.03%, and the average values of precision, recall, f1-score, and AUC were 90.81%, 90.03%, 90.15%, and 98.56%, respectively. Even though the accuracy and precision values have decreased, the Random Forest method with SMOTE is considered capable of predicting data classes more accurately for low, medium and high classes.