

ABSTRACT

BPJS *Kesehatan* is the health insurance most commonly used by the people of Indonesia. BPJS *Kesehatan* user participants from 2016 to 2020 are approximately 50.5 million participants. One of the risk factors for BPJS *Kesehatan* users every year is the monthly fee that is affordable for all people. Heart disease is one of the diseases with the largest number of claims on BPJS *Kesehatan* medical costs. With a large number of participants and increasing medical costs, it is likely that the total proposed medical expenditure costs will be higher than the total contribution income received. To overcome these problems, analysis and prediction of medical costs are needed to be able to consider government policies that will be taken next. However, the toughest challenge in predicting costs in the health sector is the complexity of the process. Process mining is one technique that has proven to be very good in overcoming this. This study build a medical cost prediction system with regression techniques based on the process flow obtained from the stages of the mining process using event log data. This study using heuristic miners and inductive miners as process mining method and random forest as data mining method. This research analyzed which combination method between Heuristic Miners – Random Forest and Inductive Miners – Random Forest that can produce best performance to predict BPJS *Kesehatan* Cost. The best performance obtained in this study for predicting BPJS *Kesehatan* Cost for heart disease patiens with MAE, R^2 , MSE and RMSE 79.124,33 rupiah, 0.9392, 0.1281 and 0.3579 with combination Heuristic Miners – Random Forest.

Keywords: BPJS *Kesehatan*, heart disease, process mining, data mining, inductive miners, heuristic miners, random forest