

## **ABSTRACT**

Cancer is one of the diseases that cause death. One way of cancer treatment is to detect cancer using gene expression data. Gene expression is a series of genetic information translation process to know the description of a gene and know the condition of the gene in a person's body. Data mining is one method that can understand engineering techniques in data processing one of the algorithms in data mining that is K-nearest neighbor is used to do the classification in order to understand the contents of the data. Gene expression is a high-dimensional data so it takes certain techniques to reduce the dimensions so as to have a good level of accuracy. The approach is done using Particle Swarm Optimization, this algorithm performs feature selection to facilitate data processing by K-Nearest Neighbor and make the classification model easier to understand. The Particle Swarm Optimization algorithm is one of the best search feature algorithms and can improve accuracy. With the selection of this method produce accuracy 92,23%.

**Kata Kunci:** *Gene expression, K-Nearest Neighbor Algorithm, Particle Swarm Optimization Algorithm.*