

## **Abstract**

**Cancer is the second leading cause of death globally. According to the World Health Organization (WHO), in 2018, approximately 9.6 million deaths were caused by cancer. Globally, about 1 in 6 deaths are caused by cancer. One way to detect cancer is to use microarray data classification. Microarray technology is used to detect the expression of thousands of genes at the same time to analyze and diagnose cancer. However, microarray data have high dimensions because of the large number of features and has low data distribution, which means that it has a small number of data samples which causes low performance. To overcome this problem, dimension reduction is needed. Therefore, it is necessary to reduce the dimensions of microarray data with Random Projection (RP) to reduce the high dimensions and use the Support Vector Machine (SVM) and Random Forest (RF) as classification methods. The classification method will be compared and analyzed to determine which classification method produces the best performance by using Random Projection (RP) as a dimensional reduction method. Based on the system that has been built, the best accuracy for colon tumor data is 69.23% with Random Projection (RP)-SVM, Lung Cancer is 100% for both methods classification, Ovarian Cancer is 100% for both methods classification, the prostate tumor is 95.12% for both methods classification and 66.66% for both methods classification.**

**Keyword : microarray, random projection, cancer detection, support vector machine (SVM), random forest (RF)**