CHAPTER 8
CONCLUSION

This work presents various machine learning techniques for breast cancer classification. We have investigated different data mining techniques: they are k-Nearest Neighbor, Support Vector Machine, Ensemble Method and Auto associative Neural Network. Several experiments are conducted using these algorithms. The achieved prediction performances were comparable to the existing techniques. The experiments performed on WBC (Wisconsin Breast Cancer) database.

K-Nearest Neighbor (KNN) can be effectively used for WBC database classification. Eventhough by now some progress have been achieved, there are still remaining challenges for developing better classification algorithms and integration of classifiers to give better performance and reduce the classification errors. The sensitivity of the system is 98.25% and specificity is 95%. The percentage of accuracy of K-Nearest Neighbor is 97%.

The Support Vector Machine (SVM) classification algorithm, recently developed from the machine learning community is used to diagnose breast cancer. The classification task involves predicting the state of diseases, using WBC (Wisconsin Breast Cancer) data obtained from the UCI machine learning. WBC data set are used to classify
tumors as benign and malignant. In this work, we are using fourfold cross validation for testing in which each fold contains 50 instances. From the experimental results, it is observed that to classify as benign and malignant using Support Vector Machine is giving 99% accuracy.

Ensemble Method has been used to increase the efficiency of algorithm on breast cancer dataset. From the experimental results it is observed that the accuracy of the ensemble method is 76.82%.

Auto Associative Neural Network (AANN) has recently proved to be very effective for machine learning problems. WBC data set is used to classify tumors as benign and malignant by using fourfold cross validation. The accuracy of AANN by using WBC database is 99.5%. While comparing these three data mining classifiers, Auto Associative Neural Networks are found to be the best predictor with 99.5% accuracy on WBC (Wisconsin Breast Cancer) from UCI machine learning.