CHAPTER 6
CONCLUSION

In this study, the author used Gaussian Mixture and Gaussian Naïve Bayes as absorption band identification and microplastics classification, this is due to their accuracy and information detail given by Gaussian Mixture and Naive Bayes compared to K-Means and Decision Tree. Unequal component data size for each aspect value is no longer a problem for machine learning identification and classification. Preprocessing by separating each group of data and converting them into polymer groups can make the component data length equal.

Gaussian Mixture works very well with a difference of 2.50 points against the reference. However, there are 6 data with large differences. In addition, Gaussian Mixture can generate a range of absorption band values of a polymer as supporting data.

The use of Gaussian Naïve Bayes is considered appropriate based on the results of precision, recall, and f1-score. Each cross-validator that was tried produced a value of 1.0 for each aspect.

Therefore, the combination of Gaussian Mixture and Naïve Bayes can solve the existing problems. The model and method proposed by the authors can also be useful for identification and classification of various things that both use Fourier Transform Infrared Spectroscopy (FTIR) as a polymer detection tool.

The limitation of this project is that the author uses data conducted by Agricultural Technology, Soegijapranata Catholic University students, where the data obtained is very limited, only 210 data for 6 classes of microplastics. The recommendation for future research is to add more data. In addition, further research can compare this research in areas which have different contamination and weather, to get a more varied absorption band scope.