

Figure 5: Execution Time of Different Algorithms

Figure 5, is showing the execution time of different classification algorithms. As figure shows KNN is efficient classification algorithm and as per results the Multilayer Perceptron algorithm is worst among the all other algorithms.

4.4 Mean Absolute Error (MAE)

MAE actually shows the efficiency capability of an algorithm. If the value of MAE is less, then classifier is efficient and capable. Table 4, is shows the mean absolute error of different algorithms in classification

Table 4: Mean Absolute Error for Classification Algorithms

Dataset	Classification Algorithm				
	Nearest Neighbors	Bagging	Multilayer Perceptrons	Random Forest	KNN
diabetes.arff	0.2934	0.3089	0.283	0.2913	0.2819
contactlenses.arff	0.25	0.2602	0.2072	0.2087	0.22
breastcancer.arff	0.3427	0.3806	0.3552	0.3632	0.3257
liver-disorders.arff	0.3739	0.4379	0.3648	0.3995	0.3211

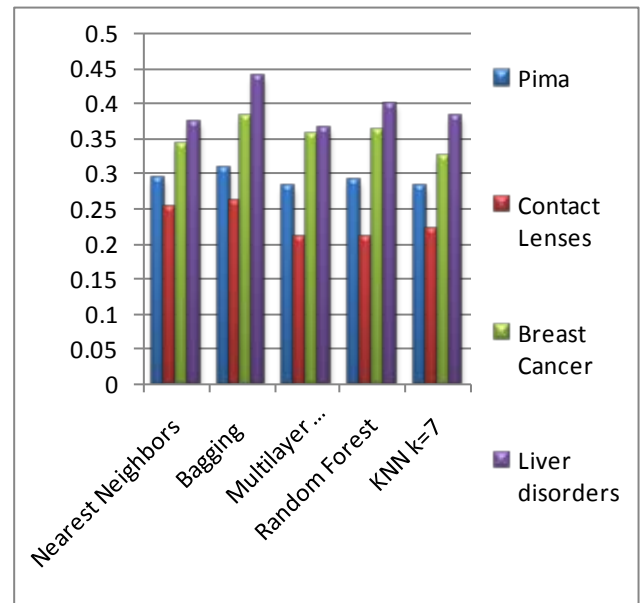


Figure 6: Mean Absolute Error of classification Algorithm

Figure 6, is showing the mean absolute error of different algorithms. As the MAE value in case of KNN algorithm is minimum that shows the accurate prediction capability of the algorithm and as per results the bagging algorithm is worst.

5. Conclusion

In this paper, the analysis the performance of different classification algorithms are Nearest Neighbors, Random Forest, Bagging, Multilayer Perceptrons and KNN based on three different parameters called accuracy, mean absolute error, execution time and analysis for four different medical datasets. The results we got in analysis show that the KNN is the efficient classification algorithm and Bagging is the worst algorithm for the classification.

References

- [1] Gupta, M., and Aggarwal, N. "Performance Analysis of Classification Techniques on XML Dataset", International Journal of Computer Science and Technology IJCST Vol. 1, Issue 1, pp. 76-79, 2010.
- [2] Justin, T., Gajsek, R., Struc, V., and Dobrisek, S., "Comparison of Different Classification Methods for Emotion Recognition", MIPRO 2010, Opatija, Croatia, pp. 700-703, 2010.
- [3] Gupta, S., Kumar, D., and Sharma, A., "Data Mining Classification Techniques applied for Breast Cancer Diagnosis and Prognosis", Indian Journal of Computer Science and Engineering (IJCE) Vol. 2 No. 2, pp. 188-195, 2011
- [4] Jacob S.G. , Ramani R.G, " Mining of Classification Patterns in Clinical Data through Data Mining Algorithms", ICACCI'12 –ACM 978-1-4503-1196-0/12/08
- [5] NirmalaDevi M, Balamurugan S, Swathi U V, " An amalgam KNN to predict Diabetes Mellitus", 2013 IEEE International Conference on Emerging Trends in Computing, Communication and Nanotechnology

- [6] Davis D N, Zhang Y, Kambhampati C, Goode K, Cleland J.G.F, “ A Comparative study of missing value imputation with multi class classification for clinical heart failure data”, 2012 IEEE, 9th International Conference on Fuzzy Systems and Knowledge Discovery.
- [7] Saastamoinen K, Ketola J, “Medical Data Classification using Logical Similarity based Measures”, 1-4244-0023-6/06 2006 IEEE.
- [8] Aslandogan Y.A, Mahajani G. A, “Evidence Combination in Data Mining”, 2004 IEEE Proceedings of the International Conference on Information Technology: Coding and Computing.
- [9] Kumar S U, Inbarani H, Senthil Kumar, “ Bijective Soft Set Based Classification of Medical Data”, 2013 IEEE, International Conference on Pattern Recognition, Informatics and Mobile Engineering.
- [10] Hassan S. Z, Verma B, “A Hybrid Data Mining Approach for Knowledge Extraction and Classification in Medical Databases”, 2007 IEEE 7th International Conference on Intelligent Systems Design and Applications.
- [11] Michelakos I, Papageorgiou E, Vasilakopoulos M, “ A hybrid classification algorithm evaluated on medical data”, 2010 IEEE Workshops on Enabling Technologies: Infrastructure for Collaborative Enterprises.
- [12] T. Darrell and P. Indyk and G. Shakhnarovich (2006). Nearest Neighbor Methods in Learning and Vision: Theory and Practice. MIT Press.
- [13] K. ROY+, C.” Comparison of the Multi Layer Perceptron and the Nearest Neighbor Classifier for Handwritten Numeral Recognition” JOURNAL OF INFORMATION SCIENCE AND ENGINEERING 21, 1247-1259 (2005)
- [14] F. Moreno-Seco, L. Mico, and J. A. Oncina, "Modification of the LAESA Algorithm for Approximated k-NN Classification," *Pattern Recognition Letters*, pp. 47–53, 2003.
- [15] M. Akhil jabbar, “Classification of Heart Disease Using K- Nearest Neighbor and Genetic Algorithm”, International Conference on Computational Intelligence: Modeling Techniques and Applications (CIMTA) 2013.
- [16] Leo Breiman, “Random Forests”, Machine Learning, 45, 5–32, 2001 © 2001 Kluwer Academic Publishers.
- [17] Dr. B. G. Prasad,” Random Forest Based Classification of CT scan Brain Images using Statistical Texture Features”, International Conference on Computational Techniques and Artificial Intelligence (ICCTAI'2011).
- [18] Luís M. Silva,” Data classification with multilayer perceptrons using a generalized error function”, Neural Networks 21 (2008) 1302_1310
- [19] Pushpa, “Comparision of Clustering Techniques using WEKA”, M. Tech. Thesis, Guru Jambheshwar University of Science and Technology, Hisar, India,2010
- [20] Desai, A., and Rai., S., “Analysis of Machine Learning Algorithms using WEKA”, International Conference & Workshop on Recent Trends in Technology, (TCET) 2012 Proceedings published in International Journal of Computer Applications (IJCA) 27, pp.27-32, 2012.

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