

The figure showcased that the RBF Network model has achieved a minimal kappa of 0.8579 whereas a slightly higher kappa of 0.8599 has been offered by the RF approach. Also, the DT method has tried to illustrate moderate kappa of 0.9103 and the RT manner has depicted somewhat reasonable kappa of 0.9106. On continuing with, the Fusion technique has portrayed manageable kappa of 0.9130 and the LR technique has accomplished a certainly increased kappa of 0.9419. In addition, a competitive result is outperformed by the DBN technique with the kappa of 0.9729. At last, the projected FSS-DBN algorithm has resulted in a superior kappa of 0.9867.

4. Conclusion

This paper has devised a novel FSS-DBN model for intrusion detection in big data environment. The presented model involves data preprocessing stage to improve the data quality to a certain extent. In addition, the FSS can be considered as an optimization problem, and the optimal feature subsets are chosen through the application of TLBO algorithm. Next, the DBN based classifier gets executed to determine the existence of intrusions in the network. For validating the proficient results analysis of the FSS-DBN model, an extensive set of simulations were performed and the superior performance is also highlighted in terms of distinct measures. The experimental values ensured that the FSS-DBN model has resulted in a maximum sensitivity of 0.9898, specificity of 0.9865, accuracy of 0.9854, F-score of 0.9872, and kappa of 0.9867. As a part of future scope, the presented FSS-DBN model can be extended to the application of clustering and outlier removal techniques.

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