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Improving the accuracy using ensemble based predictive model for predicting healthy lifestyle based on lifestyle, habits, and behaviors

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A healthy lifestyle is important more than past in these days because we are living very busy lifestyles to accomplish life goals. Sometimes we forget our health, social connections, etc. because of this infinite life journey. Every individual's lifestyle is unique, and it directly affects their happiness. It is important to identify the lifestyle status early to overcome some health issues. Therefore, the primary aim of this research is to forecast the lifestyle by examining current habits and behaviors. Here, whether the lifestyle is okay or not is decided based on the work life balance score of the dataset obtained from 'Kaggle' and expert advice. After data pre-processing by identifying and handling the missing values, removing unnecessary values, and ranking attributes, the data set was reduced to 15,489 with 22 features. These features belong to five categories namely, mental well-being, health and wellness, life vision, personal growth, and social connection. The Artificial neural network (ANN) and Long Short-Term Memory (LSTM) algorithms were selected to train and test the model based on the suggestions of literature review. After tuning the parameters, an ensemble approach is used with the weighted average method to combine the ANN and LSTM two algorithms to increase the accuracy. The ensemble model achieved the highest accuracy at 99.05% compared to the individual algorithms ANN 98.81% and LSTM 96.5%. Also, high precision, recall, and f-measure results and lower error values were achieved by the proposed ensemble method. Using the proposed approach, predictions can be generated based on the individual's specific lifestyle.

Key words: Healthy Lifestyle, Deep learning, Ensemble approach, Weighted average, Prediction

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