**Abstract**

Classification is the major research issue in data mining. Usually classification represents the data to be categorized based on its features or characteristics. This research work aims in developing an improved support vector machine classifier. Support vector machine is a type of supervised machine learning technique and once when the dataset is given as input it performs the classification task by itself. The proposed classifier aims in improving the classification accuracy of the support vector machine. The proposed classifier has been tested on two different datasets namely PIMA Indian diabetes dataset and Z-Alizadeh Sani dataset in order to classify the occurrence of heart disease among the patients. Performance metrics sensitivity, specificity and classification accuracy are taken for comparison of the proposed improved support vector machine classifier (I-SVM) with several classification algorithms. Results showed that the proposed classifier gives better classification accuracy than that of support vector machine, naive bayes, neural networks, sequential minimal optimization (SMO) and bagging SMO classifiers.