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**A clinical decision support system for diabetes using decision tree**

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**D**iabetes is a chronic, incurable disease that occurs when the body doesn't produce any or enough insulin, leading to an excess of sugar in the blood. It can lead to a buildup of sugars in the blood without careful management and this can increase the risk of dangerous complications, including stroke, heart disease and blood vessel disease. The aim of this study is to develop intelligent medical decision support system for diabetes disease to help the physicians using machine learning methods. We have used the diabete dataset which represents 10 years (1999-2008) of clinical care at 130 US hospitals and integrated delivery networks in UCI Machine Learning Repository. The proposed system consists of two stages. The first stage, we have selected the best describing variables using the random forest algorithm and reduced from 54 parameters to 10 parameters. The second stage, we have used decision tree algorithm (C5.0) for classification of diabetes dataset using the selected parameters. The proposed system obtained 99.41%, 99.34% and 100% as classification accuracy, sensitivity and specificity rates respectively on 69002 test data. The proposed decision support system for diagnosis of diabetes obtained very promising and satisfactory results compared to the previously reported studies in literature.

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**Biography**

Burcin Kurt has completed her PhD in Computer Engineering from Karadeniz Technical University. She is the Assistant Professor at Department of Biostatistics and Medical Informatics in Karadeniz Technical University. She has published more than 25 papers and carrying out a project titled "*Clinical Decision Support Model for Diagnosis of Gestational Diabetes*" which is supported by Scientific and Technological Research Council of Turkey since November, 2018.

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