

## **OBJECT-ORIENTED SOFTWARE QUALITY ESTIMATION -A FUZZY DECISION TREE PERSPECTIVE**

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### **Abstract**

Quality estimation in object oriented software systems is an interesting area. Decision trees as a classification modelling have been successfully used for fault detection. In this paper, we represent the application of fuzzy decision tree in the area of object-oriented software quality estimation. We used FID3.4 algorithm for fault prediction in software modules. The fuzzy decision tree models are built using metrics from the object-oriented software data sets. By using datasets namely, KC1, KC3, and MC1, from NASA's metric data program, this work explores the prediction accuracy of fuzzy decision tree. Prediction accuracy of these trees is found to be 80 to 95 percent. It has been observed that fuzzy decision tree models built are compact, when fuzzy sets are generated using FID3.4 pre-processors. Finally, we compared fuzzy decision tree results with classical decision tree technique. It is found that fuzzy decision tree models are found to be applicable in improving the quality of the object-oriented software in terms of prediction accuracy than classical decision tree models.

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**Key Words:** Software quality estimation, Fuzzy decision tree, Software metrics, Information gain, Prediction accuracy.