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RESEARCH ARTICLE

Data Mining for Causal Analysis of Software Defects

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Abstract—Despite careful planning, clear documentation and proper software process control, software defects are inevitable. Defect causal analysis is the nucleus of process improvement approaches. Causal analysis is regarded as one of the core steps in software defect prediction. The analysis of software faults improves the reliability and quality of software products thereby adding value to the business. Many data mining techniques have been suggested for defect prediction and prevention. This paper summarizes the various data mining techniques used in defect prediction and defect prevention and also proposes the development of a data mining based tool to automate the root cause analysis of software defects. The proposed tool makes use of Hadoop File System to store the defect data. Implementation of decision tree algorithm in MapReduce is proposed for the classification and analysis of defects.

Keywords— Software Fault Analysis; Root Cause analysis; Defect Classification; Defect Categorization

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