

A
Project Report

On

AUTOMATIC TEST PACKET GENERATIONS

Submitted to

Department of
Computer Science and Engineering

By

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING



CERTIFICATE

This is to certify that the project entitled “**AUTOMATIC TEST PACKET GENERATIONS**” is submitted by KATUKURI SNEHA LATHA REDDY(206Y1A6714), GADDAM SANJANA(206Y1A6710), DEBBATA VAISHNAVI(206Y1A6707) and VELDI SATHWIK(206Y1A6722) to the department of Computer Science and Engineering during academic year 2022-23.

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ABSTRACT

When a new bug report is received, developers usually need to reproduce the bug and perform code reviews to find the cause, a process that can be tedious and time consuming. A tool for ranking all the source files with respect to how likely they are to contain the cause of the bug would enable developers to narrow down their search and improve productivity. This paper introduces an adaptive ranking approach that leverages project knowledge through functional decomposition of source code, API descriptions of library components, the bug-fixing history, the code change history, and the file dependency graph. Given a bug report, the ranking score of each source file is computed as a weighted combination of an array of features, where the weights are trained automatically on previously solved bug reports using a learning-to-rank technique. We evaluate the ranking system on six large scale open source Java projects, using the before-fix version of the project for every bug report. The experimental results show that the learning-to-rank approach outperforms three recent state-of-the-art methods. In particular, our method makes correct recommendations within the top 10 ranked source files for over 70 percent of the bug reports in the Eclipse Platform and Tomcat projects.