IJARSCT

ISSN (Online) 2581-9429

International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

Impact Factor: 7.67

Volume 5, Issue 1, March 2025

Software Refactoring System

Nannaware Krushna Shivram[1], **Pagar Sandesh Trambak**[2], **Mhaske Abhiraj Subhash**[3]
Wagh Vinesh Anil[4], **Prof. Dhanshree R. Jondhale**[5]

Department of Information Technology[1,2,3,4,5]

Amrutvahini Polytechnic, Sangamner, A.Nagar, MH, India

Abstract: *In modern software development, the widespread availability of open-source code and search engine assistance often leads developers to incorporate external code snippets into their projects. However, this practice can introduce code smells, unhealthy dependencies, bloated methods, and duplicated code, ultimately increasing time and space complexity. Such issues degrade software performance, making it harder to maintain and optimize. To address this, the proposed model introduces a software code refactoring approach based on graph dependency analysis and decision-making techniques, specifically targeting Java programming structures.*

This model systematically analyzes code by identifying data members and member functions, forming labeled feature lists, and constructing dependency graphs. Through rule-based decision-making, it eliminates cyclic dependencies and optimizes code structure without altering functionality. By refining class responsibilities and reducing unnecessary dependencies, the approach enhances code maintainability and efficiency, ultimately improving software performance and reliability.

Keywords: Source Code Refactoring, Code Smells, Dependency Graph, Decision Making, Feature Extraction