CROSSMINER

Developer-Centric Knowledge Mining from Large Open-Source Software Repositories

Helping software developers
select the right open source components

CROSSMINER enables the monitoring, in-depth analysis and evidence-based selection of open source components, and facilitates knowledge extraction from large open source software repositories

CROSSMINER Features

Source Code Mining

Technology for mining the necessary knowledge to support decision making by software engineers at the software architecture and software design levels.

Text Mining

Text mining for analyzing a wide range of textual sources including newsgroups, bug trackers, mailing lists, forums, social media and stack overflow, to improve performance and quality of code.

Configuration Mining

Source code analysis tools for system configuration management code and a DevOps dashboard providing inferred insights derived from analysis of system configuration metrics.

Knowledge Extraction

Support for high performance and robust declarative project analysis workflows to plug together analytical components and define dependencies and/or interactions at a high level of abstraction.
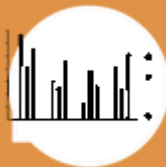
Cross-Project Relationships

Tools for specifying, discovering and representing project relationships based on extracted metrics and on similarity measures underpinning automated creation of clusters.

Advanced IDEs

Eclipse-based IDE to support development of software systems including a wizard for specifying project components for reuse in new products.

www.crossminer.org   **@crossminer**   **eclipse.org/scava**

CROSSMINER Benefits

CROSSMINER provides full project lifecycle support by mining source code, system configurations and natural language sources and putting this knowledge at the fingertips of the developer.

Leveraging high-quality open source to reduce time-to-market
- Supporting the 'buy or build' decision-making process by recommending existing (high-quality) open source components
- Evaluating open source project quality attributes and matching them to specifications
- Supporting controlled reuse of third-party open source components, including emergent software quality via (transitive) dependencies, API evolution support and license compatibility feedback

Continuous monitoring reduces effort and improves adaptability
- Continuous monitoring of the open source development activities of components gives early warnings of incompatibilities and provides recommendations for potential replacement components
- Up-to-date information about available open source components supports rapid response to changing requirements
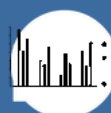
Support for distributed software development and a rich variety of development activities
- Full integration with the Eclipse IDE including wizards for selecting components
- Inputs towards the selection amongst candidate OS libraries or candidate patches
- Supporting co-evolution of client code with evolving API
- Managing the quality of dependency meta-data
- In-context code recommendations based on best practices in relation to continuous integrations, code patterns, and testing
- Contextual recommendations on best practices relating to areas such as software quality, community management and general development practices
- The project will implement a high level dashboard with indicators for development activity and software quality in targeted internal and external open source projects

Summary

CROSSMINER provides techniques and tools for extracting knowledge from existing open source components and using this knowledge to select and reuse the best software components to develop new systems. It increases quality in new products in a wide range of application development environments by providing evidence-based suggestions to reduce development effort. CROSSMINER provides alerts to potential quality improvements and impediments throughout the lifecycle of the project.

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