Soft4Soft

RESORT Code Analysis

Soft4Soft

RESORT for C, C++, Java, JSP, Flex, ABAP
RESORT for QM, FP

Integrated Code Inspection and Quality Management Toolset to ensure early quality of enterprise application

Automated Code Inspection/Review Processes

We are looking for oversea business partner for SW sales and quality consultants

RESORT for C/C++ – SW Quality Tool

❑ ***Software Quality Solutions***
- Multi-level Quality Statistical Metrics
  - -Project
  - -Subsystem
  - -File
- Multi-level Automatic Visualization
  - -Subsystem
  - -File
  - -Function

❑ ***Visualization (Quality Evaluation)***
- Procedure Metrics
- Halstead Metrics
- Quality(Maintainability) Metrics

❑ ***Visualization (Reverse Engineering)***
- File Diagram
- Call Graph
- Variable Reference Graph
- Control Flow Graph
- Source Code Browser

SW Quality Tool analyzes architecture hierarchy and measures quality metrics for C and C++ programs.

Reverse Engineering Tool supports a comprehensive visualization and procedure metrics solution that analyzes a software system to identify its current modules and dependencies, to extract and create system abstraction and design information.

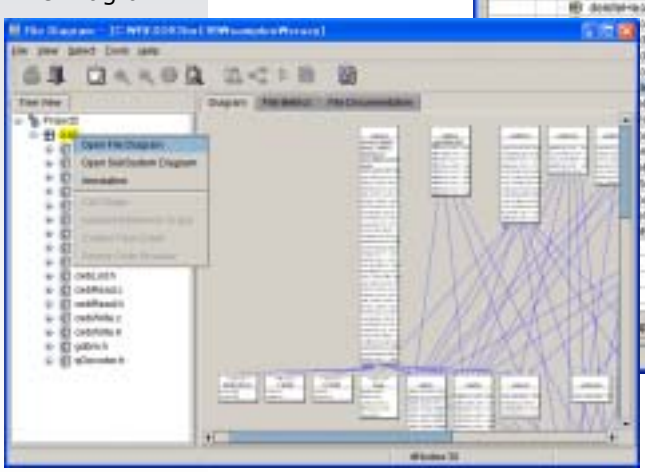
SW Metrics Tool provides a quantitative basis for the development and validation of models of the software development and maintenance process. Software metrics helps you identify, diagnose and resolve potential problems to improve software quality and productivity.

❑ Features

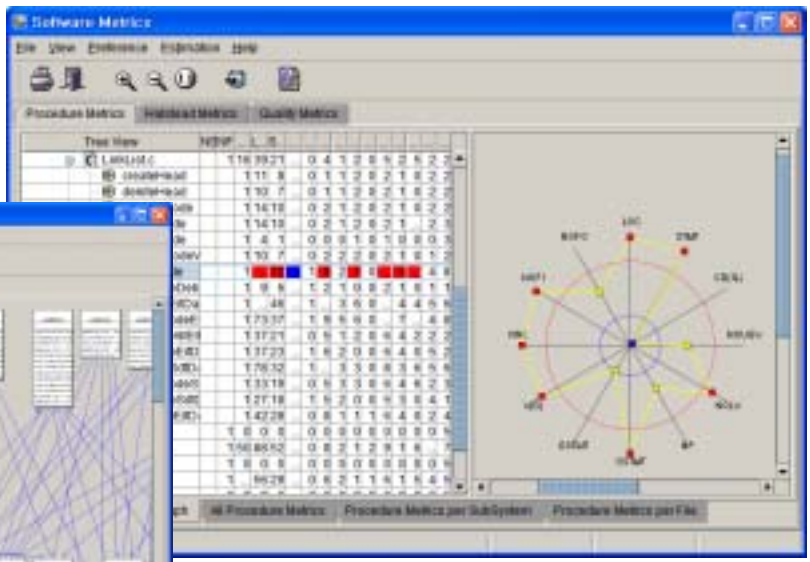
- Hybrid reverse engineering approach combining UML diagram/graph and procedure metrics
- Automatic UML diagrams/graphs generation from file to function level
- Supporting 100+ software metrics such as size and structure metrics
- Measure and evaluate software quality such as Procedure, Halstead and maintainability characteristic in ISO 9126-3
- Cross-highlighting between diagram and source code
- Reporting multi-level statistical metrics for SW quality management

❑ Benefits

- Understand both the design and architecture of the software system
- Identify and prevent software design problems early in the development cycle
- Assist to achieve the software quality goals
- Improve understandability, maintainability and performance quickly
- Support unit, integration and performance testing of the first test target
- Save cost and time for testing and maintenance



File Diagram



Software Metrics – Kiviat Graph

RESORT for C/C++ – Code Checker Tool

❑ ***Code Checker Solutions***

- Multi-level Code Audit
  - -File
  - -Function
  - -MISRA-C:2004
  - -MISRA-C++:2008
- Multi-level Statistical Violation
  - -Project
  - -Subsystem
  - -File
  - -Function

❑ ***Visualization (Inspection Monitoring)***

- All Audit
- File Audit
- Function Audit
- MISRA Audit

Code Checker Tool finds potential/fatal defects in C/C++ source codes using static analysis without executing the code and is used for C/C++ coding standards compliance checking.

Code checker tool supports to detect all of your any coding style, programming defect, performance issue, architecture compliance, run-time error, security vulnerability and MISRA-C/C++ compliance. RESORT provide user customizable coding standards compliance checking.

The MISRA-C/C++ is a software development standard for the C/C++ programming language developed by MISRA (Motor Industry Software Reliability Association). The MISRA-C/C++ has been widely used to improve reliability and stability of embedded systems.

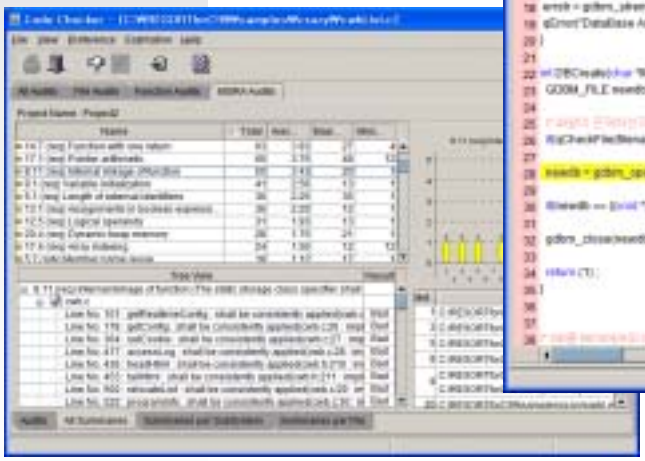
❑ Features

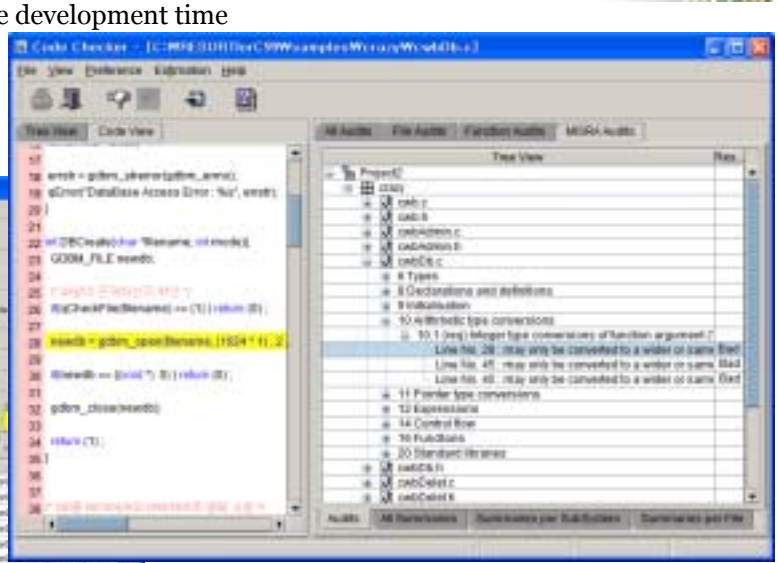
- Detecting C/C++ code defects (including ARM/MIPS source code)
- Supporting MISRA-C: 2004 and MISRA-C++:2008 coding standards perfectly
- Checking architecture, framework, metadata compliance
- Checking Division by zero, Null pointer dereference, Memory leak, File handling leak for run-time errors
- Checking security vulnerability and forbidden function (OWASP, CWE)
- Supporting 410+ rules
- Customizing UI-based coding rules and rule extension
- Cross-highlighting between error message and source code (including Eclipse)
- Reporting multi-level statistical violations for defect management

❑ Benefits

- Build project's own coding standards and produce very simple program structures
- Identify and prevent potential/fatal defects in source codes
- Improve performance, correctness and stability quickly
- Prevent early errors before moving to test phase
- Save cost and time for testing and maintenance
- Enable developers to improve their C/C++ programming skills
- Save IT and QA's manpower, cost and time
- Reduce software development time

Code Checker –
Statistical Violation Reporting





Code Checker –
Code Violation Detection and Highlighting

RESORT for Java(JSP) – SW Quality Tool

❑ ***Software Quality Solutions***

- Multi-level Quality Statistical Metrics
  - -Project
  - -Package
  - -Class
- Multi-level Automatic Visualization
  - -Package
  - -Class
  - -Method

❑ ***Visualization (Quality Evaluation)***

- OO Metrics
- Package Metrics
- Halstead Metrics
- Quality Metrics
- System Metrics

❑ ***Visualization (Reverse Engineering)***

- Class(Package) Diagram
- Sequence(Collaboration) Diagram
- Control Flow Graph
- Data Flow Graph
- Source Code Browser

SW Quality Tool analyzes architecture hierarchy and measures quality metrics for Java and JSP programs.

Reverse Engineering Tool supports a comprehensive visualization and OO metrics solution that analyzes a software system to identify its current modules and dependencies, to extract and create system abstraction and design information.

SW Metrics Tool provides a quantitative basis for the development and validation of models of the software development and maintenance process. Software metrics helps you identify, diagnose and resolve potential problems to improve software quality and productivity.

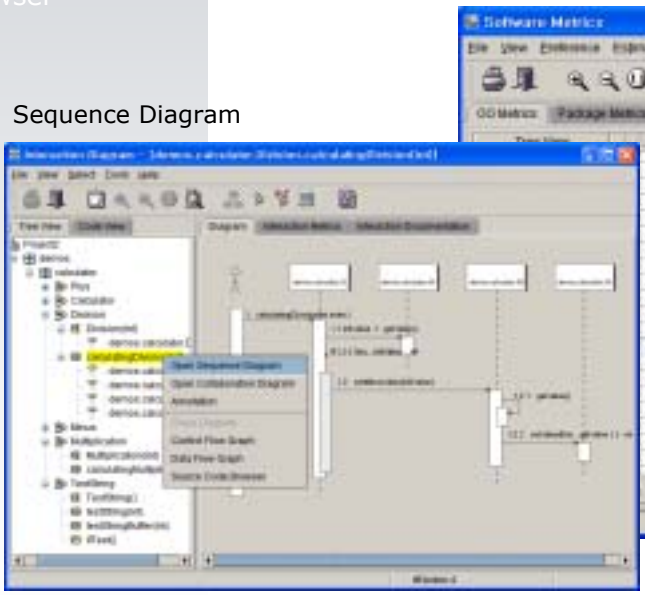
❑ Features

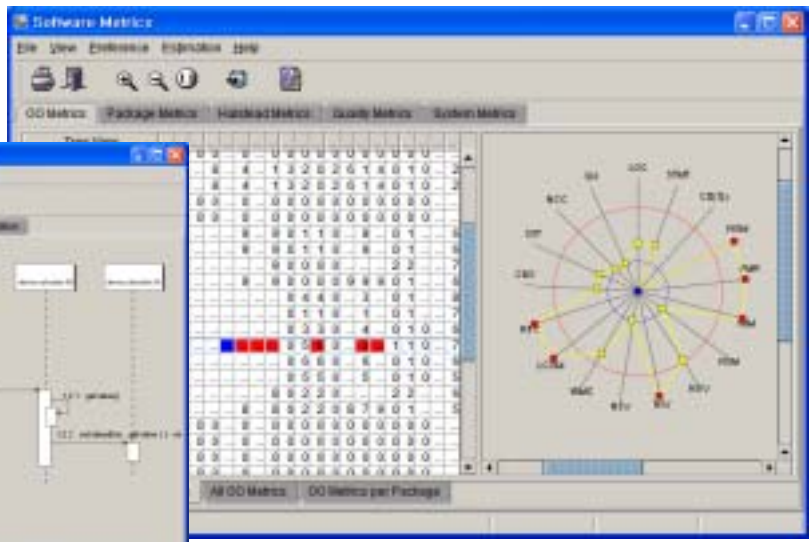
- Hybrid reverse engineering approach combining UML diagram/graph and OO metrics
- Automatic UML diagram/graph generation from package to method level
- SW&DB Architecture Analysis for SQL/XML Development Standard and SW&DB Impact Analysis
- Supporting 100+ software metrics such as size, structure and OO metrics
- Measure and evaluate software quality such as OO, Halstead, System and maintainability characteristic in ISO 9126-3
- Cross-highlighting between diagram and source code
- Reporting multi-level statistical metrics for SW quality management

❑ Benefits

- Understand both the design and architecture of the software system
- Identify and prevent software design problems early in the development cycle
- Assist to achieve the software quality goals
- Improve understandability, maintainability and performance quickly
- Support unit, integration and performance testing of the first test target
- Save cost and time for testing and maintenance

Sequence Diagram





Software Metrics – Kiviat Graph

RESORT for Java(JSP)/Flex – Code Checker Tool

❑ ***Code Checker Solutions***

- Multi-level Code Audit
  - -File
  - -Class
  - -Method
- Multi-level Statistical Violation
  - -Project
  - -Package
  - -File
  - -Class
  - -Method

❑ ***Visualization (Inspection Monitoring)***

- All Audit
- File Audit
- Class Audit
- Method Audit

Code Checker Tool finds potential/fatal defects in Java(JSP)/Flex source codes using static analysis without executing the code and is used for Java(JSP)/Flex coding standards compliance checking.

Code checker tool supports to detect all of your any coding style, programming defect, performance issue, architecture compliance, run-time error and security vulnerability. RESORT provide user customizable coding standards compliance checking.

In particular, fatal defects related to DB interface are detected, such as data integrity, performance issue, resource leak, security vulnerability, and DB access compliance, and can be prevented system hang of WAS or BDMS.

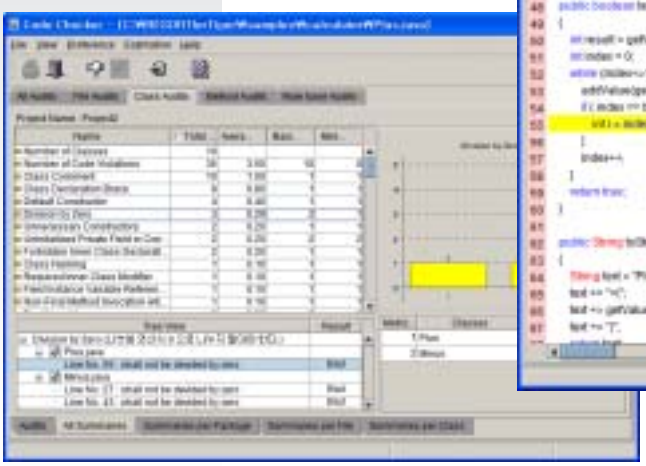
❑ Features

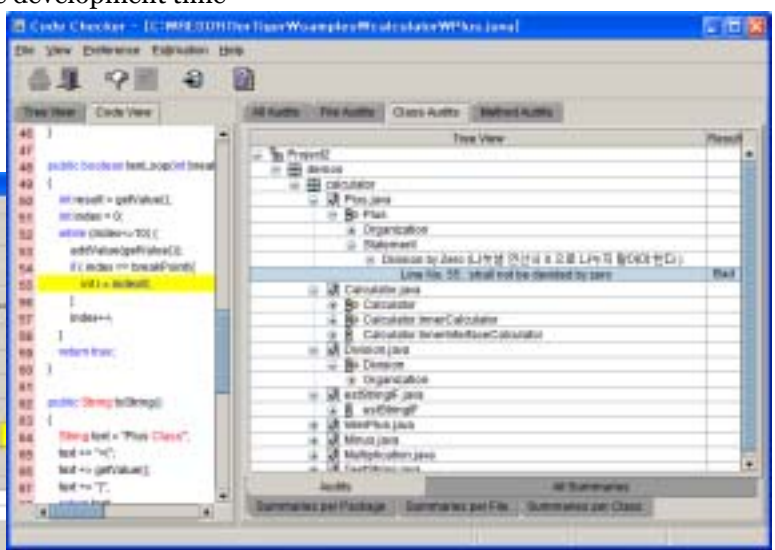
- Detecting Java(JSP)/Flex code defects (including EJB, JDBC, BC4J)
- Supporting ESA BSSC Java:2005 coding standards perfectly
- Checking architecture, framework, metadata compliance
- Checking Division by zero, Null pointer dereference, Memory leak, File handling leak for run-time errors
- Checking security vulnerability and forbidden function (OWASP, CWE)
- Checking Android coding compliance (API, CWE)
- Supporting 450+ rules
- Customizing UI-based coding rules and rule extension
- Cross-highlighting between error message and source code (including Eclipse)
- Reporting multi-level statistical violations for defect management

❑ Benefits

- Build project's own coding standards and produce very simple program structures
- Identify and prevent potential/fatal defects in source codes
- Improve performance, correctness and stability quickly
- Prevent early errors before moving to test phase
- Save cost and time for testing and maintenance
- Enable developers to improve their Java(JSP)/Flex programming skills
- Save IT and QA's manpower, cost and time
- Reduce software development time

Code Checker –
Statistical Violation Reporting





Code Checker –
Code Violation Detection and Highlighting

RESORT for ABAP (SAP ERP) – Code Checker Tool

❑ ***Code Checker Solutions***

- Multi-level Code Audit
  - -File
  - -Class
  - -Method
  - -Function Group
  - -Report
- Multi-level Statistical Violation
  - -Project
  - -File
  - -Class
  - -Method
  - -Function Group
  - -Report

❑ ***Visualization (Inspection Monitoring)***

- All Audit
- File Audit
- Class Audit
- Method Audit
- Function Group Audit
- Report Audit

Code Checker Tool finds potential/fatal defects in ABAP source codes using static analysis without executing the code and is used for ABAP coding standards compliance checking.

Code checker tool supports to detect all of your any coding style, programming defect, data integrity, performance issue, architecture compliance, run-time error, security vulnerability and data dictionary compliance. RESORT provide user customizable coding standards compliance checking.

In particular, fatal defects related to open/native SQL are detected, such as data integrity, performance issue, resource leak, security vulnerability, and DB access compliance.

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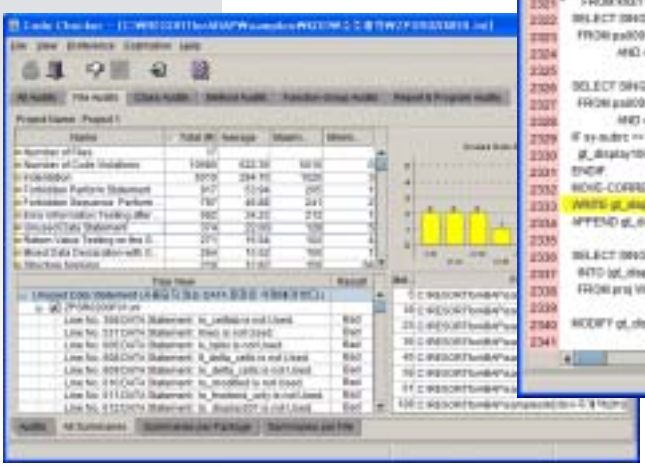
❑ Features

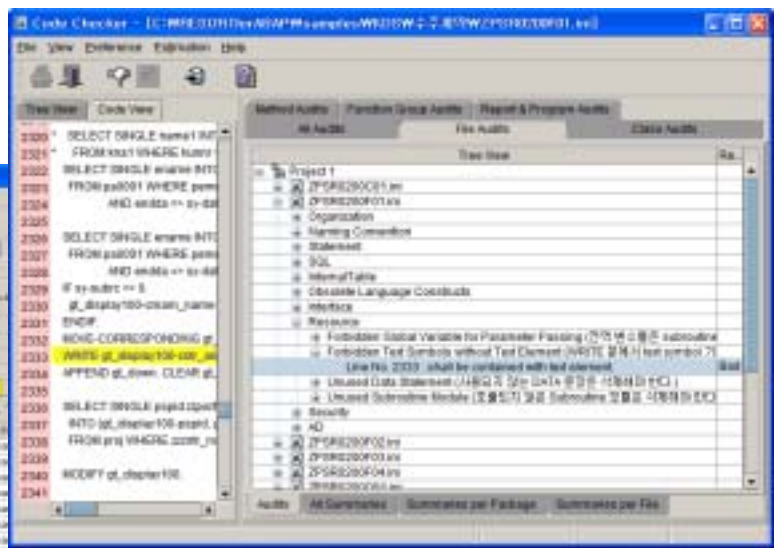
- Detecting ABAP code defects
- Checking performance issues (DB access, SQL(open/native), API, etc.)
- Checking architecture, data dictionary, metadata compliance
- Checking Division by zero, Memory leak, File handling leak, dynamic SQL/call/data for run-time errors
- Checking security vulnerability and forbidden function (OWASP)
- Checking obsolete constructs perfectly
- Supporting 410+ rules
- Customizing UI-based coding rules and rule extension
- Cross-highlighting between error message and source code (including Eclipse)
- Reporting multi-level statistical violations for defect management

❑ Benefits

- Build your own coding standards and produce very simple program structures
- Identify and prevent potential/fatal defects in source codes
- Improve performance, correctness and stability quickly
- Prevent early errors before moving to test phase
- Save cost and time for testing and maintenance
- Enable developers to improve their ABAP programming skills
- Save IT and QA's manpower, cost and time
- Reduce software development time

Code Checker –
Statistical Violation Reporting





Code Checker –
Code Violation Detection and Highlighting

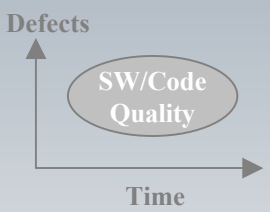
RESORT for QM - Quality Management Tool

❑ ***Quality Management Solutions***

- Automatic Quality Management
  - -Quality Manage
  - -Quality Control
  - -Quality Monitoring
- Multi-level Quality Statistical Reports
  - -Daily
  - -Monthly
  - -Summary
  - -Comparison

❑ ***Web Reporting (Quantitative Quality Management)***

- Project Comparison Reports
- Project Reports
- Inspection Reports
- Metrics Reports



Quality Management Tool synthetically manages and controls the results of software quality measurement and code defect detection per project. The tool provides quality analysis services for quality assurance or control by monitoring defect assessments and comparisons.

Inspection reports provide project statistical reports for source code defect trends, such as coding rule observation ratio, defect statistics and trends per daily or monthly. The reports help you control and monitor source code defects.

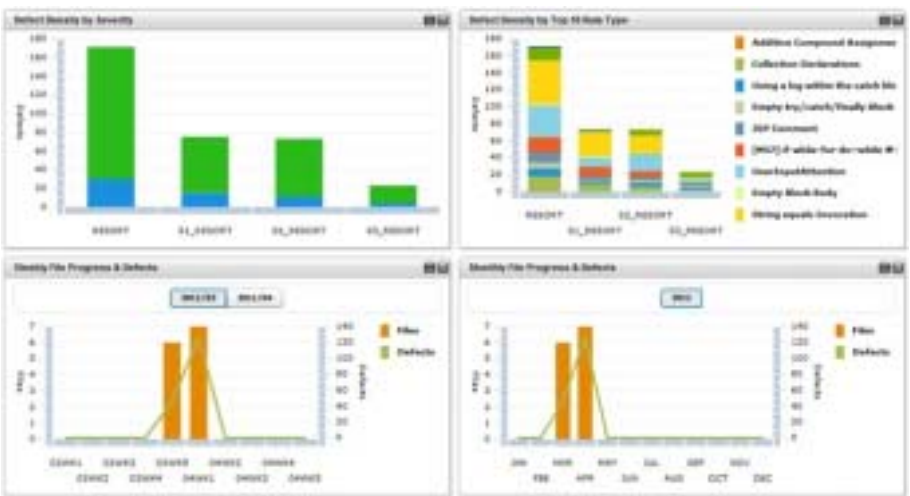
Metrics reports provide project statistical reports for complex (greater (or less) than the threshold) quality trend, such as metrics observation ratio, bad quality statistics and trends per daily or monthly. The reports help you identify and improve potential problems of software size and structure qualities.

❑ Features

- Centralized web-based enterprise code quality (defect) reporting for defect statistics, defect trends, and defect density (#Defect, KLOC, File)
- Reporting defect(metrics) statistics of a project per daily or monthly
- Reporting defect(metrics) comparison of multi projects per daily or monthly
- Reporting for Excel, XML, etc.
- Integrating with RESORT for Java, JSP, Flex, C, C++ ABAP toolset
- Interface with SW standard process, such as CMS, TMS, PMS, etc.

❑ Benefits

- Support automated quality management environment to manage or control code quality
- Improve code quality process maturity by interface with SW standard process
- Save IT and QA's manpower, cost and time
- Improve quality management productivity
- Improve communication between QA manager and developers
- Estimating development productivity management and project progress indirectly



Web-based Defect Reports – Defect Density (Summary)

RESORT for Java – Unit/Integration Testing

❑ ***Testing Solutions***

- Static Testing
- Test Case Design
  - -Test Drivers
  - -Code Instrumentation
- Test Results Analysis
- Multi-level Statistical Coverage
  - -Project
  - -Package
  - -Class

❑ ***Visualization***

- Test Case Design
  - -Test Case
  - -Test Suit
  - -Test Scenario
- Unit-level Monitoring
  - -Control Flow Testing
  - -Data Flow Testing
- Integration-level Monitoring
  - -Sequence Testing

Unit/Integration Testing Tool supports a combination of static, white-box and black-box testing solution for identifying, understanding and eliminating defects and non-compliance problems, improving the overall quality of your software. Used in building Java and Web applications, this helps you quickly detect, diagnose and resolve software errors, enhance code performance, and ensure optimum code coverage.

✓Test Plan & Test Case Design

- Basis path, ME(message execution) path, boolean table, test data set
- Advanced test case, suit and scenario design(class/package/system)

✓Test Results Analysis

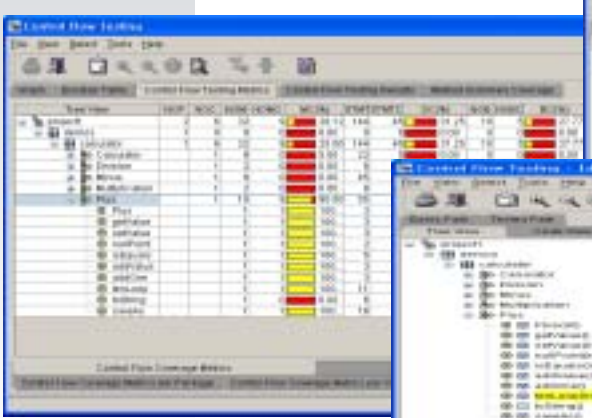
- Test case analysis(pass/fail/error message)
- Test coverage analysis
  - Statement, Branch, All-DU-Path, All-C-Uses, All-P-Uses coverage
  - Method, Class, Message-send(call-pair) coverage
- Performance analysis(run/time)

❑ Features

- Hybrid testing approach combining OO diagram/graph and testing solution
- Automatic test case template generation from source code
- Automatic, error-free test driver or JUnit driver generation
- Provide graphical representations(monitoring) of selected historical test results
- Support error recoding and tracking
- Identify bottlenecks
- Reporting multi-level statistical coverage for product management
- Highlighting the tested code

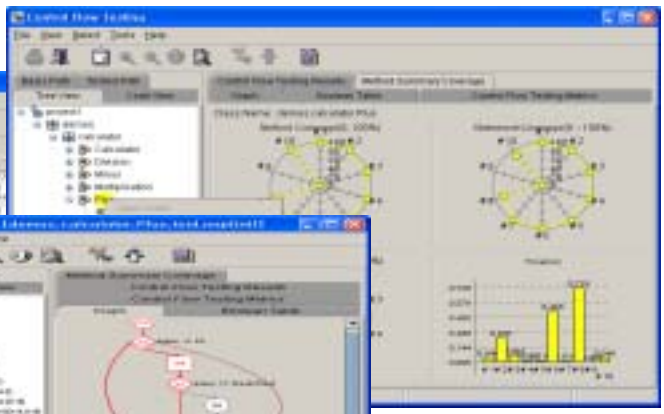
❑ Benefits

- Provide simplify test planning and test case design, and more testing flexibility
- Help to trace execution status and find logic/interface errors on graph/code
- Improve testing productivity and OO software quality
- Reduce testing and debugging time/effort



Unit Test Report – Control-flow Coverage

Control-flow Error Monitoring



Unit Test Report – Method Coverage

RESORT for Java(JSP)FP – Function Point

❑ ***Function Point Solutions***
- Function Point Count
- Software Cost Estimate
- Productivity & Cost Estimate

❑ ***Visualization***
- Data Function Size
- Transaction Function Size
- Function Point Estimator
- Function Point Counter

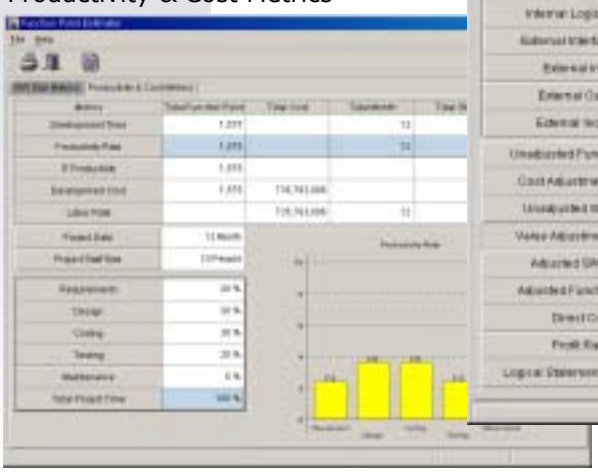
Java(JSP) Function Point Tool supports a combination of reverse engineering, software metrics and function point count solution for measuring, estimating and analyzing the data and transaction functionality from Java application or at project planning phase. This helps automate the function point count, software development and maintenance size, and software productivity and cost analysis using standard IFPUG CPM 4.2.

❑ Features

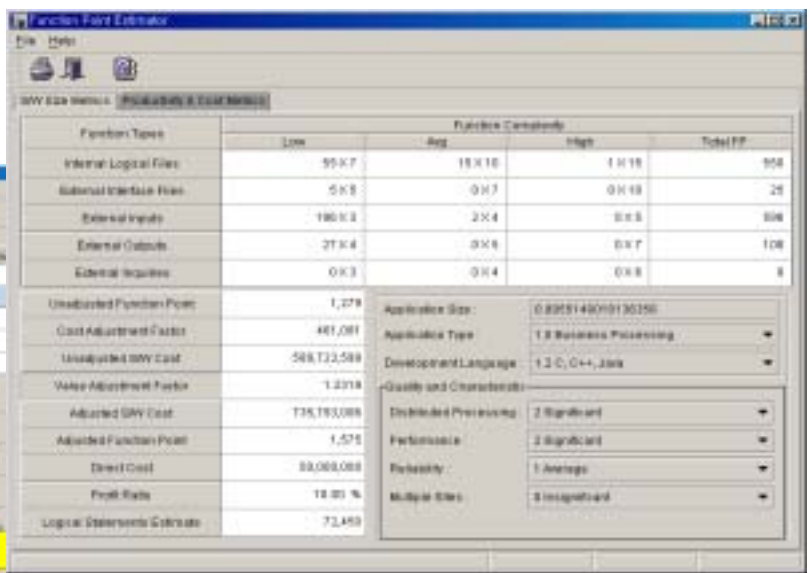
- Measure function point size from Java code or at project planning phase
- Analyze data and transaction functionality from the user's viewpoint
- Visualize various UML diagrams(class & sequence) to measure data and transaction functionality
- Analyze unadjusted function point, adjusted function point and software productivity and cost
- Converting function point to SLOC(Source Lines of Code)
- Reporting multi-level statistical metrics for product management
- Documentation summary
  - Adjusted function point estimate report
  - Software productivity and cost analysis report
  - Delivered data and transaction functionality report

❑ Benefits

- Measure software size based on the user's point of view
- Understand and analyze software functionality
- Calculate development project, enhancement project and application function points
- Support the whole software life cycle
- Help to estimate software productivity and cost as per software life cycle
- Improving project and IT organization management
- Improving software process – necessary for CMMI 3 and higher
- Reduce function point counting time/effort



Function Point Estimator – Productivity & Cost Metrics



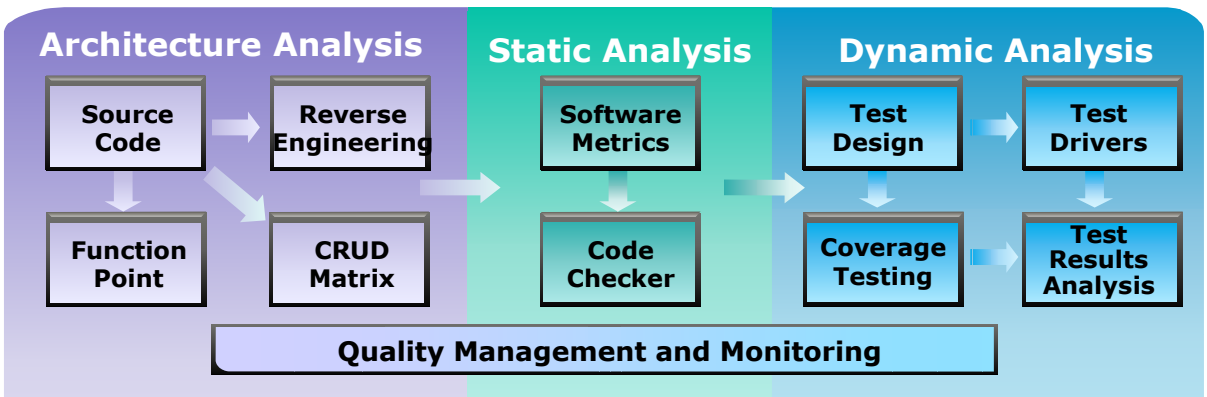
Function Point Estimator - SW Size Metrics

Soft4Soft Solution Map – Saving time & Cost

❑ Code Quality Measurement, Inspection & Management Solutions

RESORT is a suit of tightly integrated architecture analysis, static analysis and dynamic analysis using Java, JSP, Flex, C, C++ and ABAP source codes. RESORT source code analysis toolset analyzes architecture hierarchy and measures quality metrics, and finds potential/fatal defects in source codes. RESORT Quality Management Toolset synthetically manages the results of software quality measurement and code defect detection. RESORT enables organizations to improve quality, while significantly reducing time-to-market and overall costs.

- ✓ Automatic UML diagram/graph generation (Understanding SW architecture)
- ✓ Measure and evaluate software metrics (SW quality management)
- ✓ Identify and prevent potential/fatal defects in source codes (Project's own coding standards and high-quality code development)
- ✓ Centralized web-based enterprise code quality (defect) reporting for defect statistics, defect trends, and defect density (Defect analysis and comparison)
- ✓ Automated code inspection and review processes (to interface with standard process)



❑ Platform and System Requirements

- ✓ Java Platform: Windows 2000 higher, Linux (Red Hat 7.3 higher), UNIX, etc.
- ✓ System Requirement: SUN JDK 1.5.x or higher
- ✓ Memory: 1GB higher
- ✓ Built-in RESORT compiler (A specific compiler is not necessary)

❑ Soft4Soft Products – Code Checker Toolset

- ✓ RESORT for C (MISRA-C), RESORT for C++ (MISRA-C++)
- ✓ RESORT for Java, RESORT for JSP, RESORT for Flex
- ✓ RESORT for ABAP
- ✓ RESORT for QM (Web)

❑ License Types

- ✓ Floating License
- ✓ Server License

❑ Application Areas

- ✓ SW Development and Maintenance, Software Outsourcing, IT Convergence Technology, and IT Consulting Sector
- ✓ Embedded Systems such as Electronics, Telecommunications, Automotive, Aerospace, Robot, Military (MISRA-C, MISRA-C++)
- ✓ SAP ERP Development and Maintenance, and Consulting Sector
- ✓ Adoption Sector of international standards such as CMMI, ISO 9126, IEC 61508, ISO 26262, DO-178B Certification
- ✓ Training and Technical Assistance related to SW Quality

Soft4Soft Co., Ltd.

Soft4Soft is a leading Korean venture firm that researches and develops new products for software quality, code inspection, quality management and function point count solutions under the RESORT brand for multi-language.

Customer Support & Services

Soft4Soft is a leading provider of software products and services that help IT organizations build better software quality. We provide our clients with the highest quality service and products.

- ✓ **E-mail support**
- ✓ **Upgrade service**
- ✓ **Training**
- ✓ **Testing/Quality consultancy**

For more information about Soft4Soft, please visit www.soft4soft.com

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