ID-10-T 

Software Metrics Calculation System

USER MANUAL

Version 1.0

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1 Introduction

1.1 Overview

The Software Metrics Calculation System (SMCS) is a piece of software that allows the user to analyze and view various metrics about their source code.
This document will describe the features and usage of SMCS.

1.2 Background

Dr. Stringfellow was interested in a software system that would help ensure that her computer science students are writing programs that fit her specifications. SMCS was created by the Software Engineering group ID-10-T to fulfill this need.

1.3 How to use this document

This document is split into four chapters.
Chapter 1: An introduction to SMCS.
Chapter 2: Describes the purpose of SMCS and the software requirements.
Chapter 3: Details how to use SMCS.
Chapter 4: Describes the metrics available in SMCS.
Chapter 5: Lists contact information and how to report a bug.

2 Software Overview

2.1 Software Purpose

The main objective of SMCS is to help first and second year computer science students become better programmers. This software will calculate and display metrics about the users source code such as line of code, lines of documentation, cyclical complexity, etc. These metrics will be used to give the user feedback on their code and to correct commonly made mistakes.

2.2 Software Requirements

The minimum requirements for SMCS are relatively low.
Minimum Operating System: Windows XP, OS X 10.7, Linux 2.6.23
Web Browser: Firefox, Chrome, Edge, Safari

3 Getting Started

3.1 How to Start SMCS

To start SMCS in standalone mode simply double click on the application.
This will start a local web server on port 8080 and launch your default web browser to the SMCS code submission page.
If you wish to host SMCS on a server so that it is accessible from anywhere, open config.json and change the "standalone" configuration option to false, ensure that port 8080 is forwarded correctly and then start SMCS.
SMCS will only open the web browser if it is in standalone mode.

3.2 User interface

The user interface is split into two pages, a source code submission page, and an analysis results page.

GRAPHIC OF SUBMISSION PAGE WITH NUMBERED ELEMENTS HERE

LIST OF WHAT THE NUMBERED UI ELEMENTS REPRESENT HERE

GRAPHIC OF RESULTS PAGE WITH NUMBERED ELEMENTS HERE

LIST OF WHAT THE NUMBERED UI ELEMENTS REPRESENT HERE

USE CASES HERE

4 Available Metrics

4.1 Lines of ...

- Lines of Code - The number of lines of code in your source.
- Lines of Documentation - The number of lines of documentation in your source.
- Ratio of LOC to LOD - It could be a problem if the ratio of documentation to code is too low.
- Blank Lines - The number of blank lines in you source.
- Total Lines - The total number of lines in your source.

Note: A line that contains code and documentation will be counted as both a line of code and documentation.

4.2 Number of ...

- Number of Functions - The number of functions in your source.
- Number of Function parameters - The number of parameters in each function. If you have too many parameters in a function it could cause trouble, especially if it is used often.
- Methods per Class - The number of methods in each class.
- Lines per Function - the number of lines in each function.

4.3 Cyclomatic Complexity

Cyclomatic Complexity is the number of linearly independent paths within a program. It is used to measure the complexity of a program.

Example C code:

```
if (A == 10) {
    if (B > C) {
        A = B;
    } else {
        A = C;
    }
}
printf(A);
```

```
printf(B);
printf(C);
```

This code has a three separate paths that it can take so it has a cyclomatic complexity of three.

5 Appendix

5.1 How to Report a Bug

If you find any bugs, please tell us by sending an email to ID10T.BUG@example.com Please include the following information when reporting a bug:

- A complete description of the problem what led to it.
- What operating system and web browser you are using.
- What error messages are displayed.

5.2 Contacts

Contact information for ID-10-T team members.

Member Name	Phone Number
Christopher Silva	940-782-1234
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