Structural Analysis of Creativity in Programs
Version 2

Each statistic is a count of the number of times the structure occurs within a piece of code. As designed, the statistics are not language-specific and should be calculable for all procedural programming languages. The calculation of each variable should be fairly easy (indeed, probably can be programmed) as it involves counting occurrences.

The statistics are in three groups. The first looks at how program control is implemented, the second evaluates how variables are defined, and the final one records other data. Once the three numbers are created for a set of programming examples, it should be possible to compare the number sets looking for the variance that exists within the sets. This can be done overall on all of the numbers combined, but can also be done on each individual statistic.

Program Control:

Statistic	Description
Subroutines	A count of the number of internal subroutines written by the programmer.
For Loops	A count of the number of “for” loops (using automated counters)
While Loops	A count of the number of “while” loops (using automated comparison)
If	A count of the number of simple “if” statements
Else	A count of the number of “else” statements
Case	A count of the number of “case” or “switch” statements
Go To	A count of the number of “go to”, “break”, or “return” statements

Variables:

Statistic	Description
Number of variables	A count of the number of unique variables contained in the code
Average length of variable names	The mean length of a variable names in the code

Other Data:

Statistic	Description
Comments	A code indicating how comments are used: 0 No comments present 1 At least one comment is present 2 Comments are used to explain how the program works or why it was written as it was
Programming language used	A code indicating which programming language was used for the code: 1 Python 2 C/C++/C# 3 Java/Javascript 4 Swift 99 Other