Lab One

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1 Problem One (CaC 1.11)

MOSS is a very interesting piece of software. Most approaches for detecting plagiarism are designed for reviewing essays or other documents. They work by checking the submitted document line-by-line or word-by-word against a database and flags any passages that are identical or nearly-identical to one in the database. This approach is not sufficient for checking for plagiarism in code because you can simply change identifier names and add some other subtle differences to throw it off. MOSSâĂŹs approach is designed specifically for detecting plagiarism in code. It does this by compiling the source code and comparing the token and line matches between different files. This works even if identifiers and other small things are changed because by ignoring white space and naming conventions, the true program structure is actually what's being compared, not just the plaintext. While there are still ways to fool MOSS, the program does a good job of enforcing academic integrity policies for coding assignments where previous plagiarism checkers have fallen short.

2 Problem Two (CaC 3.1)

Token Sequence (line-by-line):

```
 ID(main), LPAREN, RPAREN, LBRACE
CONST, FLOAT, ID(payment), ASSIGN, FLOATNUM(384.00), SEMICOLON
FLOAT, ID(bal), SEMICOLON
INT, ID(month), ASSIGN, INTNUM(0), SEMICOLON
ID, ASSIGN, INTNUM(15000), SEMICOLON
WHILE, LPAREN, ID(bal), GTRTHAN, INTNUM(0), RPAREN, LBRACE
ID(printf), LPAREN, STRING("Month:  %2d Balance:  %10.2f"), COMMA, ID(month), COMMA, ID(bal),
RPAREN, SEMICOLON
ID(bal), ASSIGN, ID(bal), MINUS, ID(payment), PLUS, FLOATNUM(0.015), MULT, ID(bal), SEMICOLON
ID(month), ASSIGN, ID(month), PLUS, INTNUM(1), SEMICOLON
RBRACE
RBRACE
```

The tokens that require additional information to be returned are all of the identifiers (ID), Strings (STRING), and any type of number (FLOATNUM, INTNUM). I have added the extra information required in parentheses following the token code.

3 Problem Three (Dragon 1.1.4)

The C language has been around for almost a half-century and a C compiler has been made for just about every operating system ever made. For this reason, using C as a target language for a compiler means that the source language can be used on any OS that can run C.

4 Problem Three (Dragon 1.6.1)

```
 w = 13
x = 11
y = 13
z = 11
```