

# Lab One

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## 0.1 MOSS

As described in "Winnowing: Local Algorithms for Document Fingerprinting," MOSS employs "winnowing": a fingerprinting algorithm. The algorithm hashes the code and compares hashed fingertips to find any similarities. The aforementioned document defines three desirable properties for a copy-detection algorithm: whitespace insensitivity, noise suppression, and position independence. The former two are common, but the latter sets MOSS apart. Addressing position independence means that moving blocks of code around a document does not prevent the algorithm from detecting a copy.<sup>1</sup>

## 0.2 TOKEN SEQUENCE

```
ID - main || openParen || closeParen || openBrace || const || float || ID - payment || assign || literal - 384.00 ||
semiColon || float || ID - bal || semiColon || int || ID - month || assign || literal - 0 || semiColon || ID - bal ||
assign || literal - 15000 || semiColon || while || openParen || ID - bal || greaterThan || literal - 0 || closeParen
|| openBrace || printf || openParen || literal - "Month: %2d Balance:%10.2f\n " || ID - month || ID - bal
|| closeParen || semiColon || ID - bal || assign || ID - bal || minus || ID - payment || plus || literal - 0.015
|| multiplyv ID - bal || semiColon || ID - month || assign || ID - month || plus || literal - 1 || semiColon ||
closeBrace || closeBrace
```

Extra information must be returned for all IDs.

## 0.3 ADVANTAGES OF C AS A TARGET LANGUAGE

C is an extremely versatile and portable language. It works on many more systems than the assembly language that is often generated by compilers. It is also generally more human-readable than assembly language.

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<sup>1</sup>(Did you include this question to warn students that you WILL catch them if they plagiarize?) Source: <http://theory.stanford.edu/~aiken/publications/papers/sigmod03.pdf>

#### 0.4 VALUES OF W, X, Y, AND Z

w = 13

x = 11

y = 13

z = 11

Explanation: When a variable is re-declared in the scope as "int i =" or "int j =", it has been defined locally. When a new value is defined by declaring "i =" or "j =", the new value is declared globally.