Cacey Ostic
Compilers
Lab 1

Crafting a Compiler Questions:

1.11

Measure of Software Similarity (MOSS) works by examining code structure and comparing it to other code that it has analyzed. Plagiarism checkers for written essays tend to examine exact words and compare them to other essays for matches. However, MOSS does not rely on exact names for variable names and control structures. Rather, MOSS examines the underlying structure of the code itself by tokenizing the different parts of the code. Rather than seeing a variable named "current" before a while statement, it would see some variable before a loop structure. This allows it to match against code that may have been slightly altered but still otherwise copied.

3.1

Tokens, with additional information after ":"

```
id:          main
left_paren
right_paren
left_brace
const
type:        float
id:          payment
assignment
number:      384.00
end_of_line
type:        float
id:          bal
end_of_line
type:        int
id:          month
assignment
number:      0
```

```
end_of_line
id:             bal
assignment
number:         15000
end_of_line
while
left_paren
id:             bal
less_than
number:         0
right_paren
left_brace
id:             printf
left_paren
quote
string_literal:         Month: %2d  Balance: %10.2f\n
quote
separator
id:             month
id:             bal
right_paren
end_of_line
id:             bal
assignment
id:             bal
subtract
id:             payment
add
number:         0.015
multiply
id:             bal
end_of_line
id:             month
assignment
id:             month
```

add
number: 1
right_brace
right_brace

Dragon Book Questions:

1.1.4

The advantages of using C as a target language for a compiler are that C is a popular language and it already has optimized compilers. Since C is a very well-known language, compilers have been made for many systems. If one high level language can be compiled into C, then it can then be compiled to run on many different systems. Additionally, only one compiler needs to be created. C also has been around long enough for many optimizations to be created. Therefore, low level optimizations don't need to be considered as strongly since they are already a part of the C compilers.

1.6.1

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