

Lexical analysis (scanning)

Source text	Tokens
while (k<=n) {	WHILE LPAR ID(k) LESSEQ ID(n) RPAR
sum=sum+k;	LBRACE ID(sum) EQUALS ID(sum) PLUS
k=k+1;	ID(k) SEMIC ID(k) EQUALS ID(k) PLUS
}	INT(1) SEMIC RBRACE

Syntactic analysis (parsing)

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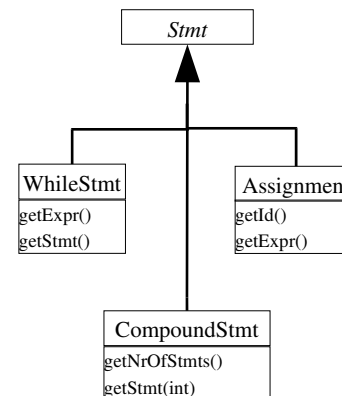
statement
  |
  whileStmt
    / / / / |
while ( ( expr ) statement
      |
      compoundStmt
        / | \
        { statements }
          / | \
          assignment ; assignment
            / | \ / | \
            sum = expr k = expr
              | |
              add
                / | \
                sum + k
    
```

AST – while (k<=n) {sum=sum+k; k=k+1;}

```

WhileStmt
  / \
LessEqual CompoundStmt
 / \ / \
Id Id Assignment Assignment
"k" "n" / \ / \
      Id Add Id Add
      "sum" / \ "k" / \
            Id Id Id Int
            "sum" "k" "k" "1"
    
```

Program representations



Program representations

