CptS 422 Deliverable 2 Report
Kristian Suzara

Test Cases

getAcceptableTokens()/getRequiredTokens()/getDefaultTokens() Tests

- Tests for these methods were pretty much identical for all CheckTests
- Compare arrays of tokens that are dependant on the specific Check

beginTree() Tests

- Tests for these methods were pretty much identical for all CheckTests
- Verify if method was called

Operator/Operand/Halstead

Assumptions

- Comments not counted
- Non-variable declarations ignored
- Variables and constants are operands
- All sets of brackets ((),{},[]) are counted as 1 operator
- Loop blocks(for, while, do while) and control blocks(if, else, else if) are considered operators
- {} brackets don't get counted again in blocks
- Function calls are operators
- default, super, this, new, assert, try, catch, finally, throw, throws, break, continue, and return are operators

visitTokens() Tests

- **IDENT 1**
  - Type identifier token is visited
  - Do not count as anything
- **IDENT 2**
  - Method call identifier token is visited
  - Count as an operator
- **IDENT 3**
  - Duplicate Method call identifier token is visited
  - Count as an operator but not unique
- **IDENT 4**
  - Variable declaration identifier token is visited
  - Count as an operand
- **IDENT 5**
  - Duplicate Variable declaration identifier token is visited
  - Count as an operand but not unique

- **OBJBLOCK 1**
    - Object block token is visited
        - Class declaration
    - Count as an operator
- **OBJBLOCK 2**
    - Duplicate Object block token is visited
    - Count as an operator but not unique
- **RPAREN 1**
    - Right parentheses token part of a declaration statement is visited
    - Do not count as anything
- **RPAREN 2**
    - Right parentheses token not part of a declaration statement is visited
        - Expression
    - Count as an operator
- **RPAREN 3**
    - Duplicate right parentheses token not part of a declaration statement is visited
    - Count as an operator but not unique
- **SLIST 1**
    - Method declaration list of statements token is visited
    - Count as an operator
- **SLIST 2**
    - Duplicate Method declaration list of statements token is visited
    - Count as an operator but not unique
- **SLIST 3**
    - Control block list of statements token is visited
    - Do not count as anything
- **Other Operand 1**
    - Any other operand token not considered yet is visited
        - String
    - Count as an operand
- **Other Operand 2**
    - Duplicate other operand token not considered yet is visited
    - Count as an operand but not unique
- **Other Operator 1**
    - Any other operator token not considered yet is visited
        - *
    - Count as an operator
- **Other Operator 2**
    - Duplicate other operator token not considered yet is visited
    - Count as an operator but not unique

Comment
visitTokens() Tests

- **SINGLE_LINE_COMMENT**
  - Single-line comment token visited
  - Count
- **BLOCK_COMMENT**
  - Begining block comment token visited
  - Count

CommentLines
visitTokens() Tests

- **SINGLE_LINE_COMMENT**
  - Single-line comment token visited
  - Count as 1
- **BLOCK_COMMENT**
  - Beginning block comment token visited
  - Ending block comment token visited
  - Count based on line number difference

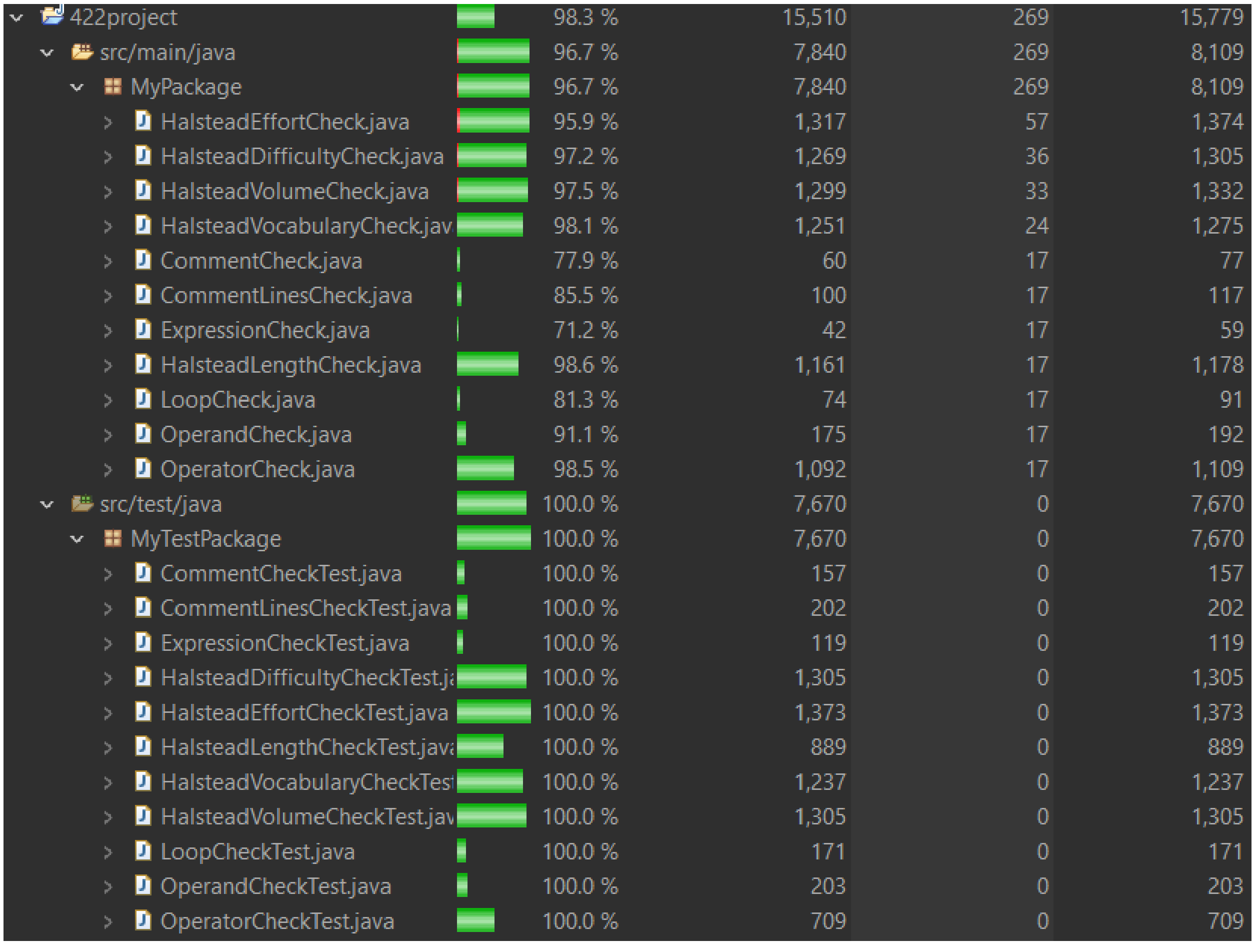
Expression
visitTokens() Tests

- **EXPR**
  - Expression token visited
  - Count

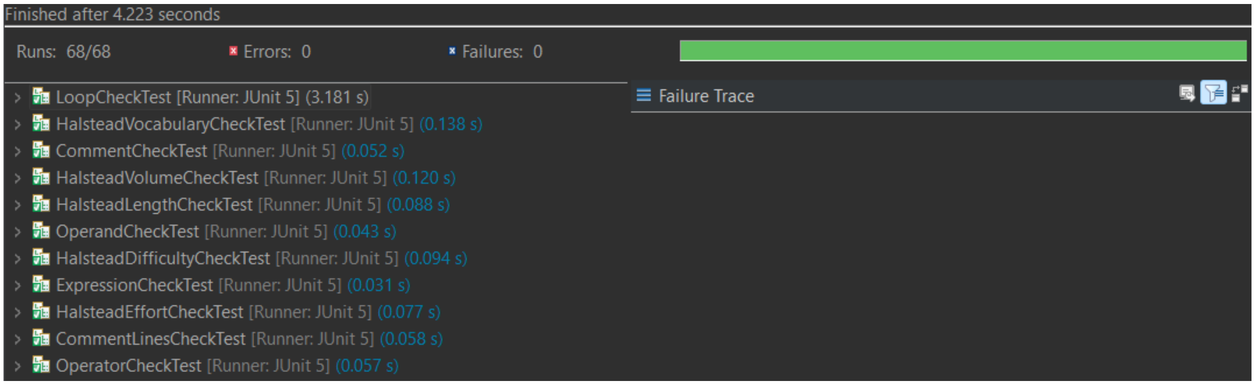
Loops
visitTokens() Tests

- **FOR**
  - Literal for token visited
  - count
- **WHILE**
  - Literal while token visited
  - count
- **DO**
  - Literal do token visited
  - count

Coverage and Results



422project	98.3 %	15,510	269	15,779
src/main/java	96.7 %	7,840	269	8,109
MyPackage	96.7 %	7,840	269	8,109
HalsteadEffortCheck.java	95.9 %	1,317	57	1,374
HalsteadDifficultyCheck.java	97.2 %	1,269	36	1,305
HalsteadVolumeCheck.java	97.5 %	1,299	33	1,332
HalsteadVocabularyCheck.jav	98.1 %	1,251	24	1,275
CommentCheck.java	77.9 %	60	17	77
CommentLinesCheck.java	85.5 %	100	17	117
ExpressionCheck.java	71.2 %	42	17	59
HalsteadLengthCheck.java	98.6 %	1,161	17	1,178
LoopCheck.java	81.3 %	74	17	91
OperandCheck.java	91.1 %	175	17	192
OperatorCheck.java	98.5 %	1,092	17	1,109
src/test/java	100.0 %	7,670	0	7,670
MyTestPackage	100.0 %	7,670	0	7,670
CommentCheckTest.java	100.0 %	157	0	157
CommentLinesCheckTest.java	100.0 %	202	0	202
ExpressionCheckTest.java	100.0 %	119	0	119
HalsteadDifficultyCheckTest.j	100.0 %	1,305	0	1,305
HalsteadEffortCheckTest.java	100.0 %	1,373	0	1,373
HalsteadLengthCheckTest.java	100.0 %	889	0	889
HalsteadVocabularyCheckTes	100.0 %	1,237	0	1,237
HalsteadVolumeCheckTest.jav	100.0 %	1,305	0	1,305
LoopCheckTest.java	100.0 %	171	0	171
OperandCheckTest.java	100.0 %	203	0	203
OperatorCheckTest.java	100.0 %	709	0	709



```
Finished after 4.223 seconds
Runs:  68/68          Errors:  0          Failures:  0
LoopCheckTest [Runner: JUnit 5] (3.181 s)
HalsteadVocabularyCheckTest [Runner: JUnit 5] (0.138 s)
CommentCheckTest [Runner: JUnit 5] (0.052 s)
HalsteadVolumeCheckTest [Runner: JUnit 5] (0.120 s)
HalsteadLengthCheckTest [Runner: JUnit 5] (0.088 s)
OperandCheckTest [Runner: JUnit 5] (0.043 s)
HalsteadDifficultyCheckTest [Runner: JUnit 5] (0.094 s)
ExpressionCheckTest [Runner: JUnit 5] (0.031 s)
HalsteadEffortCheckTest [Runner: JUnit 5] (0.077 s)
CommentLinesCheckTest [Runner: JUnit 5] (0.058 s)
OperatorCheckTest [Runner: JUnit 5] (0.057 s)
```

Testing for the finishTree() method was not completed, so coverage for the checks is close to but does not reach 100%. The more complex checks result in higher percentage coverage because the finish tree method is a smaller portion of the overall code for each check. Branch coverage testing for True and False was considered entering an if/else/else if for true and passing the if/else/else if for false. All the tests passed and have full coverage.