

Name: *Orion Hess*

Assignment: 2

|                       |       |         |
|-----------------------|-------|---------|
| Complete and Correct: | ..... | 20 / 20 |
| Testing:              | ..... | 4 / 5   |
| Clean Code:           | ..... | 2 / 2   |
| Writeup:              | ..... | 3 / 3   |

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|              |       |         |
|--------------|-------|---------|
| Total Score: | ..... | 29 / 30 |
|--------------|-------|---------|

## Comments:

1. (-1) missing an additional test

## Unit test output:

```
[INFO] Scanning for projects...
[INFO]
[INFO] -----< cpssc326:cpssc326-mypl >-----
[INFO] Building cpssc326-mypl 1
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- maven-resources-plugin:2.6:resources (default-resources) @ cpssc326-mypl ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory /home/matt/Space/s25/cpssc326/hw2/hw2-imaducklol/src/main/resources
[INFO]
[INFO] --- maven-compiler-plugin:3.1:compile (default-compile) @ cpssc326-mypl ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- maven-resources-plugin:2.6:testResources (default-testResources) @ cpssc326-mypl ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory /home/matt/Space/s25/cpssc326/hw2/hw2-imaducklol/src/test/resources
[INFO]
[INFO] --- maven-compiler-plugin:3.1:testCompile (default-testCompile) @ cpssc326-mypl ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 2 source files to /home/matt/Space/s25/cpssc326/hw2/hw2-imaducklol/target/test-classes
[INFO]
[INFO] --- maven-surefire-plugin:3.3.1:test (default-test) @ cpssc326-mypl ---
[INFO] Using auto detected provider org.apache.maven.surefire.junitplatform.JUnitPlatformProvider
[INFO]
[INFO] -----
[INFO] T E S T S
[INFO] -----
[INFO] Running cpssc326.HW2Tests
[INFO] Tests run: 84, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.107 s -- in cpssc326.HW2Tests
[INFO] cpssc326.HW2Tests.moreInvolvedWhileStatement -- Time elapsed: 0.013 s
[INFO] cpssc326.HW2Tests.basicPathExpressions -- Time elapsed: 0.001 s
[INFO] cpssc326.HW2Tests.functionWithMultipleBaseTypeParams -- Time elapsed: 0.001 s
[INFO] cpssc326.HW2Tests.expressionWithBadArrayIDRvalue -- Time elapsed: 0.011 s
[INFO] cpssc326.HW2Tests.nestedStatements -- Time elapsed: 0.001 s
[INFO] cpssc326.HW2Tests.missingParameterInField -- Time elapsed: 0.001 s
[INFO] cpssc326.HW2Tests.simpleForStatement -- Time elapsed: 0.001 s
[INFO] cpssc326.HW2Tests.missingIfBody -- Time elapsed: 0.002 s
[INFO] cpssc326.HW2Tests.variableDefinitionsWithOutTypeAnnotations -- Time elapsed: 0.001 s
[INFO] cpssc326.HW2Tests.returnWithoutExpression -- Time elapsed: 0.001 s
[INFO] cpssc326.HW2Tests.variableDeclWithoutIdentifier -- Time elapsed: 0.001 s
[INFO] cpssc326.HW2Tests.missingFunctionCloseBrace -- Time elapsed: 0.001 s
[INFO] cpssc326.HW2Tests.forWithoutLoopTo -- Time elapsed: 0.001 s
[INFO] cpssc326.HW2Tests.missingFunctionCloseParen -- Time elapsed: 0.001 s
[INFO] cpssc326.HW2Tests.variableDeclWithMissingColon -- Time elapsed: 0.001 s
[INFO] cpssc326.HW2Tests.missingStructCloseBrace -- Time elapsed: 0.001 s
[INFO] cpssc326.HW2Tests.emptyFunction -- Time elapsed: 0 s
[INFO] cpssc326.HW2Tests.missingStructID -- Time elapsed: 0 s
[INFO] cpssc326.HW2Tests.basicNewExpressions -- Time elapsed: 0 s
[INFO] cpssc326.HW2Tests.expressionWithBadNonArrayIDRvalue -- Time elapsed: 0 s
[INFO] cpssc326.HW2Tests.assignWithBadNonArrayLvalue -- Time elapsed: 0 s
[INFO] cpssc326.HW2Tests.assignWithBadArrayLvalue -- Time elapsed: 0 s
[INFO] cpssc326.HW2Tests.structWithBaseTypeFields -- Time elapsed: 0 s
[INFO] cpssc326.HW2Tests.emptyInput -- Time elapsed: 0.001 s
[INFO] cpssc326.HW2Tests.mixOfStructsAndFunctions -- Time elapsed: 0 s
[INFO] cpssc326.HW2Tests.functionOneBaseTypeParam -- Time elapsed: 0 s
[INFO] cpssc326.HW2Tests.expressionWithTooFewClosingParens -- Time elapsed: 0.001 s
[INFO] cpssc326.HW2Tests.mixOfStatements -- Time elapsed: 0.001 s
[INFO] cpssc326.HW2Tests.multipleIfElses -- Time elapsed: 0 s
[INFO] cpssc326.HW2Tests.elseWithNoBody -- Time elapsed: 0 s
[INFO] cpssc326.HW2Tests.elseWithNoIf -- Time elapsed: 0 s
[INFO] cpssc326.HW2Tests.nonTerminatingWhileBody -- Time elapsed: 0.001 s
```

```
[INFO] cp326.HW2Tests.functionBaseValueReturnType -- Time elapsed: 0.001 s
[INFO] cp326.HW2Tests.forWithoutLoopFromExpression -- Time elapsed: 0.001 s
[INFO] cp326.HW2Tests.basicLogicalExpressions -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.forWithoutLoopInformation -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.missingWhileBody -- Time elapsed: 0.001 s
[INFO] cp326.HW2Tests.variableDeclarations -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.missingFunctionOpenBrace -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.missingFunctionOpenParen -- Time elapsed: 0.001 s
[INFO] cp326.HW2Tests.missingFunctionParamID -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.assignWithMissingExpression -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.assignWithMissingAssignOp -- Time elapsed: 0.001 s
[INFO] cp326.HW2Tests.simpleWhileStatement -- Time elapsed: 0.001 s
[INFO] cp326.HW2Tests.basicFunctionCalls -- Time elapsed: 0.001 s
[INFO] cp326.HW2Tests.missingColonInField -- Time elapsed: 0.001 s
[INFO] cp326.HW2Tests.forWithoutLoopBody -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.forWithoutLoopFrom -- Time elapsed: 0.001 s
[INFO] cp326.HW2Tests.basicArithmeticExpressions -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.missingFunctionParamType -- Time elapsed: 0.001 s
[INFO] cp326.HW2Tests.missingWhileExpression -- Time elapsed: 0.001 s
[INFO] cp326.HW2Tests.multipleIfs -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.functionNonBaseValueReturnType -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.returnVariousLiterals -- Time elapsed: 0.001 s
[INFO] cp326.HW2Tests.expressionWithTooManyOperands -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.variableDefinitionsWithTypeAnnotations -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.variableDefinitionMissingExpression -- Time elapsed: 0.001 s
[INFO] cp326.HW2Tests.elseOutOfOrder -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.missingFunctionParamColon -- Time elapsed: 0.001 s
[INFO] cp326.HW2Tests.missingFunctionParamComma -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.missingIfExpression -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.forWithNonTerminatedLoopBody -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.expressionWithMissingOperand -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.forStatementWithNonLiteralRange -- Time elapsed: 0.001 s
[INFO] cp326.HW2Tests.simpleIfWithElse -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.missingStructOpenBrace -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.bracesWithoutStructOrFunction -- Time elapsed: 0.001 s
[INFO] cp326.HW2Tests.functionWithMultipleNonBaseTypeParams -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.basicRelationalExpressions -- Time elapsed: 0.001 s
[INFO] cp326.HW2Tests.simpleIfStatement -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.emptyStruct -- Time elapsed: 0.001 s
[INFO] cp326.HW2Tests.statementOutsideFunctionOrStruct -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.nonTerminatingIfBody -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.variableDeclWithoutVar -- Time elapsed: 0.001 s
[INFO] cp326.HW2Tests.missingDataTypeInField -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.variableDeclWithoutType -- Time elapsed: 0.001 s
[INFO] cp326.HW2Tests.forWithoutLoopToExpression -- Time elapsed: 0.001 s
[INFO] cp326.HW2Tests.missingFunctionReturnType -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.missingCommaBetweenFields -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.elseWithNoTerminatingBody -- Time elapsed: 0.001 s
[INFO] cp326.HW2Tests.structWithNonBaseTypeFields -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.elseifWithNoIf -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.functionOneNonBaseTypeParam -- Time elapsed: 0 s
[INFO] cp326.HW2Tests.expressionWithTooFewOpeningParens -- Time elapsed: 0 s
[INFO] Running cp326.SimpleParserTests
[INFO] Tests run: 88, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.067 s -- in cp326.SimpleParserTests
[INFO] cp326.SimpleParserTests.moreInvolvedWhileStatement -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.basicPathExpressions -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.functionWithMultipleBaseTypeParams -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.expressionWithBadArrayIDRvalue -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.nestedStatements -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.missingParameterInField -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.simpleForStatement -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.missingIfBody -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.variableDefinitionsWithoutTypeAnnotations -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.returnWithoutExpression -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.variableDeclWithoutIdentifier -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.missingFunctionCloseBrace -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.forWithoutLoopTo -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.missingFunctionCloseParen -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.variableDeclWithMissingColon -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.missingStructCloseBrace -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.missingBracesWithStructs -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.emptyFunction -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.missingStructID -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.missingParensInsideFuncDef -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.basicNewExpressions -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.expressionWithBadNonArrayIDRvalue -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.assignWithBadNonArrayLvalue -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.assignWithBadArrayLvalue -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.structWithBaseTypeFields -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.emptyInput -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.mixOfStructsAndFunctions -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.functionOneBaseTypeParam -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.expressionWithTooFewClosingParens -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.mixOfStatements -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.multipleIfElse -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.elseWithNoBody -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.elseifWithNoIf -- Time elapsed: 0.002 s
[INFO] cp326.SimpleParserTests.nonTerminatingWhileBody -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.functionBaseValueReturnType -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.forWithoutLoopFromExpression -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.basicLogicalExpressions -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.forWithoutLoopInformation -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.missingWhileBody -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.variableDeclarations -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.missingFunctionOpenBrace -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.missingFunctionOpenParen -- Time elapsed: 0.002 s
[INFO] cp326.SimpleParserTests.missingFunctionParamID -- Time elapsed: 0.001 s
```

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[INFO] cp326.SimpleParserTests.assignWithMissingExpression -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.assignWithMissingAssignOp -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.simpleWhileStatement -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.basicFunctionCalls -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.missingColonInField -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.forWithoutLoopBody -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.forWithoutLoopFrom -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.basicArithmeticExpressions -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.missingFunctionParamType -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.missingWhileExpression -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.multipleIfs -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.functionNonBaseValueReturnType -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.functionOverloading -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.returnVariousLiterals -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.expressionWithTooManyOperands -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.variableDefinitionsWithTypeAnnotations -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.variableDefinitionMissingExpression -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.elseOutOfOrder -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.missingFunctionParamColon -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.missingFunctionParamComma -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.missingIfExpression -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.forWithNonTerminatedLoopBody -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.expressionWithMissingOperand -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.forStatementWithNonLiteralRange -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.simpleIfWithElse -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.missingStructOpenBrace -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.bracesWithoutStructOrFunction -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.functionWithMultipleNonBaseTypeParams -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.basicRelationalExpressions -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.simpleIfStatement -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.emptyStruct -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.statementOutsideFunctionOrStruct -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.structWithMutualReferences -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.nonTerminatingIfBody -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.variableDeclWithoutVar -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.missingDataTypeInField -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.variableDeclWithoutType -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.forWithoutLoopToExpression -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.missingFunctionReturnType -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.missingCommaBetweenFields -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.elseWithNoTerminatingBody -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.structWithNonBaseTypeFields -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.elseifWithNoIf -- Time elapsed: 0 s
[INFO] cp326.SimpleParserTests.functionOneNonBaseTypeParam -- Time elapsed: 0.001 s
[INFO] cp326.SimpleParserTests.expressionWithTooFewOpeningParens -- Time elapsed: 0 s
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 172, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 1.514 s
[INFO] Finished at: 2025-02-17T17:47:43-08:00
[INFO] -----

```

## Program output:

```
./mypl -m PARSE examples/hw2_parser.mypl > out 2>&1
```