

Compila17 compiler

Contributors

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Usage

Build using `ant build` and run using `ant compile-runme` followed by `ant run-runme`.

Design

We did the code generation much like the building of the AST. Stmt, Expr and Decl all has an abstract codeGenerator procedure that takes a CodeFile, CodeProcedure and CodeStruct as parameter. This method is then overwritten in all sub classes.

Print from test suite

```
test:
[java] Testing compiler class.
[java] Testing files in /Users/oddgunnarfatland/Google Drive/Studier/Master/1. semester
[java] Test[1] SHOULD FAIL: general1_fail.cmp
[java] String should be returned, string given.
[java] Test[2] SHOULD FAIL: general2_fail.cmp
[java] Duplicate declaration of a in procedure Proc
[java] Test[3] SHOULD FAIL: general3_fail.cmp
[java] Undeclared variable bar
[java] Test[4] SHOULD FAIL: general4_fail.cmp
[java] BAD: Test no 4 didn't fail when it should!
[java] Test[5] SHOULD FAIL: general5_fail.cmp
[java] Proc: Parameter 1 must be of type (REF int), int given.
[java] Test[6] SHOULD FAIL: general6_fail.cmp
[java] Proc: Parameter 1 must be of type int, ref_tmp given.
[java] Test[7] SHOULD FAIL: main_wrong_parameters_fail.cmp
[java] Main procedure doesn't accept any parameter.
[java] Test[8] SHOULD FAIL: main_wrong_type_fail.cmp
[java] Main procedure can't return anything but void.
[java] Test[9] SHOULD FAIL: nested_class_shadow_fail.cmp
```

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[java] Could not find variable.
[java] Could not find variable.
[java] BAD: Test no 9 didn't fail when it should!
[java] Test[10] SHOULD FAIL: procedure1_fail.cmp
[java] Undeclared variable b
[java] Test[11] SHOULD FAIL: procedure2_fail.cmp
[java] string should be returned, int given.
[java] Test[12] SHOULD FAIL: procedure3_fail.cmp
[java] int should be returned, void given.
[java] Test[13] SHOULD FAIL: procedure4_fail.cmp
[java] Add: argument count mismatch. 2 expected, 1 given.
[java] Test[14] SHOULD FAIL: procedure5_fail.cmp
[java] Add: Parameter 2 must be of type int, bool given.
[java] Test[15] SHOULD FAIL: procedure_calls_not_procedure_fail.cmp
[java] Call to an undefined procedure Test
[java] Test[16] SHOULD FAIL: procedure_does_not_exist_fail.cmp
[java] Call to an undefined procedure yy
[java] Test[17] SHOULD FAIL: procedure_name_used_fail.cmp
[java] Duplicate declaration of Tmp in procedure Main
[java] Test[18] SHOULD FAIL: procedure_no_return_fail.cmp
[java] Procedure test should return string but there is no return statement.
[java] Test[19] SHOULD PASS: procedure_return_null.cmp
[java] Test[20] SHOULD FAIL: procedure_unknown_return_type_fail.cmp
[java] Unknown return type notexist
[java] Test[21] SHOULD FAIL: return_contradicting_expression_fail.cmp
[java] void should be returned, int given.
[java] Test[22] SHOULD PASS: test1.cmp
[java] Test[23] SHOULD PASS: test3.cmp
[java] Could not find variable.
[java] Test[24] SHOULD PASS: test4.cmp
[java] Test[25] SHOULD PASS: test5.cmp
[java] Proc: Parameter 1 must be of type (REF int), ref_a given.
[java] BAD: Test no 25 failed when it shouldn't!
[java] Error: null
[java] Test[26] SHOULD PASS: test_nested_scopes.cmp
[java] Could not find variable.
[java] Test[27] SHOULD FAIL: type1_fail.cmp
[java] int cannot be assigned to bool
[java] Test[28] SHOULD FAIL: type2_fail.cmp
[java] If condition must be boolean, int given.
[java] Test[29] SHOULD FAIL: type3_fail.cmp
[java] float cannot be assigned to int
[java] Test[30] SHOULD FAIL: type4_fail.cmp
[java] While condition must be boolean, float given.
[java] Test[31] SHOULD FAIL: type5_fail.cmp
[java] Undeclared variable Foo

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[java] Test[32] SHOULD FAIL: type6_fail.cmp
[java] Undeclared variable Foo
[java] Test[33] SHOULD FAIL: type7_fail.cmp
[java] Undeclared variable DoesntExist
[java] Test[34] SHOULD FAIL: undeclared_class_fail.cmp
[java] Undeclared variable bar
[java] Test[35] SHOULD FAIL: undeclared_class_var_fail.cmp
[java] Undeclared variable bar
[java] Test[36] SHOULD FAIL: undeclared_new_argument_fail.cmp
[java] void should be returned, foobar given.
[java] Test[37] SHOULD FAIL: variable_scope_shadow_fail.cmp
[java] Duplicate declaration of flag in procedure change_flag
[java] Test[38] SHOULD FAIL: wrong_arith_operand_type_fail.cmp
[java] LHS of arithmetic operation must be int or float, bool given.
[java] Test[39] SHOULD FAIL: wrong_log_exp_type_fail.cmp
[java] Second argument of logic operation invalid: bool expected, int given.
[java] Test[40] SHOULD FAIL: wrong_new_arg_type_fail.cmp
[java] void should be returned, f given.
[java] Test[41] SHOULD FAIL: wrong_not_operand_type_fail.cmp
[java] Not: operand type must be bool, string given.
[java] Test[42] SHOULD FAIL: wrong_rel_operand_type_fail.cmp
[java] Invalid relation operation arguments: int and bool
[java] Some tests failed (3 / 42)

```

Print from RunMe.bin

```

list-runme:
[java] Loading from file: code-examples/RunMe.bin
[java] Variables:
[java] 0: var Complex dummy
[java] Procedures:
[java] 0: proc int readint()
[java] 1: proc float readfloat()
[java] 2: proc int readchar()
[java] 3: proc string readstring()
[java] 4: proc string readline()
[java] 5: proc void printint()
[java] 6: proc void printfloat()
[java] 7: proc void printstr()
[java] 8: proc void printline()
[java] 9: proc Complex Add(Complex 0, Complex 1)
[java]     var Complex 2
[java]     0: new Complex
[java]     3: storelocal 2
[java]     6: loadlocal 0

```

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[java]      9: loadlocal -1
[java]     12: loadlocal 1
[java]     15: loadlocal -1
[java]     18: add
[java]     19: loadlocal 0
[java]     22: loadlocal -1
[java]     25: loadlocal 1
[java]     28: loadlocal -1
[java]     31: add
[java]     32: loadlocal 2
[java]     35: return
[java]  10: proc int Max(int 0, int 1)
[java]      var int 2
[java]      0: loadlocal 0
[java]      3: loadlocal 1
[java]      6: gt
[java]      7: jmpfalse 19
[java]     10: loadlocal 0
[java]     13: storelocal 2
[java]     16: jmp 26
[java]     19: nop
[java]     20: loadlocal 1
[java]     23: storelocal 2
[java]     26: nop
[java]     27: loadlocal 2
[java]     30: return
[java]  11: proc void printCmplx(Complex 0)
[java]      0: pushstring "Real "
[java]      3: call printstr {7}
[java]      6: loadlocal 0
[java]      9: loadlocal -1
[java]     12: call printfloat {6}
[java]     15: pushstring ""
[java]     18: call printline {8}
[java]     21: pushstring "Imag "
[java]     24: call printstr {7}
[java]     27: loadlocal 0
[java]     30: loadlocal -1
[java]     33: call printfloat {6}
[java]     36: pushstring ""
[java]     39: call printline {8}
[java]  12: proc void test()
[java]      var Complex 0
[java]      var Complex 1
[java]      var Complex 2
[java]      var int 3

```

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[java]      var int 4
[java]      var int 5
[java]      0: new Complex
[java]      3: storelocal 0
[java]      6: new Complex
[java]      9: storelocal 1
[java]      12: pushint 1
[java]      17: pushint 2
[java]      22: pushint 3
[java]      27: pushint 4
[java]      32: loadlocal 0
[java]      35: loadlocal 1
[java]      38: call Add {9}
[java]      41: call printCmplx {11}
[java]      44: pushint 3
[java]      49: storelocal 3
[java]      52: pushint 7
[java]      57: storelocal 4
[java]      60: loadlocal 4
[java]      63: loadlocal 3
[java]      66: call Max {10}
[java]      69: storelocal 5
[java] 13: proc void printStr(string 0)
[java]      0: loadlocal 0
[java]      3: call printstr {7}
[java] 14: proc void inOutTest()
[java]      var int 0
[java]      var int 1
[java]      0: pushstring "skriv v1"
[java]      3: call printline {8}
[java]      6: call readint {0}
[java]      9: storelocal 0
[java]      12: pushstring "skriv v2"
[java]      15: call printline {8}
[java]      18: call readint {0}
[java]      21: storelocal 1
[java]      24: pushstring "Storst "
[java]      27: call printstr {7}
[java]      30: loadlocal 0
[java]      33: loadlocal 1
[java]      36: call Max {10}
[java]      39: call printint {5}
[java]      42: pushstring ""
[java]      45: call printline {8}
[java] 15: proc void Main()
[java]      var float 0

```

```

[java]    var int 1
[java]    var string 2
[java]    0: pushfloat 6.48074
[java]    5: storelocal 0
[java]    8: loadlocal 0
[java]    11: call printfloat {6}
[java]    14: pushstring ""
[java]    17: call println {8}
[java]    20: pushint 7
[java]    25: storelocal 1
[java]    28: loadlocal 1
[java]    31: call printint {5}
[java]    34: pushstring ""
[java]    37: call println {8}
[java]    40: pushstring "TestNavn"
[java]    43: storelocal 2
[java]    46: loadlocal 2
[java]    49: call printStr {13}
[java]    52: pushstring ""
[java]    55: call println {8}
[java]    58: call test {12}
[java]    61: call inOutTest {14}
[java]    64: new Complex
[java]    67: storeglobal dummy{Complex}
[java]    70: pushfloat 1.0
[java]    75: pushfloat 2.0
[java]    80: loadlocal -1
[java]    83: call printCmplx {11}
[java]    86: pushstring "DONE"
[java]    89: call println {8}
[java] Structs:
[java] 0: Complex
[java]   0: float
[java]   1: float
[java] Constants:
[java] 0: Real
[java] 1:
[java] 2: Imag
[java] 3:
[java] 4: skriv v1
[java] 5: skriv v2
[java] 6: Storst
[java] 7:
[java] 8:
[java] 9:
[java] 10: TestNavn

```

```
[java] 11:  
[java] 12: DONE  
[java] STARTWITH: Main
```