Peephole runs

COMP 520: Compiler Design (4 credits)

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```
 → SCAN  →  PARSE  →  WEED
                           ↓
  RESOURCE ←  TYPE  ← SYMBOL
     ↓
   CODE  → OPTIMIZE → EMIT →
```

func main()

11001
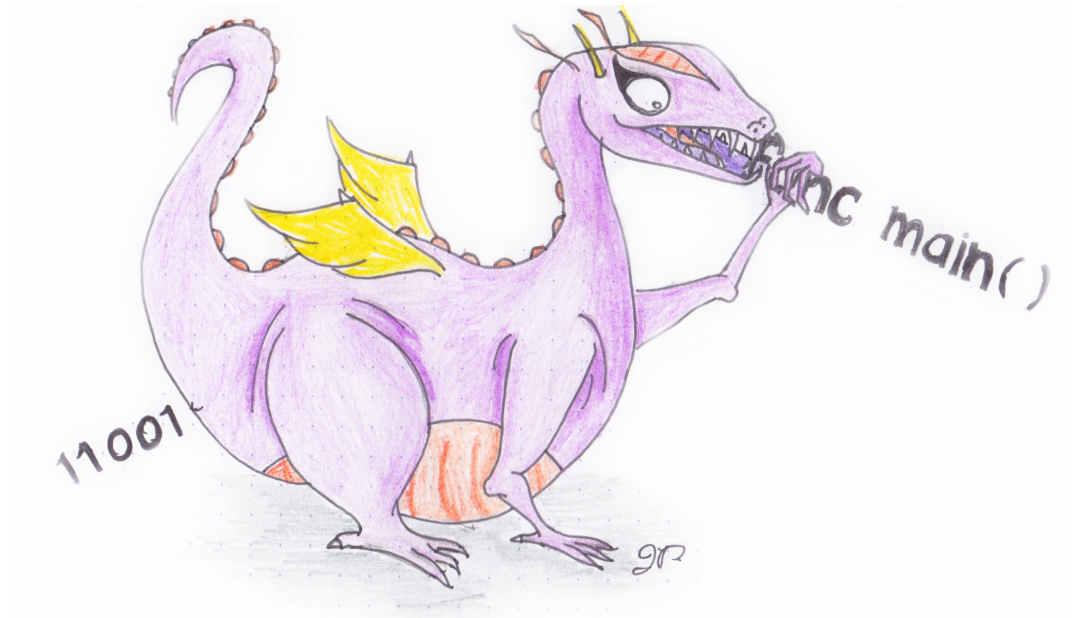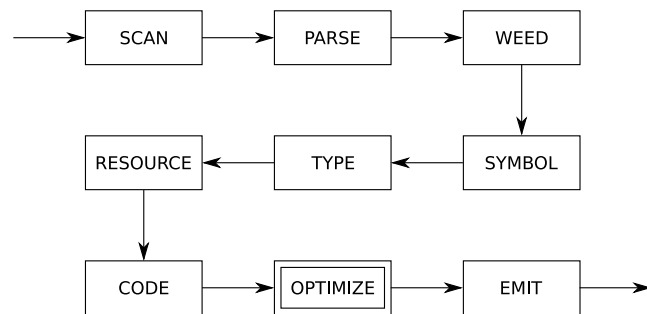
WendyTheWhitespace-IntolerantDragon

WendyTheWhitespacenogarDtnarelotnI

```
/****** Old style - still works, but better to use new style.
#define OPTS 4

OPTI optimization[OPTS] = {simplify_multiplication_right,
                          simplify_astore,
                          positive_increment,
                          simplify_goto_goto};
*******/

/* new style for giving patterns */

int init_patterns()
  { ADD_PATTERN(simplify_multiplication_right);
    ADD_PATTERN(simplify_astore);
    ADD_PATTERN(positive_increment);
    ADD_PATTERN(simplify_goto_goto);
    return 1;
  }
```

```csh
#!/bin/csh
# djas - java dejasmin
java -classpath `cygpath -wp $PEEPDIR/tinapoc.jar:$PEEPDIR/bcel-5.1.jar`
   dejasmin $*
```

```csh
#!/usr/bin/env csh
# joosc: compiles JOOS source programs into class files using the A- JOOS
# compiler.
# usage: joosc [-O] f1.java f2.java ... fn.joos
# note: you should name each source file for ordinary classes with
#       .java extensions and all external classes with .joos extensions
if ( { $PEEPDIR/joos $* } ) then
  foreach f ( $* )
    if ( $f != "-O" && $f:e != "joos" ) then
      java -jar `cygpath -w $PEEPDIR/jasmin.jar` $f:r.j
      if ( $1 == "-O" ) then
        $PEEPDIR/djas -w $f:r.class > $f:r.optdump
      else
        $PEEPDIR/djas -w $f:r.class > $f:r.dump
      endif
    endif
  end
  echo "----- Method code sizes ----"
  if ( $1 == "-O" ) then
    grep code_length *.optdump
  else
    grep code_length *.dump
  endif
endif
```

```
PeepholeBenchmarks/bench01/BacktrackSolver.optdump:;                    code_length 5
PeepholeBenchmarks/bench01/BacktrackSolver.optdump:;                    code_length 36
PeepholeBenchmarks/bench01/BacktrackSolver.optdump:;                    code_length 36
PeepholeBenchmarks/bench01/BacktrackSolver.optdump:;                    code_length 31
PeepholeBenchmarks/bench01/BacktrackSolver.optdump:;                    code_length 31
PeepholeBenchmarks/bench01/BacktrackSolver.optdump:;                    code_length 68
PeepholeBenchmarks/bench01/BacktrackSolver.optdump:;                    code_length 48
PeepholeBenchmarks/bench01/BacktrackSolver.optdump:;                    code_length 125
PeepholeBenchmarks/bench01/BacktrackSolver.optdump:;                    code_length 24
PeepholeBenchmarks/bench01/BacktrackSolver.optdump:;                    code_length 7
PeepholeBenchmarks/bench01/Benchmark.optdump:;                 code_length 5
PeepholeBenchmarks/bench01/Benchmark.optdump:;                 code_length 70
PeepholeBenchmarks/bench01/SudokuSolver.optdump:;               code_length 5
PeepholeBenchmarks/bench01/SudokuSolver.optdump:;               code_length 106
PeepholeBenchmarks/bench01/SudokuSolver.optdump:;               code_length 298

PeepholeBenchmarks/bench02/Interpretor.optdump:;                    code_length 40
PeepholeBenchmarks/bench02/Interpretor.optdump:;                    code_length 36
PeepholeBenchmarks/bench02/Interpretor.optdump:;                    code_length 31
PeepholeBenchmarks/bench02/Interpretor.optdump:;                    code_length 13
PeepholeBenchmarks/bench02/Interpretor.optdump:;                    code_length 7
PeepholeBenchmarks/bench02/Interpretor.optdump:;                    code_length 76
PeepholeBenchmarks/bench02/Interpretor.optdump:;                    code_length 50
PeepholeBenchmarks/bench02/Interpretor.optdump:;                    code_length 29
PeepholeBenchmarks/bench02/Main.optdump:;                 code_length 5
PeepholeBenchmarks/bench02/Main.optdump:;                 code_length 40

PeepholeBenchmarks/bench03/Conversion.optdump:;                    code_length 1722
PeepholeBenchmarks/bench03/Conversion.optdump:;                    code_length 18
PeepholeBenchmarks/bench03/Conversion.optdump:;                    code_length 25
PeepholeBenchmarks/bench03/Decoder.optdump:;                 code_length 29
PeepholeBenchmarks/bench03/Decoder.optdump:;                 code_length 642
```

```
PeepholeBenchmarks/bench03/Encoder.optdump:;              code_length 29
PeepholeBenchmarks/bench03/Encoder.optdump:;              code_length 591
PeepholeBenchmarks/bench03/Main.optdump:;            code_length 5
PeepholeBenchmarks/bench03/Main.optdump:;            code_length 63

PeepholeBenchmarks/bench04/Board.optdump:;               code_length 116
PeepholeBenchmarks/bench04/Board.optdump:;               code_length 5
PeepholeBenchmarks/bench04/Board.optdump:;               code_length 5
PeepholeBenchmarks/bench04/Board.optdump:;               code_length 21
PeepholeBenchmarks/bench04/Board.optdump:;               code_length 55
PeepholeBenchmarks/bench04/Board.optdump:;               code_length 60
PeepholeBenchmarks/bench04/Board.optdump:;               code_length 26
PeepholeBenchmarks/bench04/Board.optdump:;               code_length 20
PeepholeBenchmarks/bench04/Board.optdump:;               code_length 11
PeepholeBenchmarks/bench04/Board.optdump:;               code_length 132
PeepholeBenchmarks/bench04/Board.optdump:;               code_length 84
PeepholeBenchmarks/bench04/Board.optdump:;               code_length 49
PeepholeBenchmarks/bench04/Board.optdump:;               code_length 142
PeepholeBenchmarks/bench04/Board.optdump:;               code_length 510
PeepholeBenchmarks/bench04/Board.optdump:;               code_length 70
PeepholeBenchmarks/bench04/BombMove.optdump:;             code_length 5
PeepholeBenchmarks/bench04/BombMove.optdump:;             code_length 53
PeepholeBenchmarks/bench04/BombMove.optdump:;             code_length 3
PeepholeBenchmarks/bench04/ClassicMove.optdump:;            code_length 5
PeepholeBenchmarks/bench04/ClassicMove.optdump:;            code_length 8
PeepholeBenchmarks/bench04/ClassicMove.optdump:;            code_length 3
PeepholeBenchmarks/bench04/DiagBombMove.optdump:;           code_length 5
PeepholeBenchmarks/bench04/DiagBombMove.optdump:;           code_length 215
PeepholeBenchmarks/bench04/DiagBombMove.optdump:;           code_length 3
PeepholeBenchmarks/bench04/FlipBoardMove.optdump:;           code_length 5
PeepholeBenchmarks/bench04/FlipBoardMove.optdump:;           code_length 140
PeepholeBenchmarks/bench04/FlipBoardMove.optdump:;           code_length 3
```

```
PeepholeBenchmarks/bench04/Game.optdump:;                code_length 88
PeepholeBenchmarks/bench04/Game.optdump:;                code_length 45
PeepholeBenchmarks/bench04/Game.optdump:;                code_length 78
PeepholeBenchmarks/bench04/Game.optdump:;                code_length 94
PeepholeBenchmarks/bench04/Game.optdump:;                code_length 5
PeepholeBenchmarks/bench04/Game.optdump:;                code_length 5
PeepholeBenchmarks/bench04/Game.optdump:;                code_length 5
PeepholeBenchmarks/bench04/Game.optdump:;                code_length 21
PeepholeBenchmarks/bench04/Game.optdump:;                code_length 18
PeepholeBenchmarks/bench04/Game.optdump:;                code_length 31
PeepholeBenchmarks/bench04/Game.optdump:;                code_length 21
PeepholeBenchmarks/bench04/Game.optdump:;                code_length 85
PeepholeBenchmarks/bench04/Game.optdump:;                code_length 141
PeepholeBenchmarks/bench04/Game.optdump:;                code_length 167
PeepholeBenchmarks/bench04/Game.optdump:;                code_length 67
PeepholeBenchmarks/bench04/Game.optdump:;                code_length 15
PeepholeBenchmarks/bench04/Game.optdump:;                code_length 138
PeepholeBenchmarks/bench04/Game.optdump:;                code_length 88
PeepholeBenchmarks/bench04/Game.optdump:;                code_length 65
PeepholeBenchmarks/bench04/KillColumnMove.optdump:;          code_length 5
PeepholeBenchmarks/bench04/KillColumnMove.optdump:;          code_length 29
PeepholeBenchmarks/bench04/KillColumnMove.optdump:;          code_length 3
PeepholeBenchmarks/bench04/KillRowAndColumnMove.optdump:;        code_length 5
PeepholeBenchmarks/bench04/KillRowAndColumnMove.optdump:;        code_length 57
PeepholeBenchmarks/bench04/KillRowAndColumnMove.optdump:;        code_length 3
PeepholeBenchmarks/bench04/KillRowMove.optdump:;          code_length 5
PeepholeBenchmarks/bench04/KillRowMove.optdump:;          code_length 29
PeepholeBenchmarks/bench04/KillRowMove.optdump:;          code_length 3
PeepholeBenchmarks/bench04/Move.optdump:;          code_length 5
PeepholeBenchmarks/bench04/Strategy.optdump:;           code_length 5

PeepholeBenchmarks/bench05/CustomPoint.optdump:;             code_length 15
```

```
PeepholeBenchmarks/bench05/CustomPoint.optdump:;           code_length 15
PeepholeBenchmarks/bench05/CustomPoint.optdump:;           code_length 5
PeepholeBenchmarks/bench05/CustomPoint.optdump:;           code_length 5
PeepholeBenchmarks/bench05/Dungeon.optdump:;             code_length 22
PeepholeBenchmarks/bench05/Dungeon.optdump:;             code_length 314
PeepholeBenchmarks/bench05/Dungeon.optdump:;             code_length 310
PeepholeBenchmarks/bench05/Dungeon.optdump:;             code_length 25
PeepholeBenchmarks/bench05/DungeonGenerator.optdump:;          code_length 5
PeepholeBenchmarks/bench05/DungeonGenerator.optdump:;          code_length 34
PeepholeBenchmarks/bench05/DungeonInfos.optdump:;          code_length 9
PeepholeBenchmarks/bench05/DungeonInfos.optdump:;          code_length 73
PeepholeBenchmarks/bench05/DungeonInfos.optdump:;          code_length 231
PeepholeBenchmarks/bench05/DungeonInfos.optdump:;          code_length 5
PeepholeBenchmarks/bench05/DungeonInfos.optdump:;          code_length 5
PeepholeBenchmarks/bench05/DungeonInfos.optdump:;          code_length 5
PeepholeBenchmarks/bench05/DungeonInfos.optdump:;          code_length 5
PeepholeBenchmarks/bench05/DungeonInfos.optdump:;          code_length 5
PeepholeBenchmarks/bench05/DungeonInfos.optdump:;          code_length 5

PeepholeBenchmarks/bench06/AmazingCalculator.optdump:;         code_length 5
PeepholeBenchmarks/bench06/AmazingCalculator.optdump:;         code_length 17
PeepholeBenchmarks/bench06/AmazingCalculator.optdump:;         code_length 1
PeepholeBenchmarks/bench06/ComplementsGenerator.optdump:;        code_length 18
PeepholeBenchmarks/bench06/ComplementsGenerator.optdump:;        code_length 866
PeepholeBenchmarks/bench06/ComplementsGenerator.optdump:;        code_length 5
PeepholeBenchmarks/bench06/ComplementsGenerator.optdump:;        code_length 104
PeepholeBenchmarks/bench06/ComplementsGenerator.optdump:;        code_length 95
PeepholeBenchmarks/bench06/ComplementsGenerator.optdump:;        code_length 104
PeepholeBenchmarks/bench06/FemaleBoss.optdump:;           code_length 5
PeepholeBenchmarks/bench06/FemaleBoss.optdump:;           code_length 358
PeepholeBenchmarks/bench06/GirlFriend.optdump:;           code_length 5
PeepholeBenchmarks/bench06/GirlFriend.optdump:;           code_length 789
```

```
PeepholeBenchmarks/bench06/Main.optdump:;              code_length 5
PeepholeBenchmarks/bench06/Main.optdump:;              code_length 401
PeepholeBenchmarks/bench06/Woman.optdump:;              code_length 5
PeepholeBenchmarks/bench06/Woman.optdump:;              code_length 6


PeepholeBenchmarks/bench07/BFRoomAction.optdump:;              code_length 5
PeepholeBenchmarks/bench07/BFRoomAction.optdump:;              code_length 10
PeepholeBenchmarks/bench07/BFRoomAction.optdump:;              code_length 120
PeepholeBenchmarks/bench07/CoinRoomAction.optdump:;              code_length 10
PeepholeBenchmarks/bench07/CoinRoomAction.optdump:;              code_length 35
PeepholeBenchmarks/bench07/CoinRoomAction.optdump:;              code_length 216
PeepholeBenchmarks/bench07/EmptyRoomAction.optdump:;              code_length 5
PeepholeBenchmarks/bench07/EmptyRoomAction.optdump:;              code_length 10
PeepholeBenchmarks/bench07/EmptyRoomAction.optdump:;              code_length 6
PeepholeBenchmarks/bench07/ExitRoomAction.optdump:;              code_length 5
PeepholeBenchmarks/bench07/ExitRoomAction.optdump:;              code_length 10
PeepholeBenchmarks/bench07/ExitRoomAction.optdump:;              code_length 79
PeepholeBenchmarks/bench07/FactorialRoomAction.optdump:;              code_length 5
PeepholeBenchmarks/bench07/FactorialRoomAction.optdump:;              code_length 10
PeepholeBenchmarks/bench07/FactorialRoomAction.optdump:;              code_length 224
PeepholeBenchmarks/bench07/FactorialRoomAction.optdump:;              code_length 40
PeepholeBenchmarks/bench07/FeastRoomAction.optdump:;              code_length 5
PeepholeBenchmarks/bench07/FeastRoomAction.optdump:;              code_length 10
PeepholeBenchmarks/bench07/FeastRoomAction.optdump:;              code_length 165
PeepholeBenchmarks/bench07/GrueRoomAction.optdump:;              code_length 5
PeepholeBenchmarks/bench07/GrueRoomAction.optdump:;              code_length 100
PeepholeBenchmarks/bench07/HuntRoomAction.optdump:;              code_length 78
PeepholeBenchmarks/bench07/HuntRoomAction.optdump:;              code_length 87
PeepholeBenchmarks/bench07/HuntRoomAction.optdump:;              code_length 646
PeepholeBenchmarks/bench07/InGenerate.optdump:;              code_length 17
PeepholeBenchmarks/bench07/InGenerate.optdump:;              code_length 179
PeepholeBenchmarks/bench07/InGenerate.optdump:;              code_length 20
```

```
PeepholeBenchmarks/bench07/JokeRoomAction.optdump:;          code_length 5
PeepholeBenchmarks/bench07/JokeRoomAction.optdump:;          code_length 10
PeepholeBenchmarks/bench07/JokeRoomAction.optdump:;          code_length 160
PeepholeBenchmarks/bench07/JokeRoomAction.optdump:;          code_length 194
PeepholeBenchmarks/bench07/Room.optdump:;          code_length 491
PeepholeBenchmarks/bench07/Room.optdump:;          code_length 25
PeepholeBenchmarks/bench07/Room.optdump:;          code_length 12
PeepholeBenchmarks/bench07/Room.optdump:;          code_length 5
PeepholeBenchmarks/bench07/Room.optdump:;          code_length 5
PeepholeBenchmarks/bench07/Room.optdump:;          code_length 5
PeepholeBenchmarks/bench07/Room.optdump:;          code_length 5
PeepholeBenchmarks/bench07/Room.optdump:;          code_length 5
PeepholeBenchmarks/bench07/Room.optdump:;          code_length 107
PeepholeBenchmarks/bench07/Room.optdump:;          code_length 114
PeepholeBenchmarks/bench07/RoomAction.optdump:;          code_length 29
PeepholeBenchmarks/bench07/RoomAction.optdump:;          code_length 10
PeepholeBenchmarks/bench07/RoomAction.optdump:;          code_length 120
PeepholeBenchmarks/bench07/RoomAction.optdump:;          code_length 20
PeepholeBenchmarks/bench07/TreasureRoomAction.optdump:;          code_length 10
PeepholeBenchmarks/bench07/TreasureRoomAction.optdump:;          code_length 35
PeepholeBenchmarks/bench07/TreasureRoomAction.optdump:;          code_length 143
```

Assume the result of the grep is put in files with suffix .size.

```
awk '{sum += $3} END {print sum}' *.size
```

On the 7 benchmarks training files

- No opt: 19152 bytes

- A- opt: 18916 bytes

- A+ opt: 14920 bytes (22.1% decrease)

- 2015 winner: 14839 bytes