Compiler for the very simple language, VSL

Final report in TDT4205

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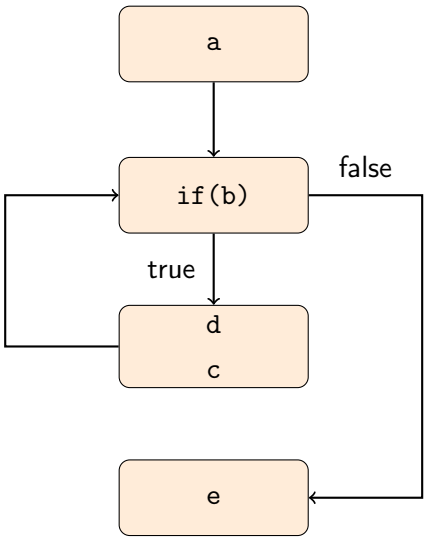
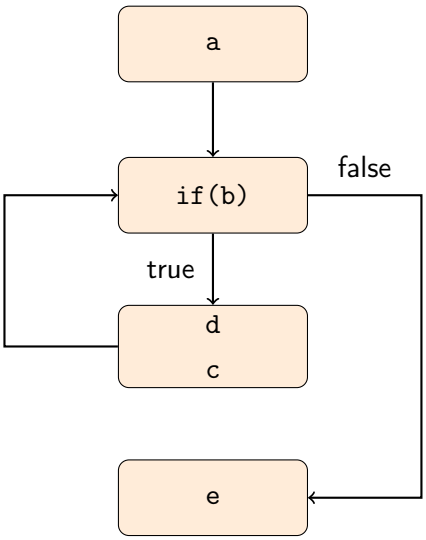
1 Theory

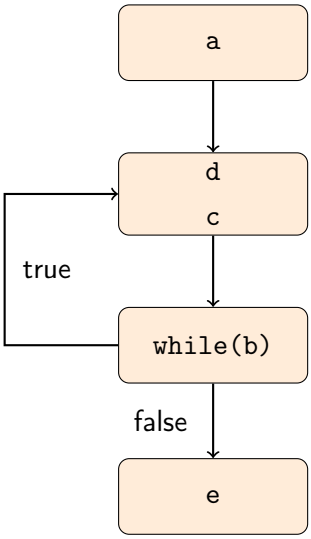
1.1 Control flow graphs



(a) Control flow graph for for loop



(b) Control flow graph for while loop



(c) Control flow graph for do-while loop

1.2 Program fragment

1.2.1 Control flow graph of program fragment

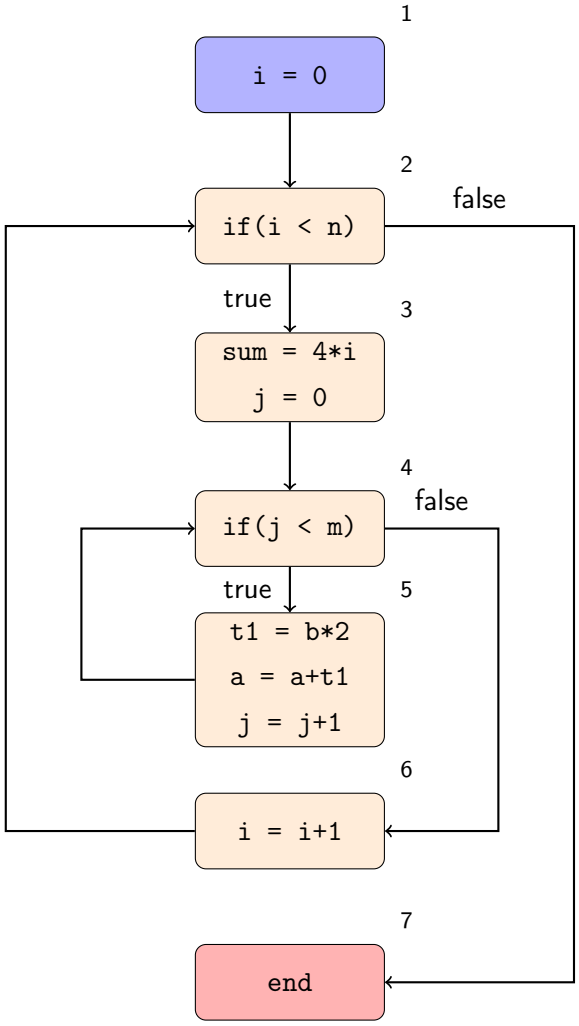


Figure 2: Control flow graph for program fragment

1.2.2 Dominator equations

$$D(1) = \{1\} \tag{1a}$$
$$D(2) = D(1) \cup \{2\} = \{1, 2\} \tag{1b}$$
$$D(3) = D(2) \cup \{3\} = \{1, 2, 3\} \tag{1c}$$
$$D(4) = D(3) \cup \{4\} = \{1, 2, 3, 4\} \tag{1d}$$
$$D(5) = D(4) \cup \{5\} = \{1, 2, 3, 4, 5\} \tag{1e}$$
$$D(6) = D(4) \cup \{6\} = \{1, 2, 3, 4, 6\} \tag{1f}$$
$$D(7) = D(2) \cup \{7\} = \{1, 2, 7\} \tag{1g}$$

1.2.3 Dominator tree

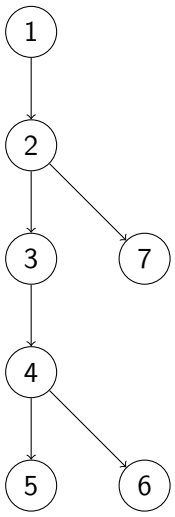


Figure 3: Dominator tree from equations in section 1.2.2

2 Code

See attached code. Run bash run_all.sh to compile compiler, compile vsl-programs and run with predetermined input.