CSE 231 Spring 1998

HW 1 Due Tues Apr 7

Reading: Ch 7 in the text.

Problems:
Consider the following code:

```
<s1>              a := 1
<s2>              b := 2
<s3>      L1:     c := a + b
<s4>              d := c - a
<s5>              if (...) then go to L3
<s6>      L2:     d := b * d
<s7>              if (...) then go to L3
<s8>              d := a + b
<s9>              e := d + 5
<s10>             go to L2
<s11>     L3:     b := a + b
<s12>             e := c - a
<s13>             if (...) then go to L1
<s14>             a := b * d
<s15>             b := a - d
<s16>     L4:     e := e - c
<s17>             f := e - a
```

1. Give the Control Flow Graph for the code, showing the basic blocks and the edges between them.
2. Give the Dominator Tree for your CFG.
3. Give a Depth First Spanning tree of the CFG, and show a preorder numbering of the nodes.
4. Determine the back, forward and cross edges for your numbering.
5. Is the control flow graph reducible?