```
gcd:
      cmp  r0, r1      ; compare r0 and r1
      beq  end         ; branch if r0 == r1
      blt  less        ; branch if r0 < r1
      sub  r0, r0, r1  ; r0 = r0 - r1
      b    gcd         ; branch to label gcd
less:
      sub  r1, r1, r0  ; r1 = r1 - r0
      b    gcd         ; branch to label gcd
end:
      add  r1, r1, r0  ; r1 = r1 + r0
      mov  r3, r1      ; r3 = r1
```