CSC 345 Lab – Register Allocation

Overview

Do register mappings for the given virtual register assembly code and number of physical registers.

For each problem do the following:

- Map virtual registers to physical registers.
- Write the code using the physical registers.
- Add spilling code if necessary.

Problem 1

Assume **three** physical registers.

Virtual Register Code
load r1, a
load r2, b
add r1, r2, r3
mult r2, r3, r4
print r3
print r4

Problem 2

Assume **two** physical registers.

Virtual Register Code
load r1, a
load r2, b
add r1, r2, r3
mult r2, r3, r4
print r3
print r4

Problem 3

Assume **two** physical registers.

Virtual Register Code
load r1, a
load r2, b
add r1, r2, r3
load r4, c
branchequal r1, r4, tempLabel0
print r1
:tempLabel0
print r3