Objective

This assignment is intended to further your programming experience using the MIPS instruction set and the QTSpim or MARS simulators.

To Do

a) Translate each of the following pseudocode expressions into MIPS assembly language, enter your code into a text editor, and simulate using QTSpim or MARS:

b) If (t0 < 0) then t7 = 0 – t0 else t7 = t0;

c) while (t0 != 0) {s1 = s1 + t0; t2 = t2 + 4; t0 = mem(t2) };

d) for (t1 = 99; t1 > 0; t1 = t1 – 1) v0 = v0 + t1;

b) The ideal gas law allows the calculation of volume of a gas given the pressure P, amount of the gas n, and the temperature T. The equation is:

\[ V = \frac{nRT}{P} \]

Since we only have used integer arithmetic, all numbers will be integer values with no decimal points. The constant R is 8.314 and will be specified as (8314/1000). This gives the same result. Implement the ideal gas law program where the user is prompted for and enters values for n, T, and P, and V is calculated and printed out. Be careful to implement an accurate version of this program. Your program should include a proper and useful prompt for input, and output the results in a meaningful manner.

To Turn In

a) **This assignment sheet** stapled to a **hard copy** of your solutions as follows:
   - A print out of your programs.
   - Report on the results of simulating your programs.

b) Place in the hw#5 dropbox in d2l your file(s) with the format lastname_firstname_hw5a.s or lastname_firstname_hw5b.asm