Lab Assignment 03

- Download and install SPIM for the operating system of your computer:
  http://spimsimulator.sourceforge.net
- Learn the properties of SPIM and how to use it from the web site.
- MIPS has single and double-precision floating-point instructions for adding, subtracting and multiplying and dividing. The purpose of this lab is however to develop a small floating-point arithmetic software library consisting of FADD, FSUB, and FMUL functions to perform addition, subtraction, and multiplication with single-precision operands, written completely in assembly language.
- Make space in the data segment of your program for 3 single-precision floating-point number operands A, B, and C and perform the operations $C = A + B$, $C = A - B$, and $C = A \times B$ using these functions and place the result in C. The functions should have two arguments which are the start addresses of the 1-word operands.
- Test your programs using the following inputs. First convert these numbers to the floating-point on paper:
  
  \[
  C = A + B = 12.5 + 3.5 = 16 \\
  C = A - B = 2.5 - 4.75 = -2.25 \\
  C = A \times B = 12 \times 0.25 = 3
  \]

  Then, perform your functions on SPIM with these operands, and check to see if they are correct.

  You can test your function using other input values, but make sure it works at least for the one above.
- To simplify the development, completely ignore rounding operation in your functions. Just perform truncation operation in your programs whenever it would be needed. However, produce the appropriate outputs if overflow or underflow occurs during the normalization operation. The result will have to be either a normalized floating-point number or $\pm \infty$ or Zero.
- 25% Extra Credit: Develop the single-precision floating-point division function FDIV which performs the operation $C = A/B$. Test your function using $C = 12/0.25 = 48$. 