CSI 465 Compiler Design
LAB 5: Loops

Objectives:
a) Understand how do-while, while and for loops are coded into assembly language.
b) Understand the differences in programming various loops structures.

1) Exercises:
   a) Type the following code in a program in Frances.
      
      ```
      int x = 1, y = 0;
      do {
        y = x+4;
        x = x+1;
      }while(x < 7);
      ```
   i) Write the assembly code associated with each line next to the line.
   ii) Explain exactly what is occurring in this assembly code.

   b) Type the following code in a program in Frances.
      
      ```
      int x = 1, y = 0;
      while(x < 7)
        {
          y = x + 4;
          x = x + 1;
        }
      ```
   i) Write the assembly code associated with each line next to the line.
   ii) Explain exactly what is occurring in this assembly code.
   iii) How does this differ from the do-while loop?
   iv) Is it better to use a post-test or pre-test loop when coding in C?

   c) Type the following code in a program in Frances.
      
      ```
      int x = 1, y = 0;
      for(x = 1; x<7; x=x+1)
        {
          y = x+4;
        }
      ```
   i) Write the assembly code associated with each line next to the line.
   ii) Explain exactly what is occurring in this assembly code.
   iii) How does this differ from the do-while and while loops?