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?