CSI 465 Compiler Design

LAB 7: Functions

Objectives:

a) Understand how function, calls and returns are implemented in assembly language.
b) Understand the differences between passing by value and passing by reference.

1) Exercises:
   a) Type the following code in Frances.

```
int fun()
{  int x = 5;
   x = x+7;
}
int main(){
  int x = 1, y = 2, z = 3;
}
```

      i) Write the assembly code associated with each line next to the line.
   b) Add a line in main() to call the function. How did the assembly code change?
   c) Add another line in the function to return the value 9. How did the assembly code change?
   d) Change the return line in the function to return *x* instead of the value 9. How did the assembly code change?
   e) Now, in main(), assign the function call to the variable *y*. How did the assembly code change?
   f) Add a value parameter to the function called *x* and remove the local variable *x* from the function. Send *z* as the argument to the function. How did the assembly code change?
   g) Now change the parameter to a pointer. How did the assembly code change?