

Homework 3

Assume we have following address binding table and value of registers :

Address	Value	Register	Value
0x100	0x10	%eax	0x10
0x110	0x11	%ebx	0x100
0x120	0x12		
.....			
0x190	0x19		
0x200	0x20		

Addressing

Please fill in the table below

Operand	Value
%ebx	
\$0x150	
0x170	
(%ebx)	
(%ebx,%eax)	
0x30(%ebx)	
80(%ebx,%eax,2)	

Instructions

Suppose registers and bound values will be reset as above after each instruction. Please fill in the table below: (Write all if there are more than one destinations and None if there is no destination)

Instruction	Destination	Value
addl %eax,%ebx		
subl %eax,(%ebx)		
leal 0x50(%eax), %edx		
movzbl %al, %ebx		
movsbl %bh, %ecx		

Flags

Assume the initial value of the flags is 0. Fill the table below

Instruction	OF	SF	ZF	CF
leal(%eax),%ebx				
subl %ebx, %eax				
xorl %eax, %eax				
test %eax, %ebx				

Assembly

Translate the following assembly into C codes. You can name local variables represented by `-12(%ebp)`, `-8(%ebp)`...or `a,b,c`... freely as you like. The beginning of C codes is given.

```
push    %ebp
movl    %esp,%ebp
subl    $0x10, %esp
movl    $0x3,-0xc(%ebp)
movl    $0x2,-0x8(%ebp)
movl    $0x1,-0x4(%ebp)
jmp     .L1
.L2
movl    -0x4(%ebp),%eax
movl    %eax,-0x10(%ebp)
movl    -0x8(%ebp),%eax
movl    %eax,-0x4(%ebp)
movl    -0x10(%ebp),%eax
addl    %eax,-0x8(%ebp)
addl    $0x1,-0xc(%ebp)
.L1
cmpl    $0x5,-0xc(%ebp)
jle     .L2
movl    -0x8(%ebp), %eax
leave
ret
```

```
int -0xc(%ebp) = 3;           int i = 3;
int -0x8(%ebp) = 2;          or  int b = 2;
.....
```