Homework6

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- 题目1
  - 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		

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- 题目1
  - Please fill in the table below

Operand	Value
%ebx	0X100
$0x150	0X150
0x170	0X17
(%ebx)	0X10
(%ebx,%eax)	0X11
0x30(%ebx)	0X13
80(%ebx,%eax,2)	0X17

0X50

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- 题目1
  - 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	%ebx	0x110
subl %eax,(%ebx)	0X100	0
leal 0x50(%eax), %edx	%edx	0x60
movzbl %al, %ebx	%ebx	0x00000010
movsbl %bh, %ecx	%ecx	0X00000001

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- 题目1
  - Assume the initial value of the flags is 0. Fill the table below

Instruction	OF	SF	ZF	CF
leal(%eax),%ebx	0	0	0	0
subl %ebx, %eax	0	1	0	1
xorl %eax, %eax	0	0	1	0
test %eax, %ebx	0	0	1	0

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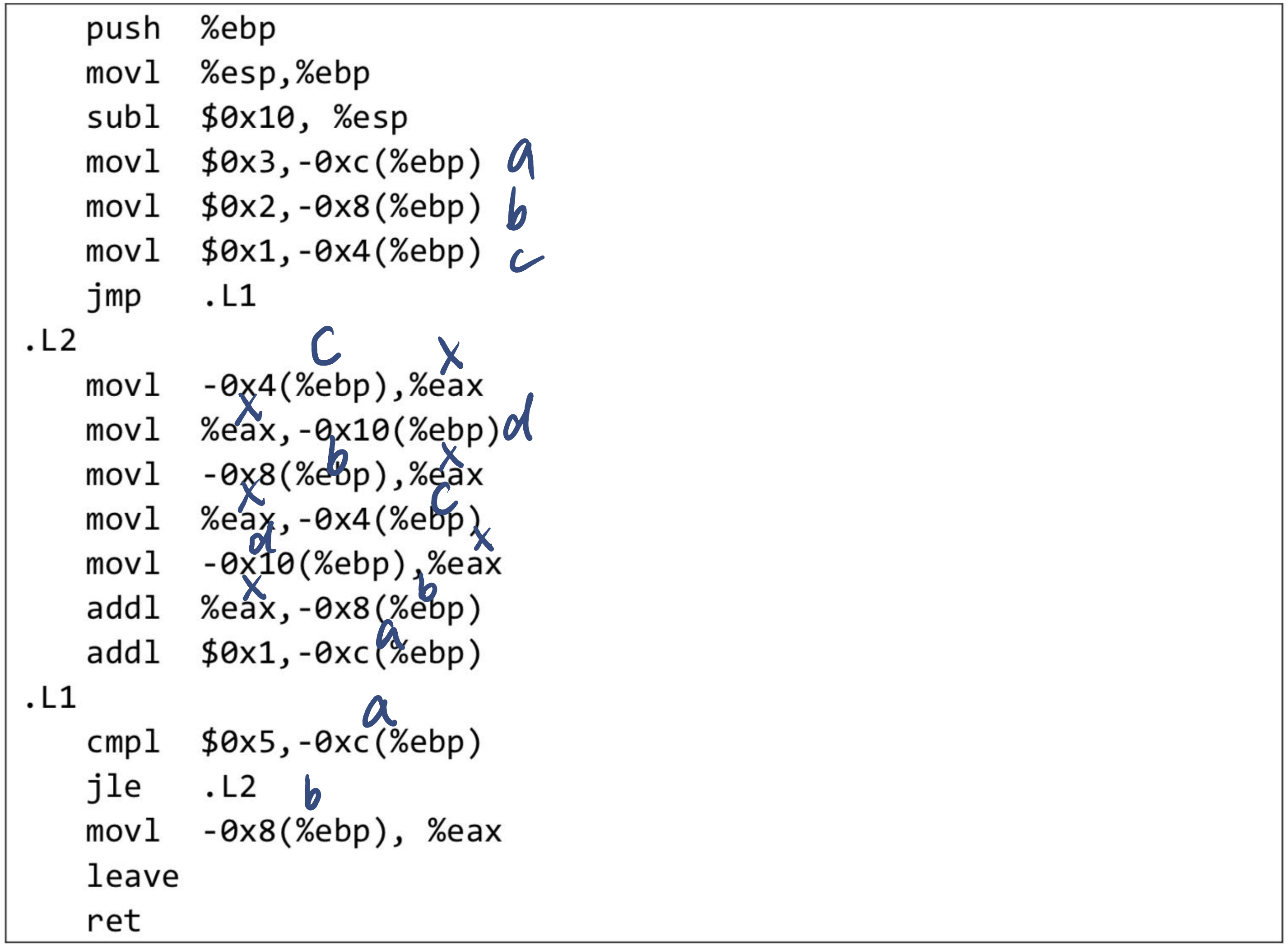
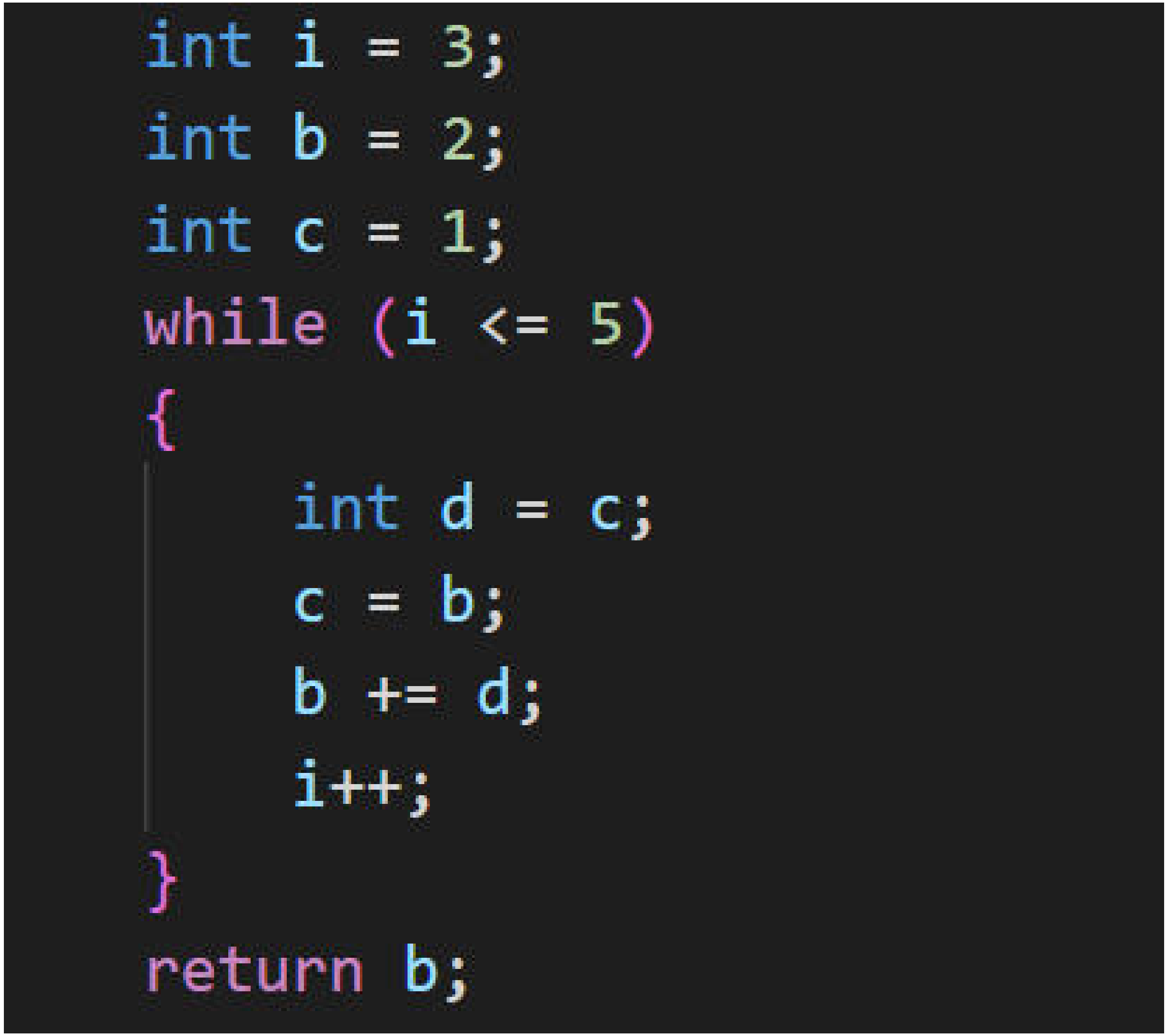
- 题目2
  - Translate the following assembly into C codes.
  - You can name local variables represented by -12(%ebp), -8(%ebp)…or a,b,c… freely as you like.
  - The beginning of C codes is given.



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

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



```
int i = 3;
int b = 2;
int c = 1;
while (i <= 5)
{
    int d = c;
    c = b;
    b += d;
    i++;
}
return b;
```