

Princeton University
COS 217: Introduction to Programming Systems
The Assembler Assignment:
Example Code for Pass 1 Mnemonic Handling

To handle the `subl` mnemonic:

```
static void Pass1_processSublMmm(Instr_T oInstr)
{
    Operand_T oOperand0;
    Operand_T oOperand1;
    int iRegNum0;
    int iRegNum1;
    char cOpCode;
    char cModRM;

    assert(oInstr != NULL);
    assert(Instr_getType(oInstr) == INSTR_MNEMONIC);
    assert(strcmp(Instr_getName(oInstr), "subl") == 0);
    assert(Instr_getOperandCount(oInstr) == 2);

    oOperand0 = Instr_getOperand(oInstr, 0);
    iRegNum0 = Operand_getRegisterNum(oOperand0);
    oOperand1 = Instr_getOperand(oInstr, 1);
    iRegNum1 = Operand_getRegisterNum(oOperand1);

    cOpCode = (char)0x29;
    Section_addBytes(oCurSection, 1, &cOpCode);

    cModRM = (char)(3 << 6);
    cModRM |= (char)(iRegNum0 << 3);
    cModRM |= (char)iRegNum1;
    Section_addBytes(oCurSection, 1, &cModRM);
}
```