**CS 245 Fall 2015**
**Assignment 2 – Parsing an R-formatted instruction**

For all assignments, be sure to:

- Include file comments at the top, listing your name, the name of the program, and briefly describe what the program does.
- Describe the register convention, and calling sequence for procedures.
- Line up instruction parts in columns: 0=labels; 1tab=opcode (instruction mnemonic); 2tabs=operands; 3-4tabs=comments.
- Include pseudo-code comments to the right of your assembly code. **Avoid** comments that tell me what the assembly does, such as: move 25 to register $s3 – I already know this. Keep your comments to the logic.

## *Program 2:* ***Parsing an R-Formatted Instruction***

In this assignment, you will take **an instruction stored in memory** (i.e., in the data section), and print its hexadecimal or decimal value for each field in the instruction, as shown below:

```
  Example:
        Instruction: 0x0388000F
        Opcode: 0x0A
        RS: 5
        RT: 6
        RD: 7
        Shift amount: 0
        Function Code: 0x0F
(This is not a true example – don't assume this data is correct.)
```

Note that the registers and shift amounts are printed in decimal, while opcode, function code and instruction are printed in hexadecimal.

This assignment will require that you properly use shifts and ands. A Syscall can print hexadecimal: specify a 34 in $v0, and the integer to print in $a0, before doing the syscall.

| | | | |
|---|---|---|---|
| print integer in hexadecimal | 34 | $a0 = integer to print | Displayed value is 8 hexadecimal digits, left-padding with zeroes if necessary. |

To verify your results, pick an R-format instruction in your program and assemble it. Compare your results from this program with what the assembler calculated.

## *Submission*

Turn this program in as homework2.asm **via paper and electronic copy**:

$ submit 245 homework2.asm

## *Grading*

Each homework assignment is worth 10 points. Be careful to include all comments and format correctly, as directed in the beginning of this file.