

## CSE222 Computer Architecture

### Homework Set 03

#### (Review)

1. Computer Architecture, Microarchitecture
2. Little-endian, big-endian
3. MIPS Instructions and Programming
  - a. Registers set: 32 registers + PC, hi, lo
  - b. R-, I-, J-type instructions and their format
  - c. Logic instructions: `and`, `or`, `nor`; `addi`, `ori`, `xori`
  - d. Shift instructions: `sllv`, `srlv`, `sra`; `sll`, `srl`, `sra`;
  - e. Arithmetic instructions: `add`, `sub`, `mult`, `div`, `mfhi`, `mflo`
  - f. Conditional instructions: `beq`, `bne`, `slt`,
  - g. Jump instructions: `j`
  - h. MIPS syscalls: code 1-4, 5-8, 10
4. MARS MIPS Simulator (IDE): edit, assemble, run and debug

#### (Exercise)

1. Write MIPS program
  - (1) Display message “`I am a college student at SCCC`”
  - (2) Prompt use to enter an integer number; enter a number; save this number to `var1`
2. Define 2 integer variables, compare and display these 2 numbers in order that the smaller number will display first
3. Input 2 integer numbers from console; check these 2 numbers and display message: “`both numbers are even`”; “`both numbers are odd`”; or “`one number is even and one is odd`”.
4. Write MIPS program to check if the computer is a big-endian or little-endian system
5. Use 3 methods to check if an integer number is the multiples of 4