Homework Assignment 2

(Due 2:10pm, Oct. 9, scan (or take a photo) and upload it in Canvas)

You can use the following instructions only for this homework.

- Instructions
  - ADD R$, R%, R&
  - ADD R$, R%, #imm
  - SUB R$, R%, R&
  - SUB R$, R%, #imm
  - AND R$, R%, R& // logical AND
  - AND R$, R%, #imm
  - ORR R$, R%, R& // logical OR
  - ORR R$, R%, #imm
  - EOR R$, R%, R& // logical XOR
  - EOR R$, R%, #imm
  - CMP R$, R%
  - CMP R$, #imm
  - BGE, BLT, BGT, BLE, BEQ, BNE, B
  - MOV R$, R%// R$ = R%
  - MOV R$, #imm
  - MOR R$, R%, LSL #imm (or LSR #imm)

1. (50 points) Write an assembly code for the following C code.

```
int a, b, c, d;
…

while ( a > b ) {
 a--;
 b++;
 while ( c <= d ) {
  c++;
  d--;
  while ( a >= d ) {
   a--;
   d += 2;
  }
 }
}
```

- Assume that a is in R0, b is in R1, c is in R2, and d is in R3.
- The exit point (the end of the code) could be just an address label.

2. (50 points) Write an assembly code for the following C code.

```
int a, b, c, d;
...

for ( a = 0 ; a < 5 ; a++ ) {
  b++;
  if ( b > a ) {
    c--;
  }
  else if ( (b <= c) && (a >= d) ) {
    d++;
  }
  else {
    b++;
  }
}
```

- Assume that a is in R0, b is in R1, c is in R2, and d is in R3.
- The exit point (the end of the code) could be just an address label.