Homework Assignment 2

(Due 2:00pm, Oct. 7, email to daehyun.kim@wsu.edu)

1. (20 points) Make an assembly source code for the following C code. You can assume that R0 is used for the variable “sum” and R1 is used for the variable “k”.

```
int sum = 0;

for ( int k = 1 ; k <= 10 ; k++ ) {
  sum = sum + k;
}
```

2. (30 points) Make an assembly source code for the following C code. You can assume that R0 is used for the variable “sum” and R1 is used for the variable “k”.

```
int sum = 0;

for ( int k = 1 ; k <= 100 ; k++ ) {
  if ( k%2 == 0 )
    sum = sum + k;
}
```

Note 1: Do not optimize the code. For example, you know that it is calculating the sum of the even numbers in the range of [1, 100]. Thus, you might modify the source code as the following:

```
int sum = 0;

for ( int k = 2 ; k <= 100 ; k+=2 ) {
  sum = sum + k;
}
```

Don’t do this. Just convert the given code to an assembly code.

Note 2: For if (k%2 == 0) (i.e., checking whether k is even or not), you can use any arithmetic or logical instructions that we have learned so far.

3. (30 points) The four registers R0, R1, R2, and R3 have some numbers. Make an assembly source code for the following task. Assuming the registers have unsigned numbers, find the register that has the largest value and set R4 to the ID of the register (the ID of R# is #). For example, if R2 has the largest value, set R4 to 2. You can assume that only one register has the largest value.