Homework Assignment 4

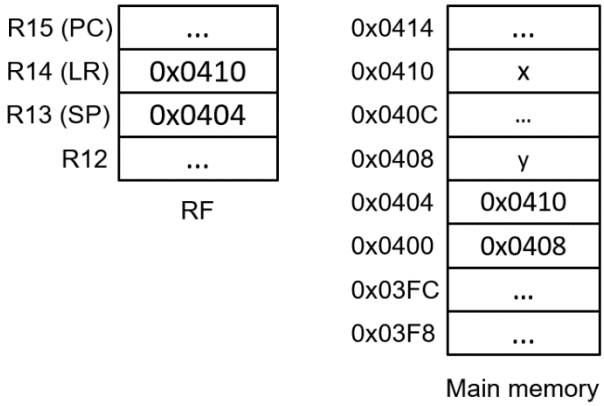
(Due 2:10pm, Dec. 6, scan (or take a photo) and upload it in Canvas)

You should use the following instructions only.

- Instructions
  - ADD, SUB, AND, ORR, EOR, MOV, **MUL**
  - CMP, BGE/BLT/BGT/BLE/BEQ/BNE
  - B, BL, BX
  - LDR, STR, PUSH, POP

1. (100 points) Write an assembly code for the "for loop" in the following C code.

```
int* x = new int[10];
int* y = new int[20];
…
for ( int k = 0 ; k < 5 ; k++ ) {
  x[2*k] = y[4*k];
}
```



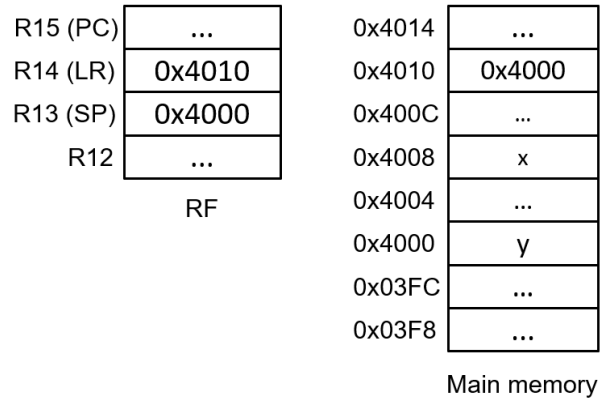
- R0-R12 are freely available.
- You can use any of R0-R12 for "int k" (i.e., you don't need to use the stack for k).

2. (100 points) Write an assembly code for the "nested for loop" (in the rectangle) in the following C code.

```
int** x = new* int[10];
int* y = new int[100];
for ( int k = 0 ; k < 10 ; k++ ) {
  x[k] = new int[10];
}

…

for ( int k = 0 ; k < 10 ; k++ ) {
  for ( int m = 0 ; m < 10 ; m++ ) {
    x[k][m] = y[10*k+m];
  }
}
```



- R0-R12 are freely available.
- You can use any of R0-R12 for "int k" and "int m" (you don't need to use the stack for them).