Lab 1

1. code and explanation

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;begin in x3000
0011 0000 0000 0000

;load the number in R0
0010 000 011111111

;shift R0 1 bit to the left and save it in R1
0001 001 000 0 00 000

;shift R0 2 bit to the left and save it in R2 ,by add R1 and R1 up
0001 010 001 0 00 001

;shift R0 3 bit to the left and save it in R3 ,by add R2 and R2 up
0001 011 010 0 00 010

;R0 and R1 and R2 and R3,save in R2
0101 010 000 0 00 010
0101 010 001 0 00 010
0101 010 011 0 00 010

;if R2 is 0,then it's not F-word,if R2 is not 0, then it is,we need to set R2 to 1

;if R2 is 0, jump to halt line
0000 010 000000010

;if R2 is not 0, set R2 to 1,by and R2,0 ,then add R2,1
0101 010 010 1 00000
0001 010 010 1 00001
;trap x25
1111 0000 0010 0101
```

First , load x3100 in R0,by add one number to itself can shift the number to the left by 1 bit , so we can shift R0 by 1 bit, 2 bits and 3 bits ,then save them in R1,R2 and R3. Second, if a number is F-word , then there must be some bit in all the four numbers that are 1s,so we can AND all the four numbers, and check if the result is 0,if it is, then it is not a F- word, if it is not 0,which means that it is a F-word , then we just need to set R2.

2. Questions from TA

TA asked me how I realize the function and I just say as what I have listed above . Check it for more details.