Alexandria University
Faculty of Engineering
Computer and Systems Engineering Department
CSE 233: Computer Organization

Assembly – Lab 4

Team Members

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First: Problem Statement

Translating the following pseudo code using Easy68k translator:

```
X = 20;
Y = 30;
If X > 50 :
    X = X + 60
    Y = Y – 10
End If
Z = X + Y – 20
```

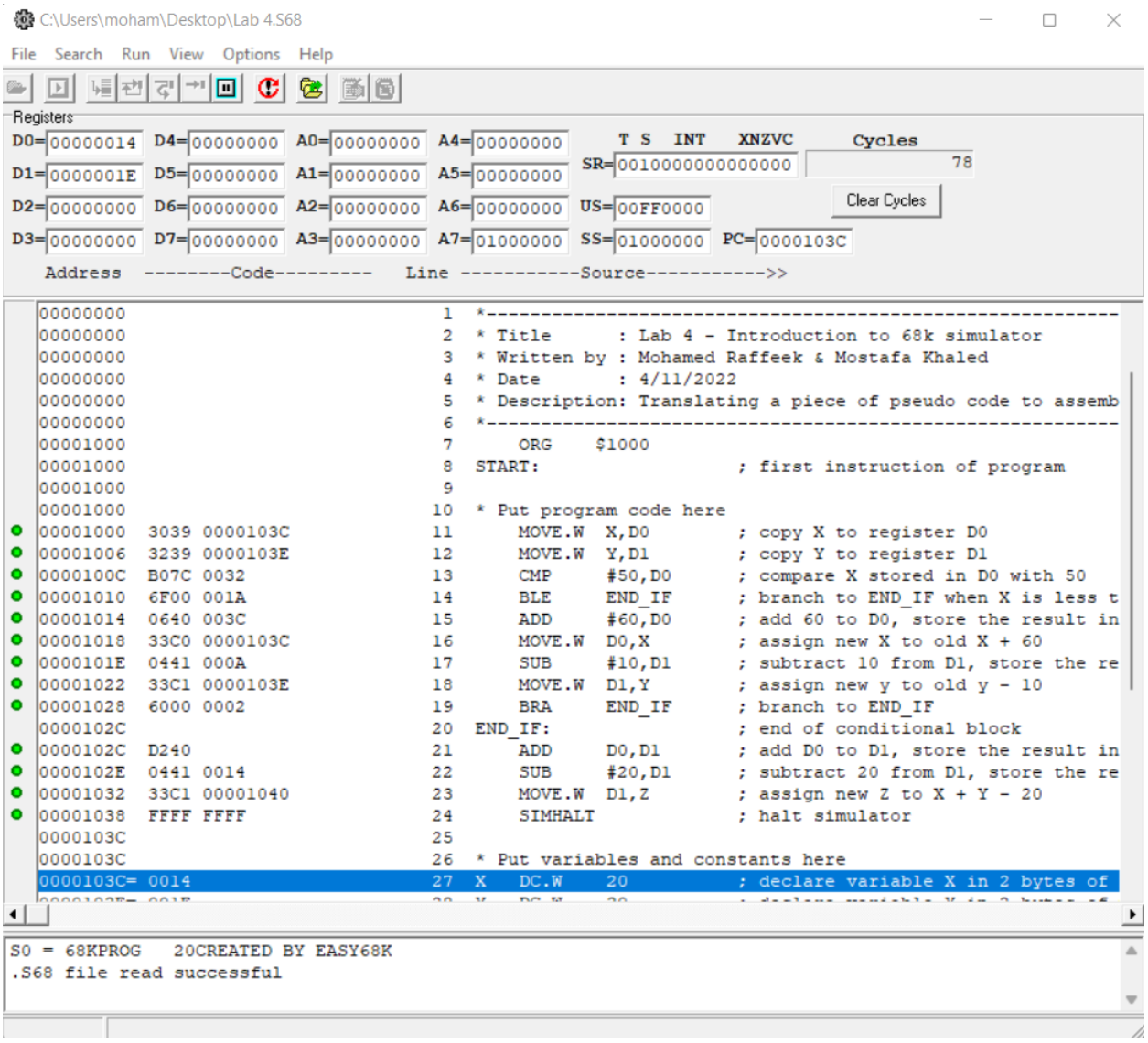
Second: Code

Lab 4.X68

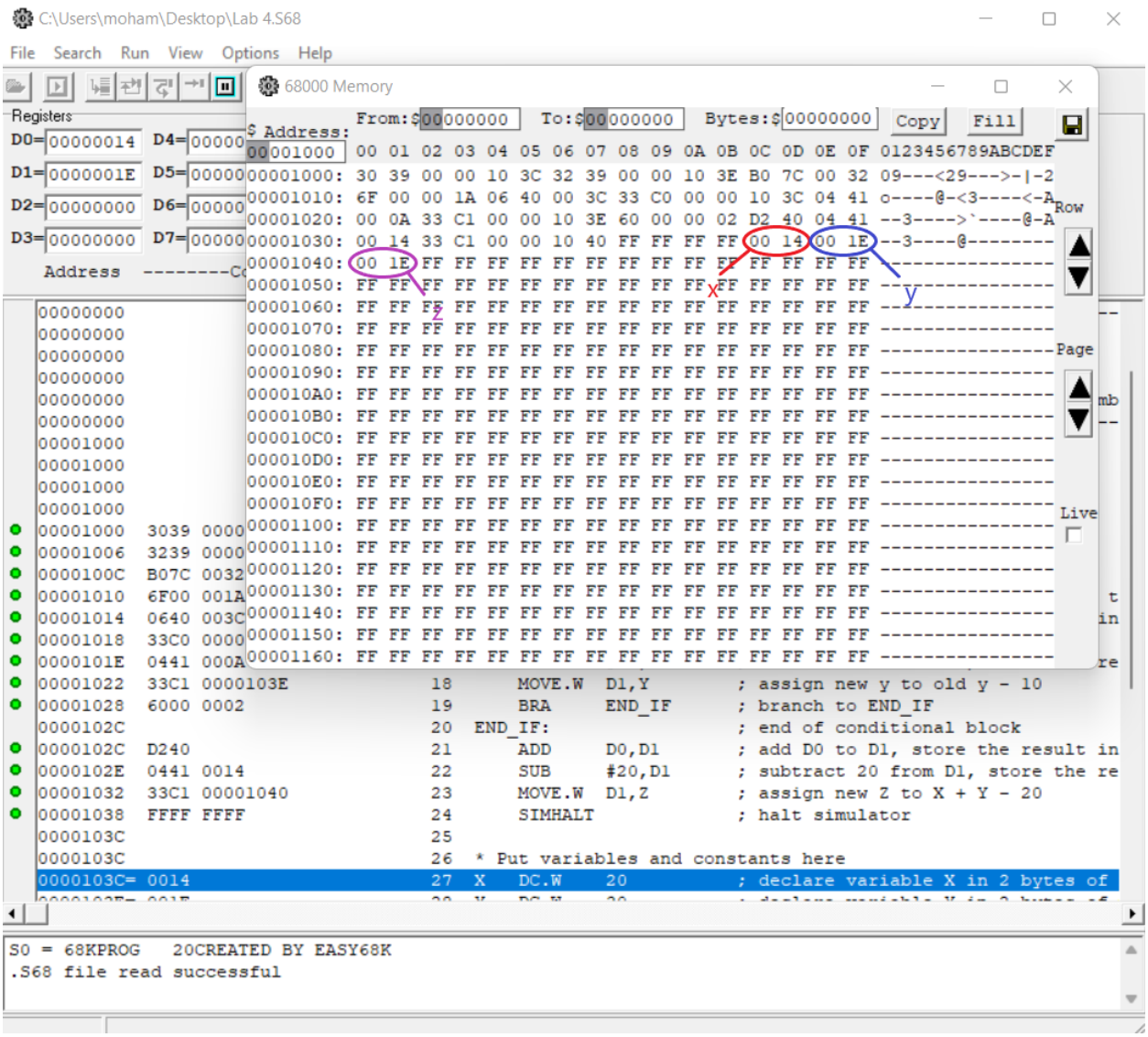
```
*-----------------------------------------------------------
* Title      : Lab 4 - Introduction to 68k simulator
* Written by : Mohamed Raffeek & Mostafa Khaled
* Date       : 4/11/2022
* Description: Translating a piece of pseudo code to assembly language
*-----------------------------------------------------------
    ORG    $1000
START:                  ; first instruction of program

* Put program code here
    MOVE.W  X,D0        ; copy X to register D0
    MOVE.W  Y,D1        ; copy Y to register D1
    CMP     #50,D0      ; compare X stored in D0 with 50
    BLE     END_IF      ; branch to END_IF when X is less than or equal to 50
    ADD     #60,D0      ; add 60 to D0, store the result in D0
    MOVE.W  D0,X        ; assign new X to old X + 60
    SUB     #10,D1      ; subtract 10 from D1, store the result in D1
    MOVE.W  D1,Y        ; assign new y to old y - 10
    BRA     END_IF      ; branch to END_IF
END_IF:                 ; end of conditional block
    ADD     D0,D1       ; add D0 to D1, store the result in D1
    SUB     #20,D1      ; subtract 20 from D1, store the result in D1
    MOVE.W  D1,Z        ; assign new Z to X + Y - 20
    SIMHALT             ; halt simulator

* Put variables and constants here
X   DC.W    20          ; declare variable X in 2 bytes of memory, give it a value of 2
Y   DC.W    30          ; declare variable Y in 2 bytes of memory, give it a value of 3
Z   DS.W    1           ; reserve 2 bytes of memory for variable Z
    END    START        ; last line of source
```

5: 71 | Modified | Insert

Third: Outputs



→ flags



Memory locations

Every variable takes 2 bytes since it was defined as a word (.W) in the data area of the code