

1. Write an assembly program that implements the following algorithm:

$x \leftarrow 2$

if ($x \neq 0$)

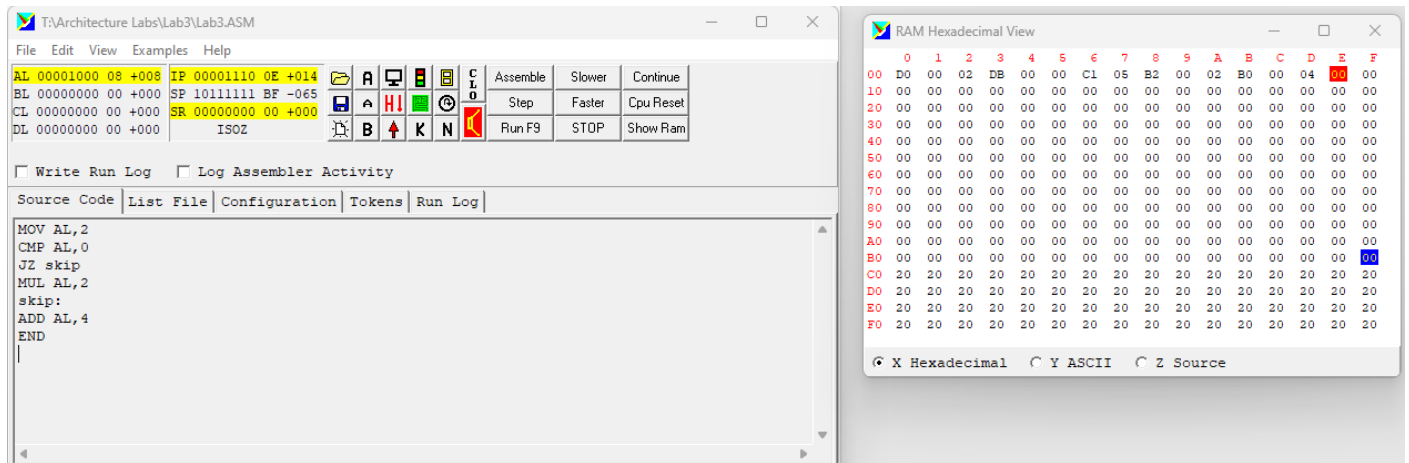
{

$x \leftarrow x * 2$

}

$x \leftarrow x + 4$

The same register that was used to store the input x should also be used to store the output x . Make sure to test the code for different starting values of x to ensure the if statement is working correctly.



2. Write an assembly program that implements the following algorithm:

$x \leftarrow 5$

if ($x < 3$)

{

$y \leftarrow 0$

}

else

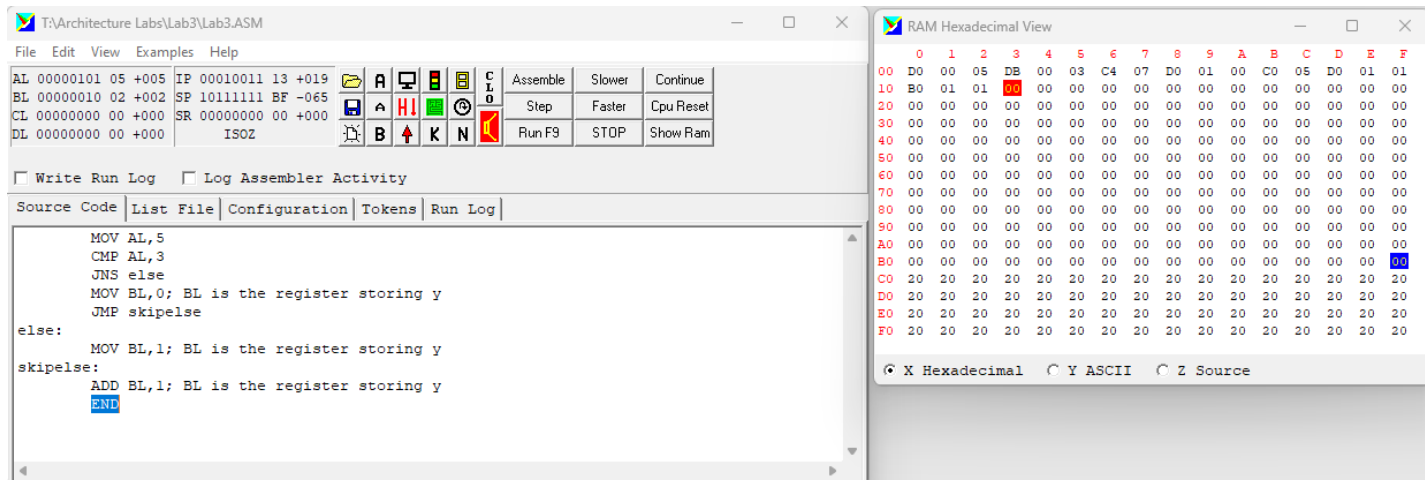
{

$y \leftarrow 1$

}

$y \leftarrow y + 1$

Clearly mark which register you are using to store the output y . Make sure to test the code for different starting values of x to ensure the if-else statement is working correctly.



}

The screenshot displays the TASM/TLINK software interface. The main window is titled 'T:\Architecture Labs\Lab3\Lab3.ASM'. The menu bar includes File, Edit, View, Examples, and Help. The toolbar contains icons for opening files, saving, printing, and running the program. The assembly code is shown in the main text area, with the following instructions:

```

MOV AL,4
MOV BL,1; BL is the register storing y
Loop:
    MUL BL,2; BL is the register storing y
    SUB AL,1
    JZ loopend
    JMP Loop
loopend:
    END

```

On the right side, the 'RAM Hexadecimal View' window is open, showing a memory dump. The columns are labeled with hexadecimal values (0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F). The rows show the memory address (00, 10, 20, 30, 40, 50, 60, 70, 80, 90, A0, B0, C0, D0, E0, F0) and the corresponding hexadecimal data. The data is mostly zeros, with some non-zero values at addresses 10, 20, 30, 40, 50, 60, 70, 80, 90, A0, B0, C0, D0, E0, and F0.