AND Instruction

- Bitwise AND between each pair of matching bits

  AND *destination, source*

- Following operand combinations are allowed

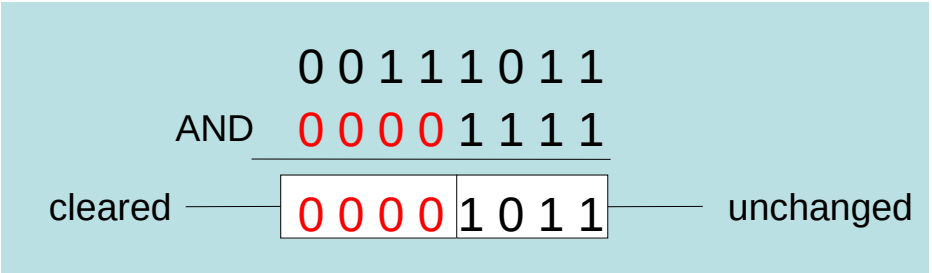
  AND *reg, reg*
  AND *reg, mem*
  AND *reg, imm*
  AND *mem, reg*
  AND *mem, imm*

- AND instruction is often used to clear selected bits

Operands can be 8, 16, or 32 bits and they must be of the same size

AND

x	y	x ∧ y
0	0	0
0	1	0
1	0	0
1	1	1



Converting Characters to Uppercase

- AND instruction can convert characters to uppercase

  'a' = 0 1 **1** 0 0 0 0 1 'b' = 0 1 **1** 0 0 0 1 0

  'A' = 0 1 **0** 0 0 0 0 1 'B' = 0 1 **0** 0 0 0 1 0

- Solution: Use the AND instruction to **clear bit 5**

```
    mov  ecx, LENGTHOF mystring
    mov  esi, OFFSET mystring
L1: and  BYTE PTR [esi], 11011111b  ; clear bit 5
    inc  esi
    loop L1
```

OR Instruction

- Bitwise OR operation between each pair of matching bits

  OR *destination, source*

- Following operand combinations are allowed

  OR *reg, reg*

  OR *reg, mem*

  OR *reg, imm*

  OR *mem, reg*

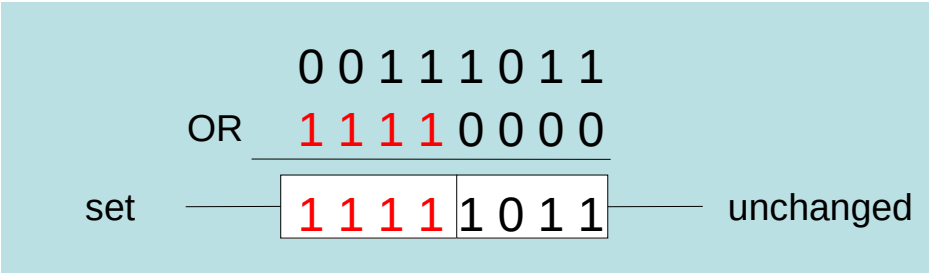
  OR *mem, imm*

- OR instruction is often used to set selected bits

Operands can be 8, 16, or 32 bits and they must be of the same size

OR

x	y	x ∨ y
0	0	0
0	1	1
1	0	1
1	1	1



Converting Characters to Lowercase

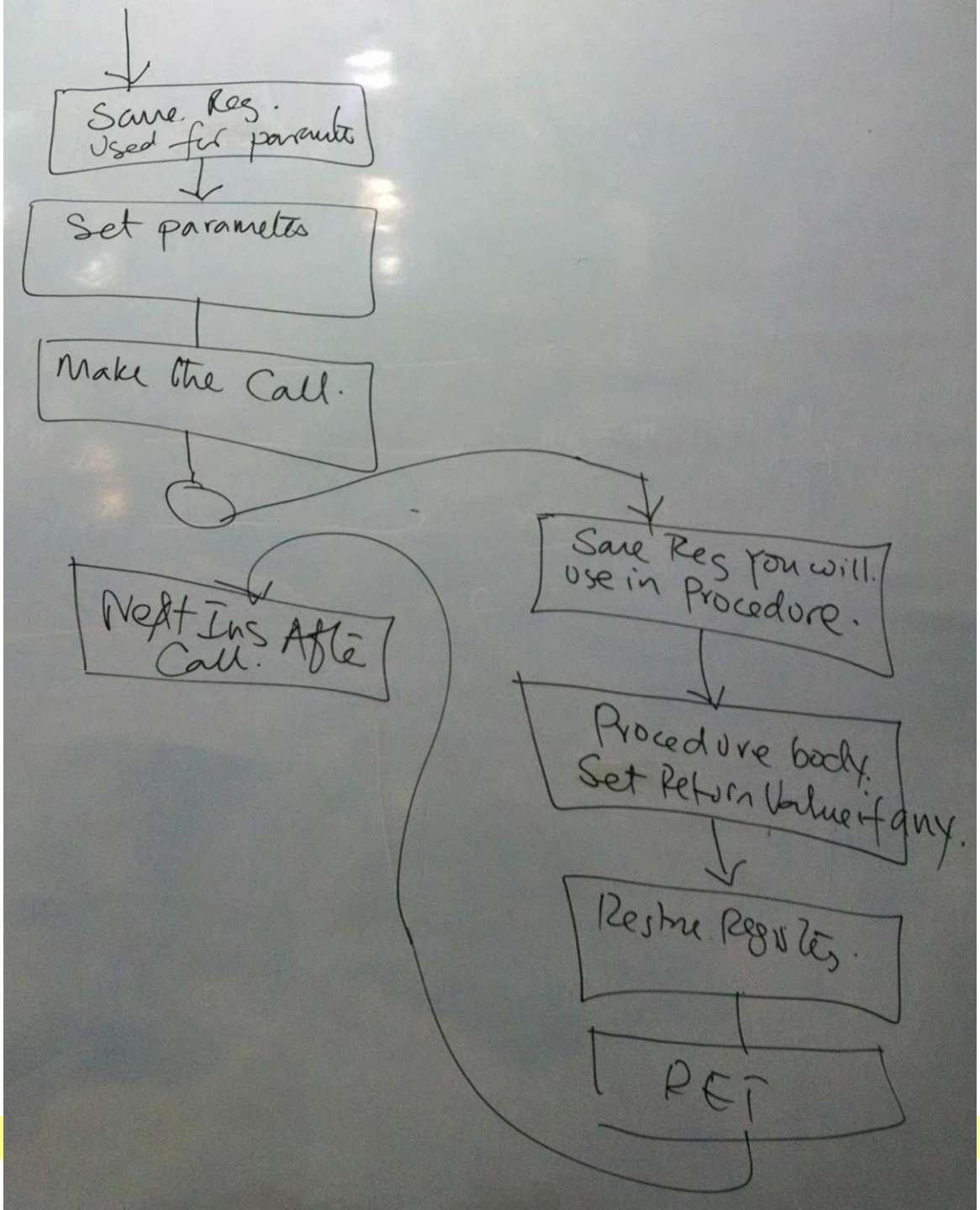
- OR instruction can convert characters to lowercase

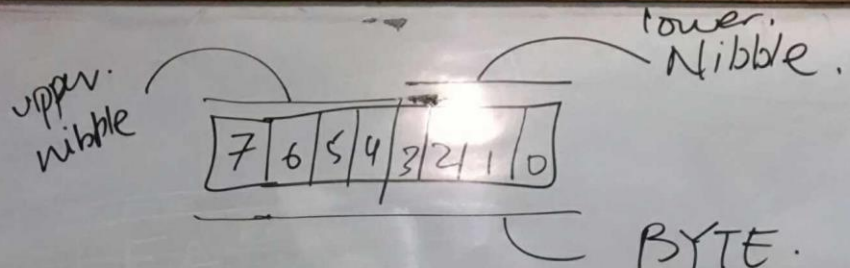
  'A' = 0 1 **0** 0 0 0 0 1 'B' = 0 1 **0** 0 0 0 1 0

  'a' = 0 1 **1** 0 0 0 0 1 'b' = 0 1 **1** 0 0 0 1 0

- Solution: Use the OR instruction to **set bit 5**

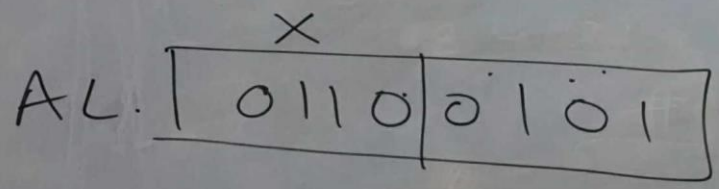
```
     mov  ecx, LENGTHOF mystring
     mov  esi, OFFSET mystring
L1:  or   BYTE PTR [esi], 20h        ; set bit 5
     inc  esi
     loop L1
```

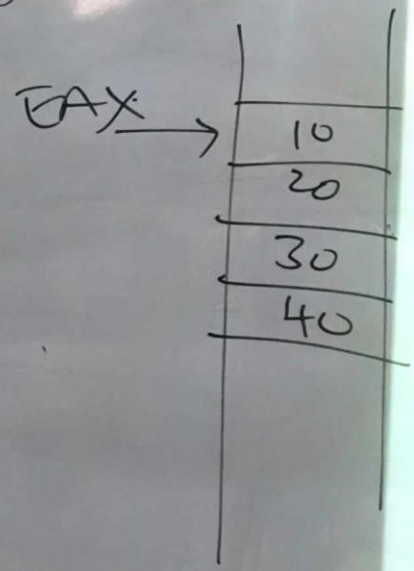

Save Reg.
Used for parmts
Set parmeters
Make the Call.
Next Ins Afte
Call.
Save Res you will
use in Procedure.
Procedure body.
Set Return Value if any.
Restre Regs
RET



AL. 65h.

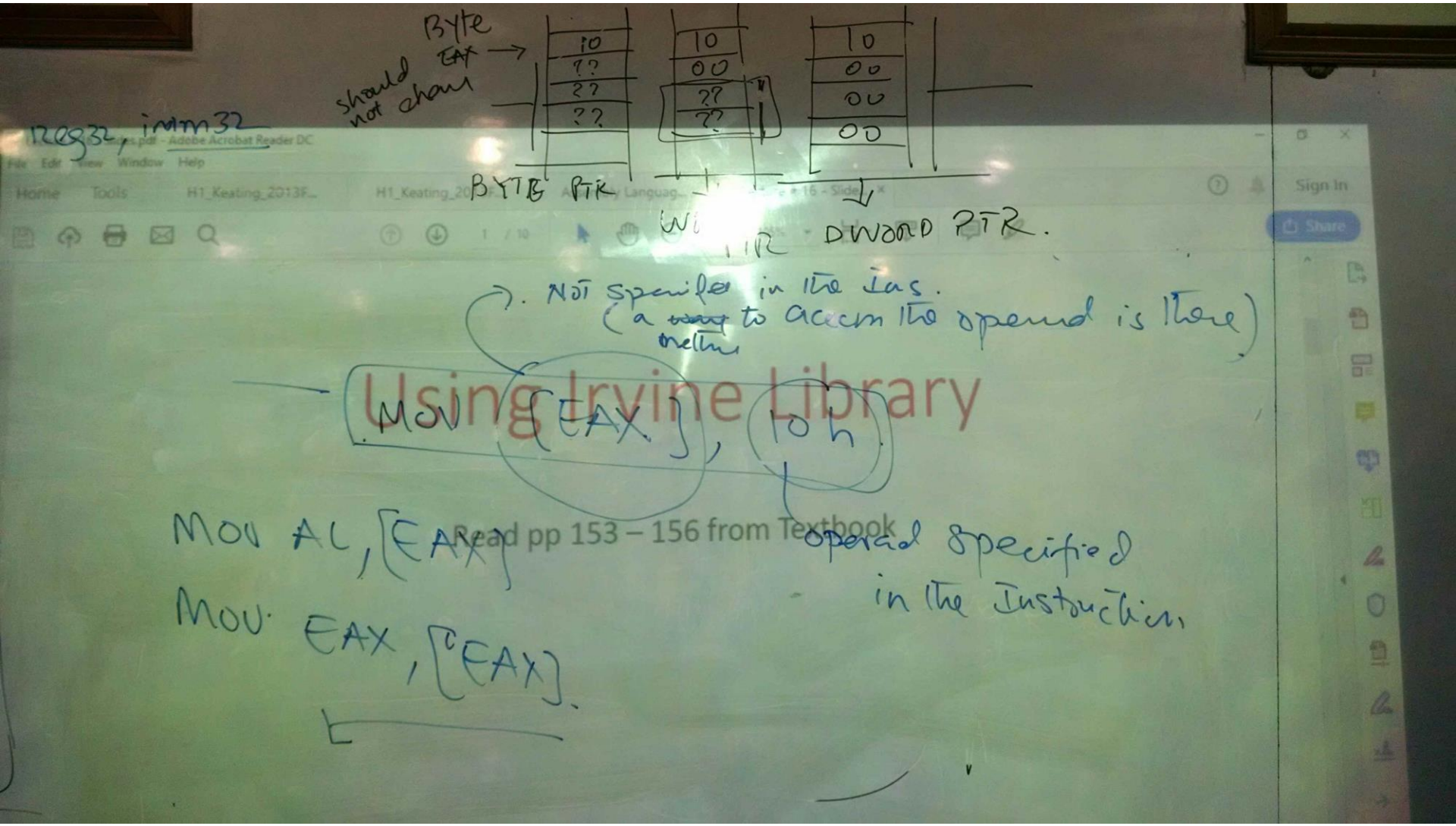
(1) Clear the upper nibble of AL.



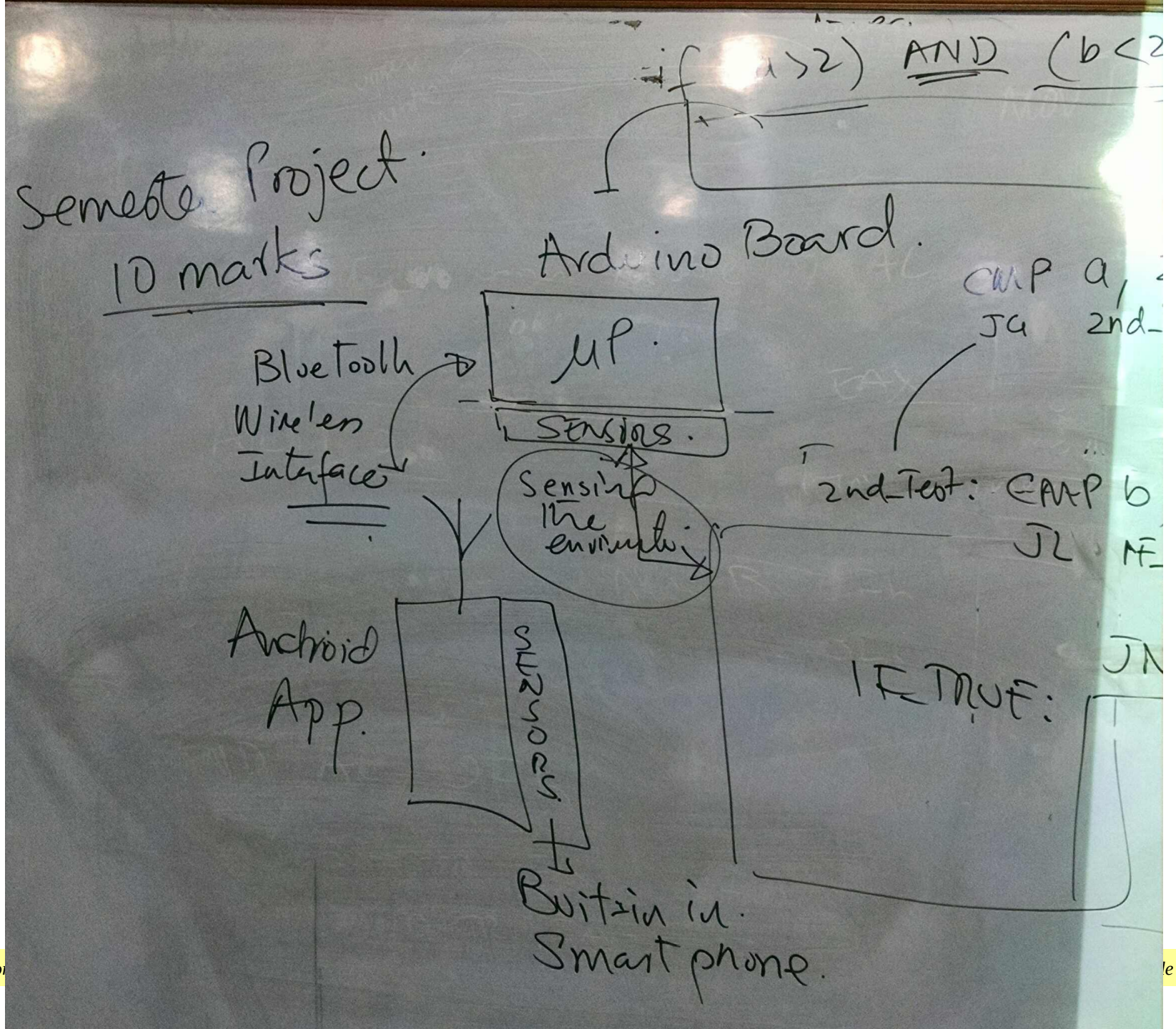



```
MOV AL, 0
MOV AL, FFh.
AND AL, 0Fh
```

```
AND BYTE PTR [EAX], 0Fh.
AND WORD PTR [EAX], 0Fh.
```



Read pp 153 – 156 from Textbook


if (a>2) AND (b<2
Semeste Project.
10 marks
Arduino Board.
MP.
SENSORS.
Bluetooth
Wireless
Interface
Sensing the environ
Android App.
SENSORS
Built-in in Smart phone.
CMP a,
JG 2nd_
2nd_Test: CMP b
JL
IF TRUE:
JN