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Assignment 5

Question 1

Objective

Using auto vectored input RST 7.5 prepare a scheme to count the number of key-press done at this interrupting input.

The main routine after initialisation of the interrupt mechanism waits in an infinite loop waiting for the key-press. On a key-press (that simulates as if you have excited the RST 7.5 input) it increases a counter at a predefined memory location (used to hold the count value). You may exit from this routine and then check the counter value

Tool / Experimental setup considered

- Used [Jubin's 8085 Simulator](#).

Procedure

We will use an RST 7.5 interrupt line to call a procedure every time we get an interrupt.

To prevent multiple interrupts being registered at the same time, we are using a small delay.

Program

```
# ORG 0000H
    MVI A,0B // To enable R7.5
    SIM // Set Interrupt Mask
    EI // Enables Interrupt

LOOP:
    MVI A,01
    JNZ LOOP

# ORG 3C
    DI
    INX D
    CALL DEL80 // Adding some delay
    EI
    RET

DEL80:    LXI B,28AF

DEL80LOOP:
    DCX B
    MOV A,B
    ORA C
    JNZ DEL80LOOP
    RET
```

Experimentation

Registers									
Memory									
Devices									
Registers :									
Register	Value	7	6	5	4	3	2	1	0
Accumulator	96	1	0	0	1	0	1	1	0
Register B	14	0	0	0	1	0	1	0	0
Register C	92	1	0	0	1	0	0	1	0
Register D	00	0	0	0	0	0	0	0	0
Register E	03	0	0	0	0	0	0	1	1
Register H	00	0	0	0	0	0	0	0	0
Register L	00	0	0	0	0	0	0	0	0
Memory(M)	41	0	1	0	0	0	0	0	1
Resister	Value	S	Z	*	AC	*	P	*	CY
Flag Resister	84	1	0	0	0	0	1	0	0
Type	Value								
Stack Pointer(SP)	0000								
Memory Pointer (HL)	0000								
Program Status Word(PSW)	9684								
Program Counter(PC)	0049								
Clock Cycle Counter	1093204								
Instruction Counter	173241								

Conclusion

After pressing the interrupt 3 times, we can see that the d-c register has the value 3. After trying it out for multiple interrupts we are getting accurate results. Hence, our program is working.