19ECE282

DIGITAL ELECTRONICS

AND

SYSTEMS LAB

VENDING MACHINE

TEAM MEMBERS:

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Question:

A Vending machine supplies the following beverages: coffee, tea, milk and cocoa. The machine can be accessed only based on a 3-bit login and 2-bit password (only four valid users). If the user is authenticated properly, the machine will assert the following signals: -

(i) coffee_OK if coffee is chosen and display the character '1' in a seven segment display.

(ii) tea_OK if tea is chosen and display the character '2' in a seven segment display.

(iii) milk_OK if milk is chosen and display the character '3' in a seven segment display.
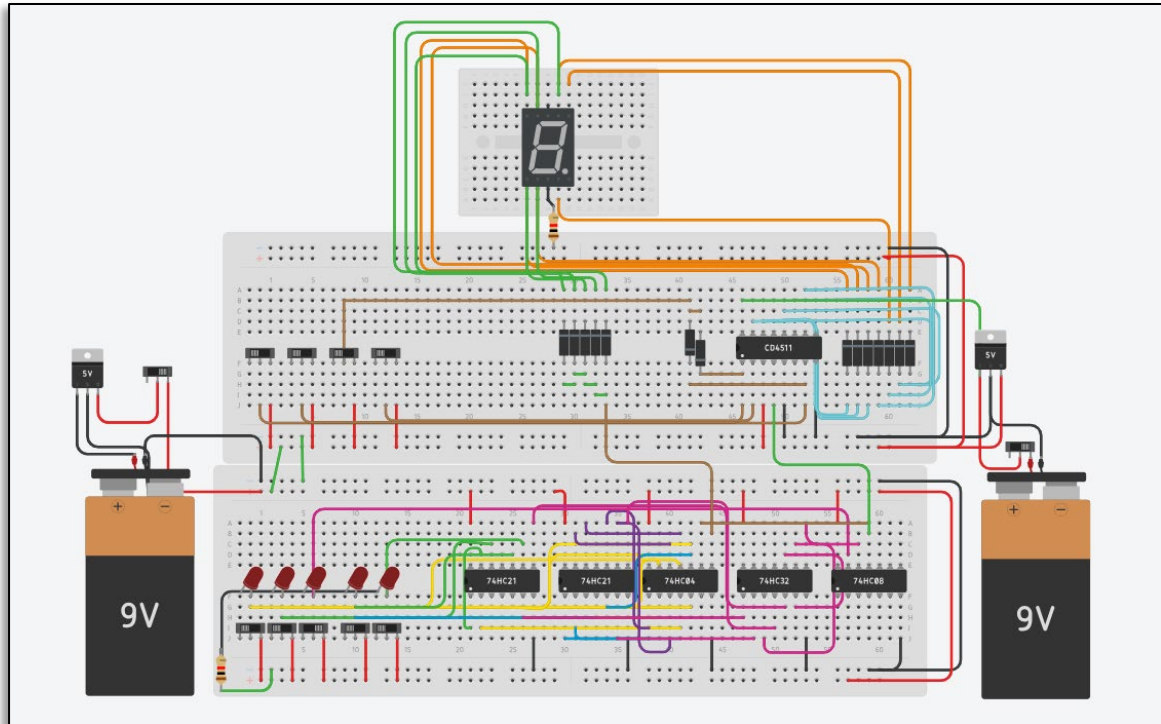
(iv) cocoa_OK IF cocoa is chosen display the character '4' in a seven segment display.

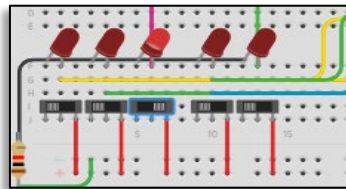(v) The display will show "*E*" in case of wrong login/password.

USERNAME(3-BIT)/PASSWORD(2-BIT)

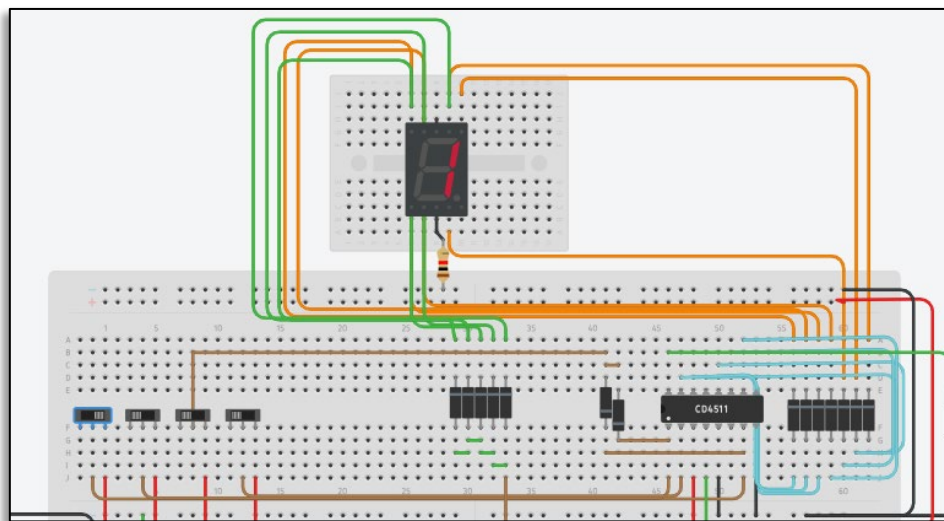| USERNAME				PASSWORD	
A	B	C		D	E
0	0	1		0	0
0	1	1		1	1
1	0	1		1	0
1	1	1		0	1

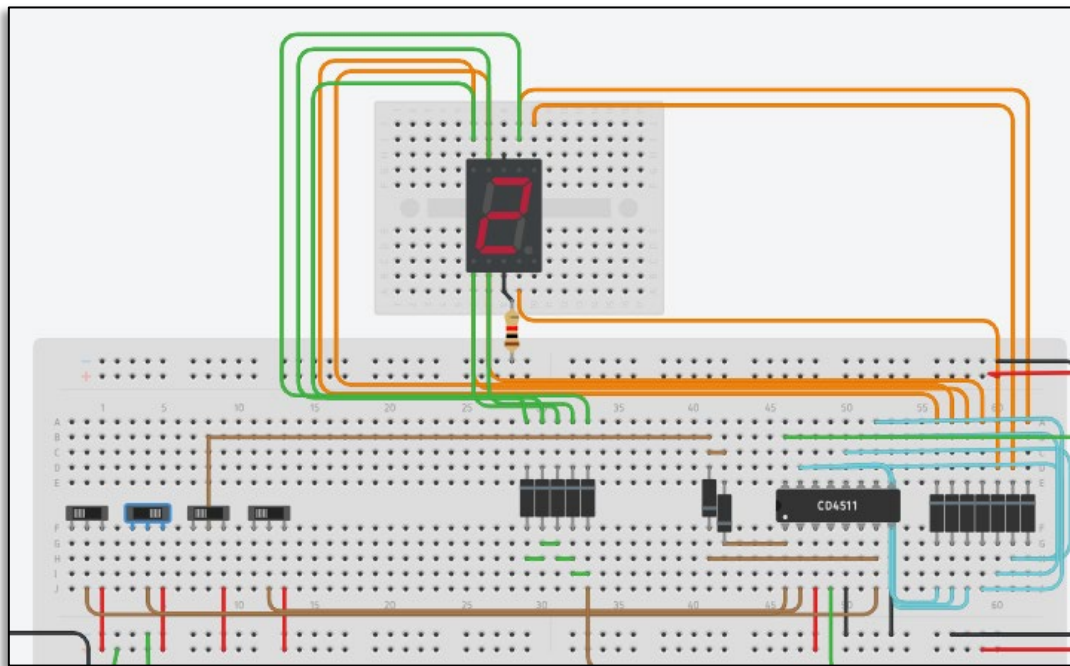# *SIMULATION:*

When correct login/password is entered: -

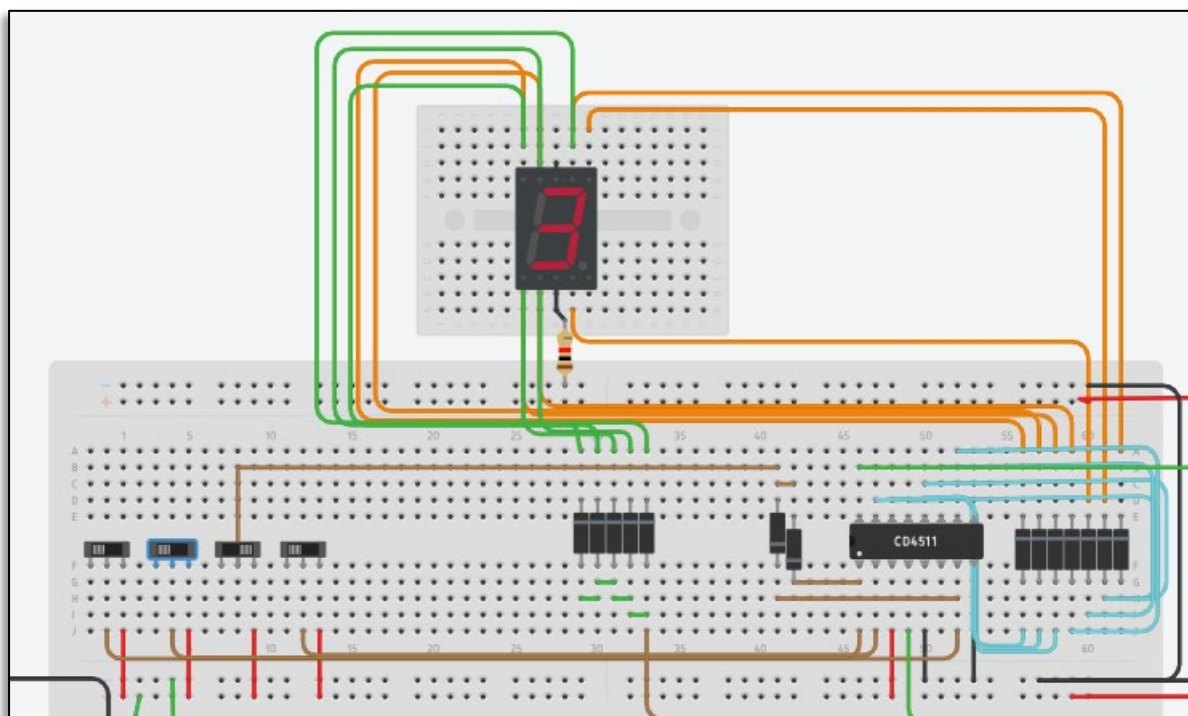Decoder activated; when '*COFFEE*' chosen (switch 1): -
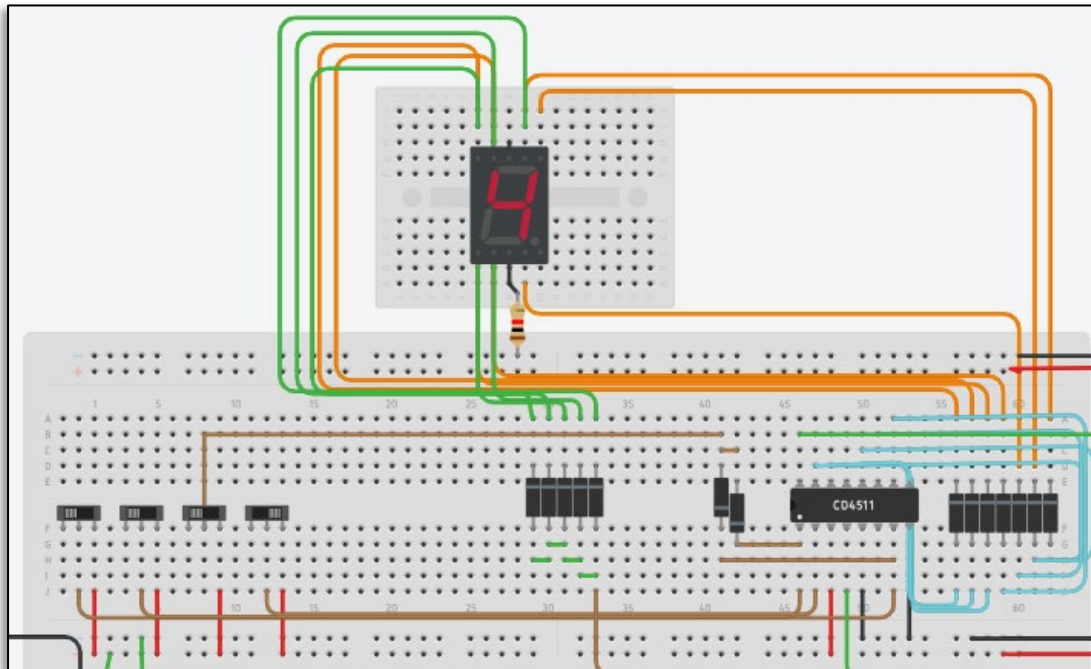
Character *'1'* displayed

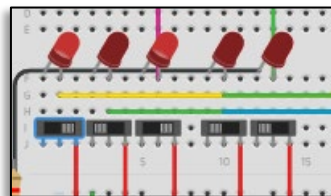When *TEA* chosen (switch 2): -

Character *'2'* displayed.

When *MILK* chosen (switch 3): -
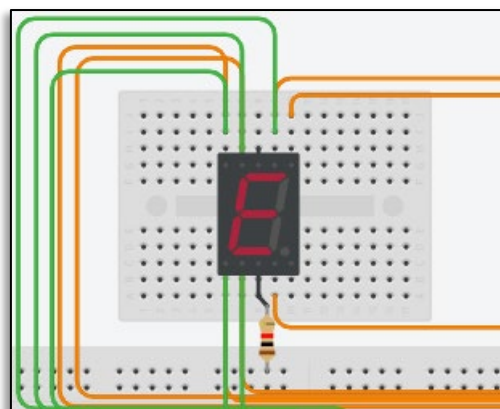
Character *'3'* displayed.

When *COCOA* chosen (switch 4): -

Character *'4'* displayed.

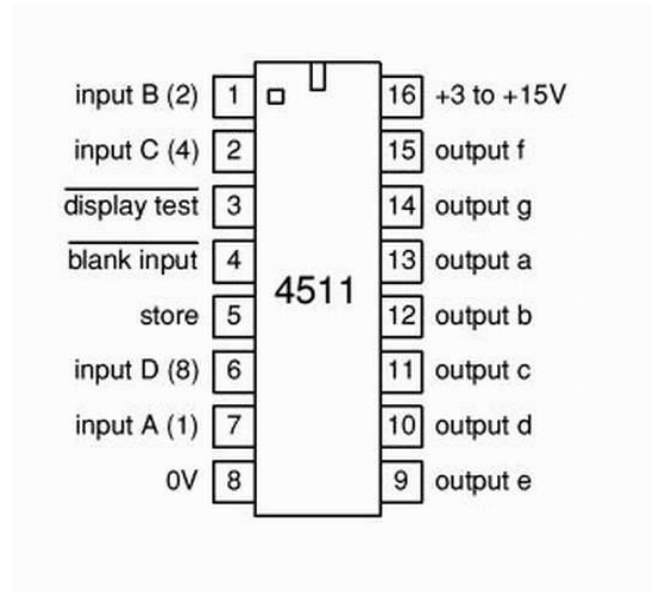When wrong login/password is entered: -

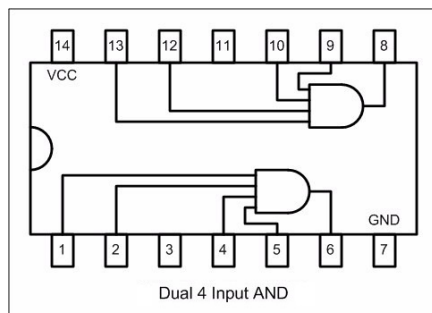E is displayed.

Wrong input: -

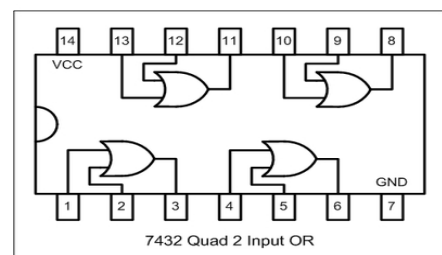"E" displayed: -

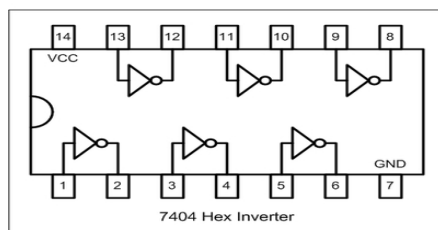## PIN DIAGRAMS:

CD5411 (BCD – 7 SEGMENT DECODER)

74HC21(DUAL 4-INPUT AND GATE) GATE)

74HC32(QUAD 0R GATE)

74HC04 (HEX INVERTER) GATE

74HC08(QUAD AND GATE)