

3-bit FlipFlop Code Checker

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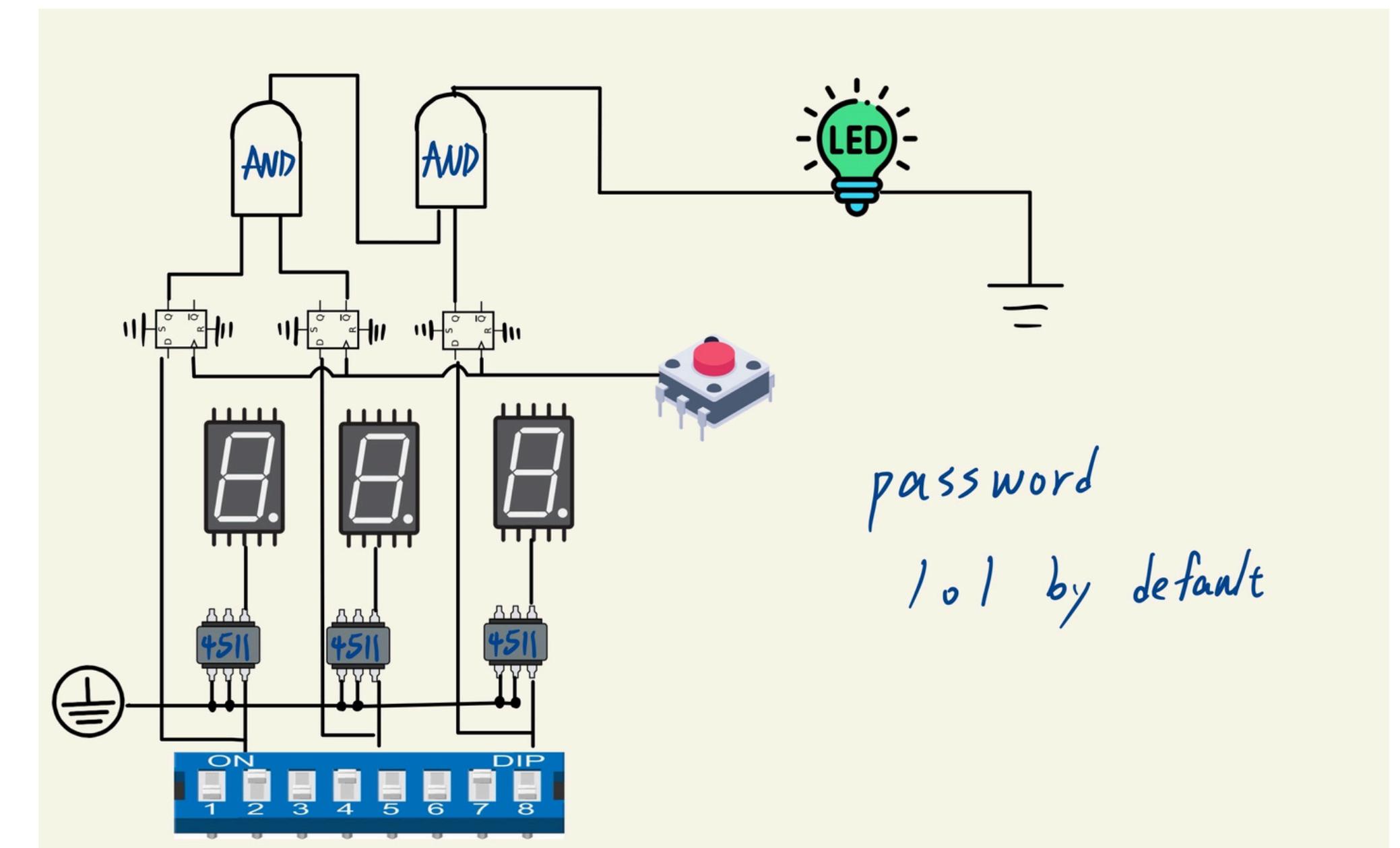
411385002 曾峻謙



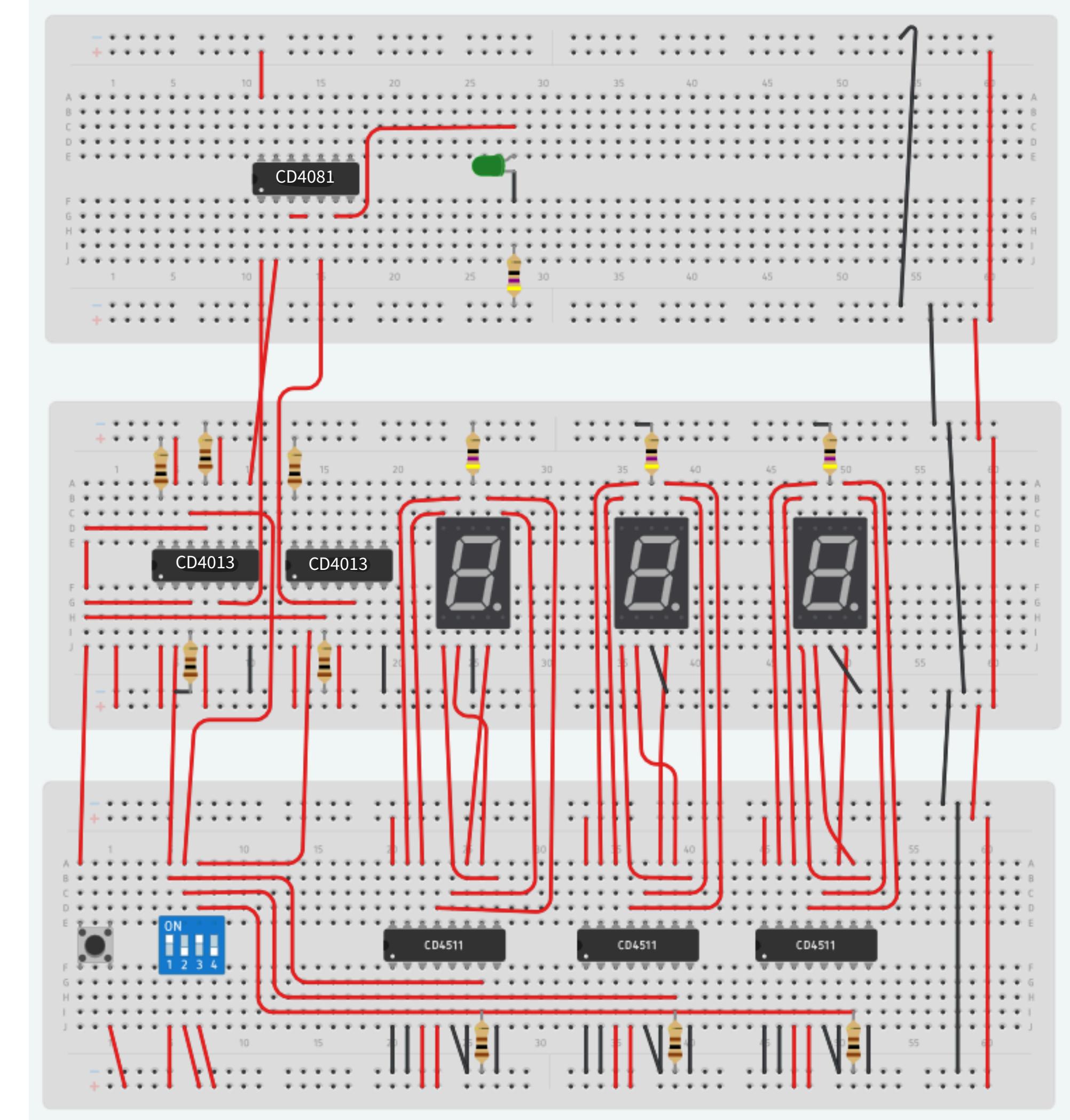
Introduction

using 3 switches to control
3 7-segment display
from 000 - 111

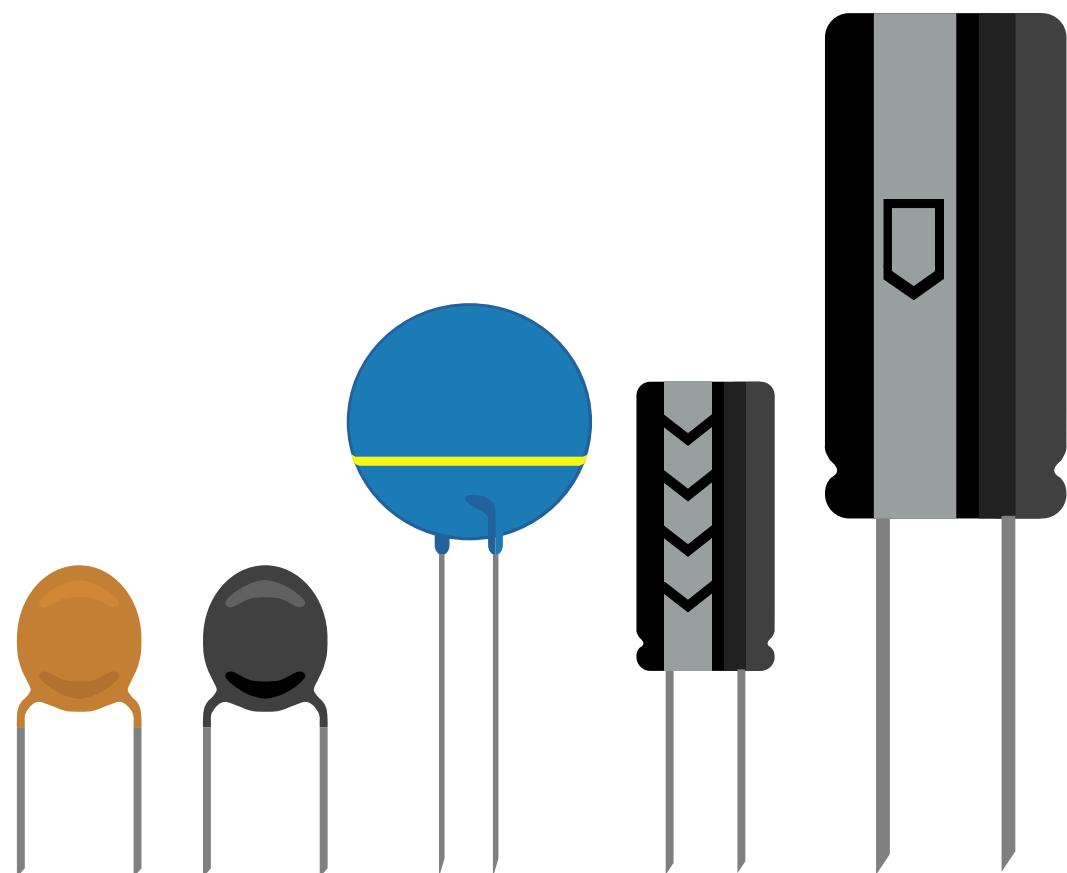
using 4th switch to output
the signal from flip-flop
to check if the password is
correct



Tinkercad Simulation

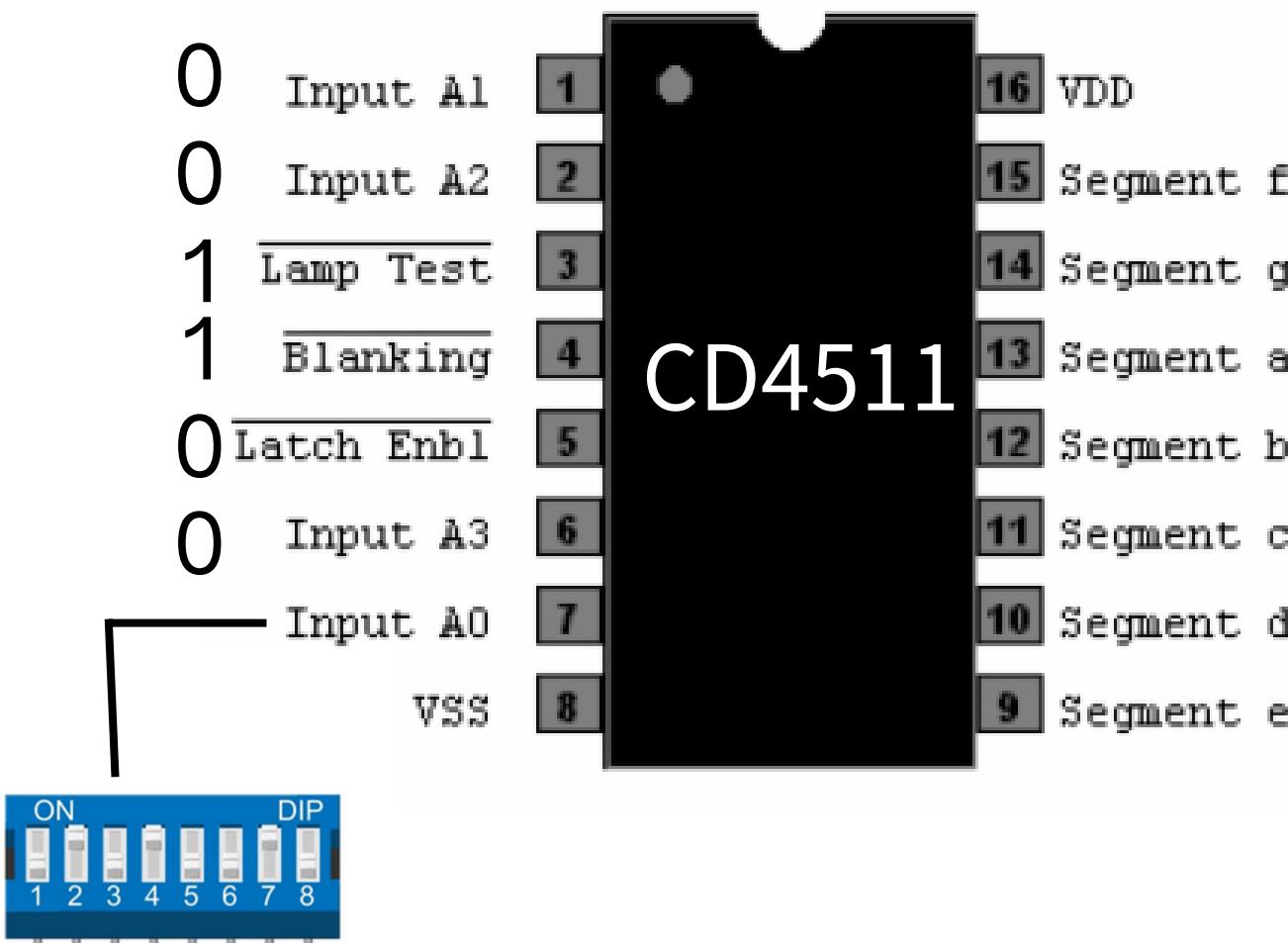


Materials



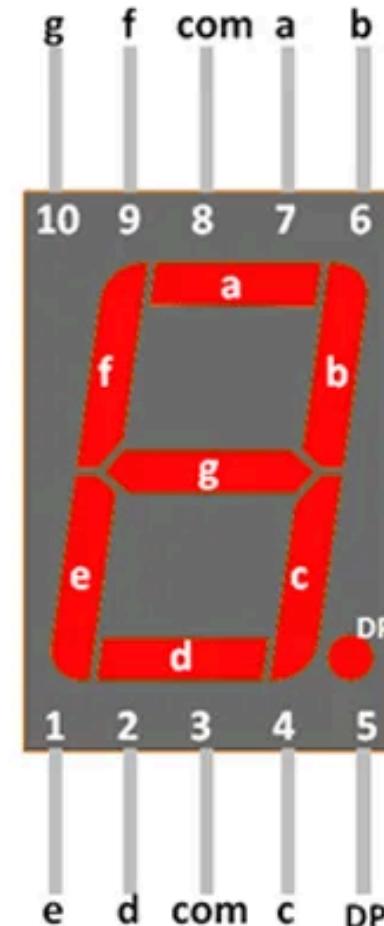
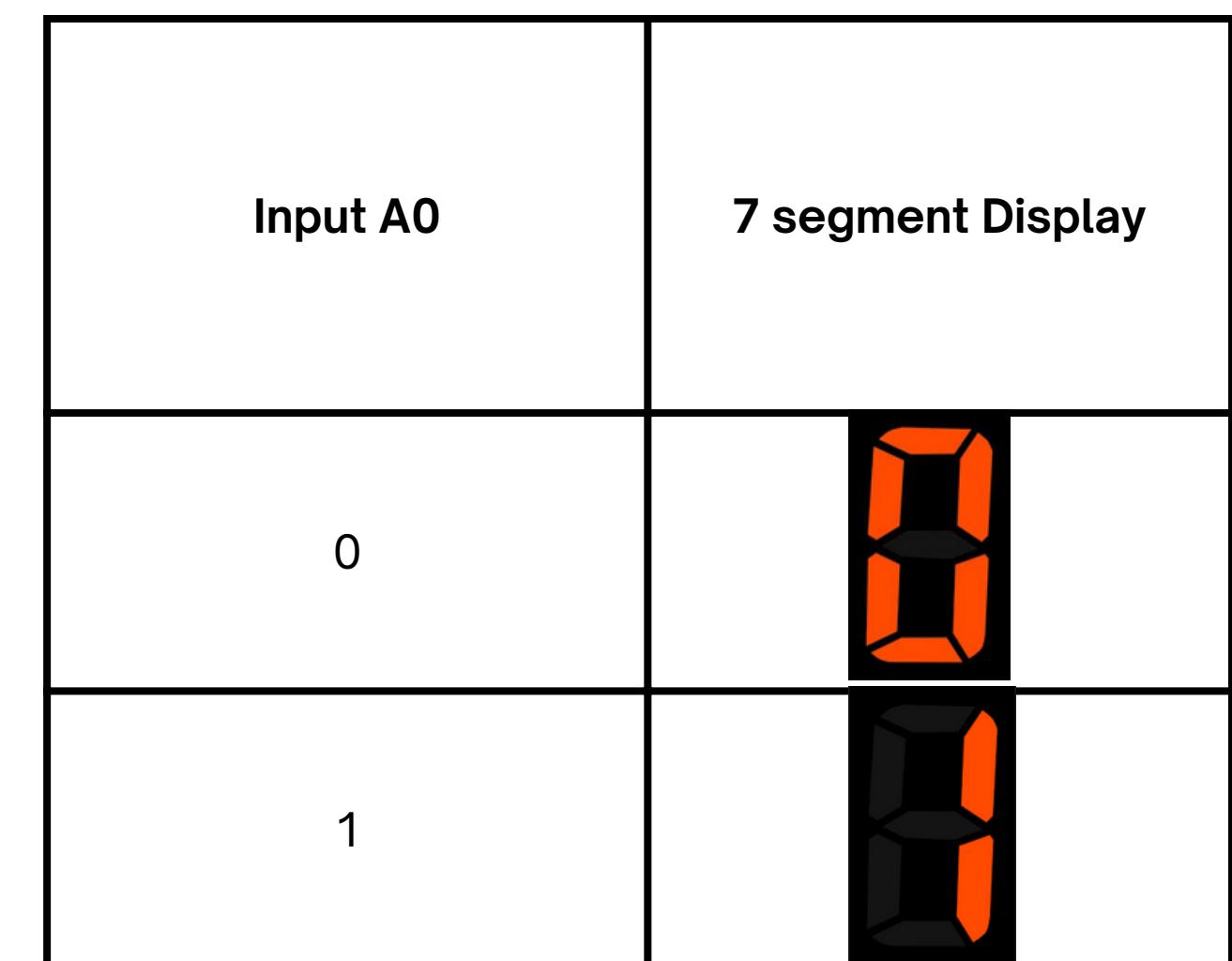
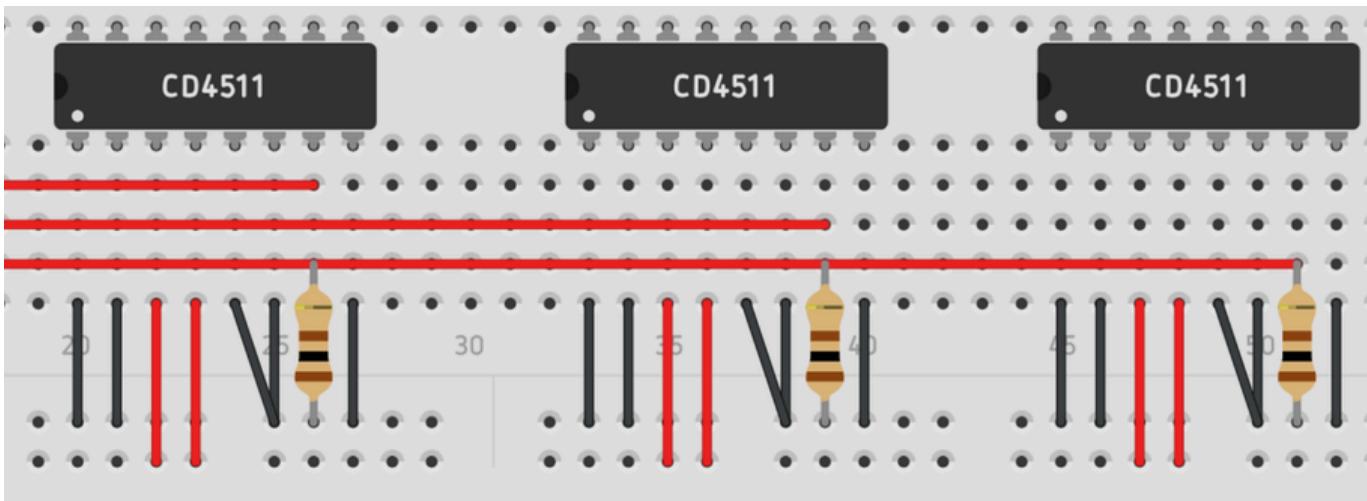
Component	Quantity
Breadboard	1
Decoder CD4511	3
Flip Flop CD4013	2
AND IC CD4081	1
7-Segment Display	3
8-bit DIP Switch	1
Resistor 100Ω	8
Resistor 47Ω	3
LED	1
Wire	As required

Section 1: Input and Display

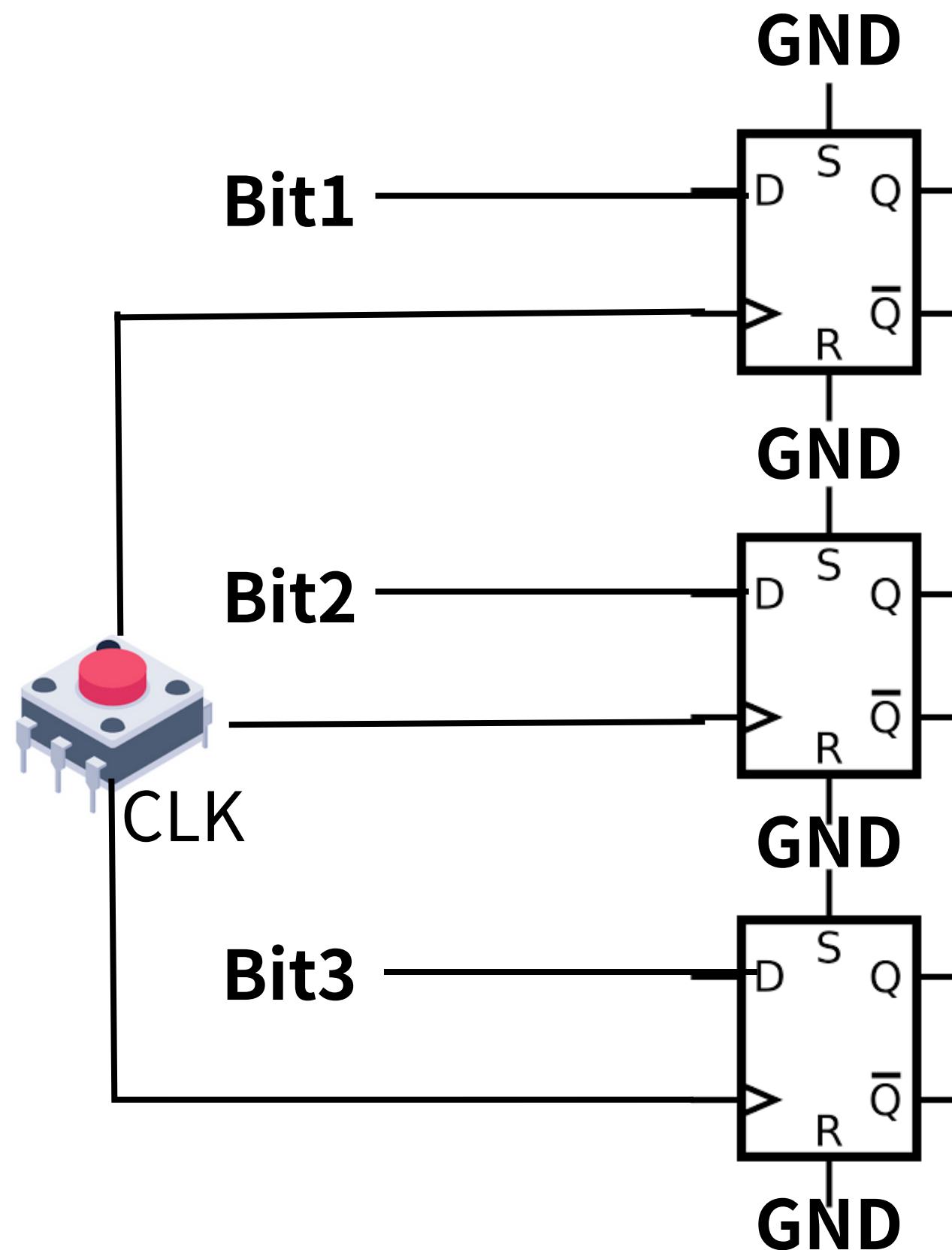


Possible input of each Decoder

A ₀	A ₁	A ₂	A ₃
0	0	0	0
0	0	0	1



Section 2: Storage



D Flip Flop CD4013

D	Clock	Q	Q'
0	0	Q	Q'
1	0	Q	Q'
0	1	0	1
1	1	1	0

Section 3: Password Verification

Target password

1 0 1

$$Q_1 \cdot Q_2' \cdot Q_3$$

