LAB REPORT 6

Name:- Ayush Kumar Gupta

ROLL NO:- 2023114001

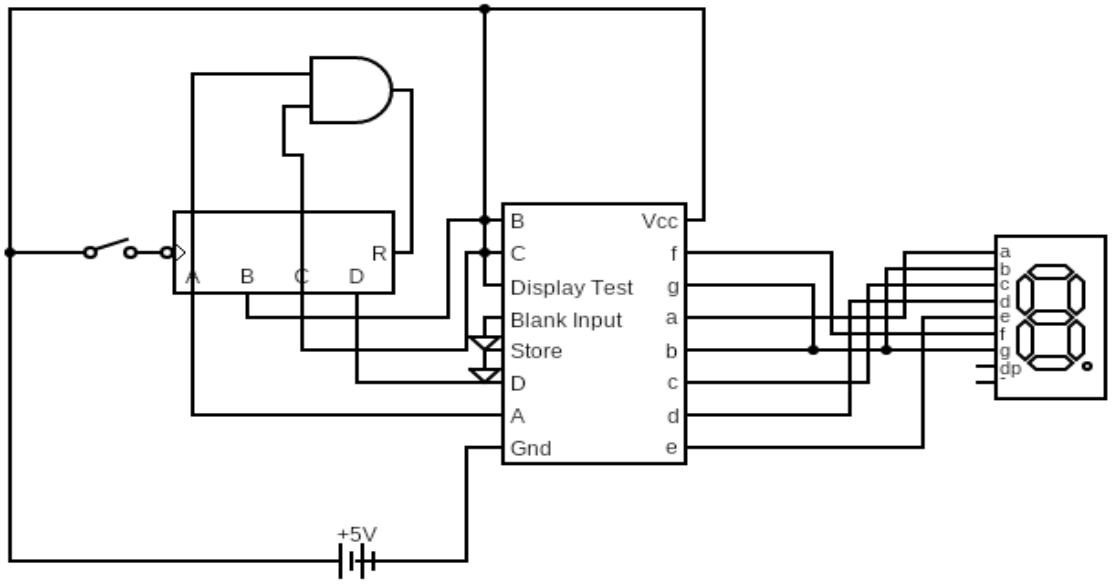
1.OBJECTIVE – To use 7 segment display to count from 0-9.

ELCTRONIC COMPONENTS REQUIRED -

1. 74HC93 IC(4-bit Binary Ripple Counter)
2. CD4511 IC(7-Segment Deecoder)
3. 7 Segment Display
4. Digital Circuit

PROCEDURE:

1. Test the ICs, LED Lights and Switches.
2. Connect ICs with GND, Power.
3. Connect the circuit as given in reference circuit.



4.

5. Check the output with following order.

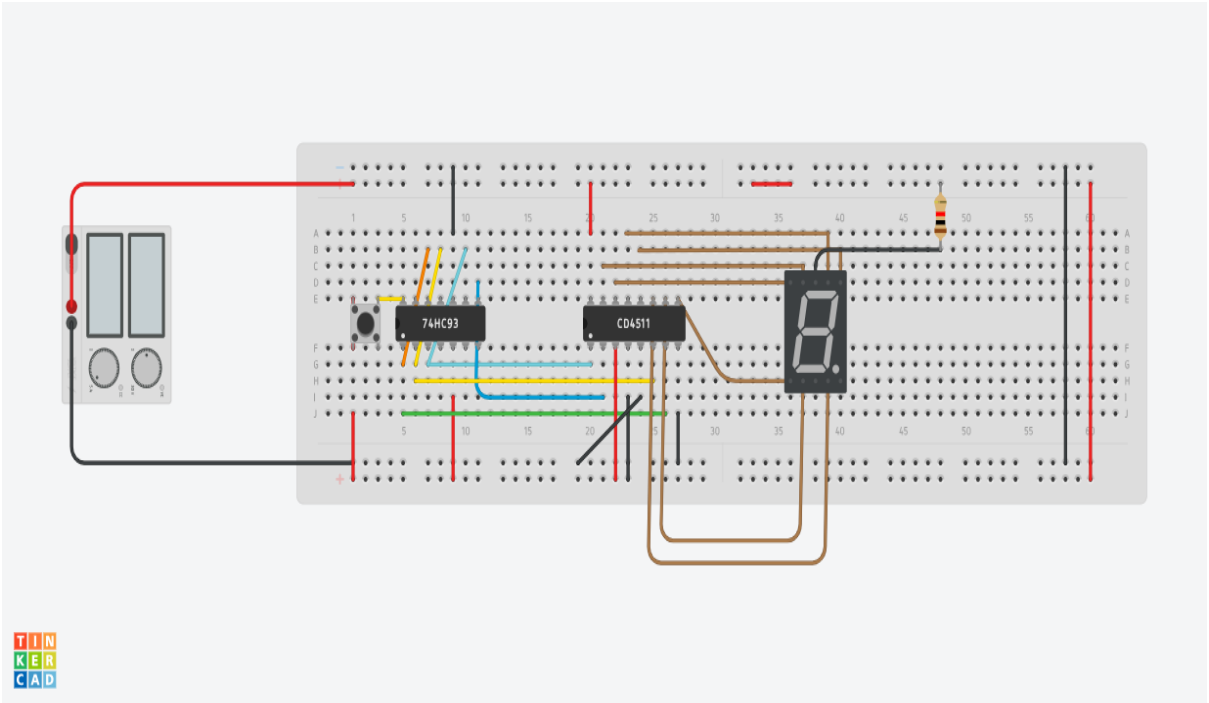
Conclusion:

If Connected with Common Cathode, Output will be inverted. But all numbers will be printed.

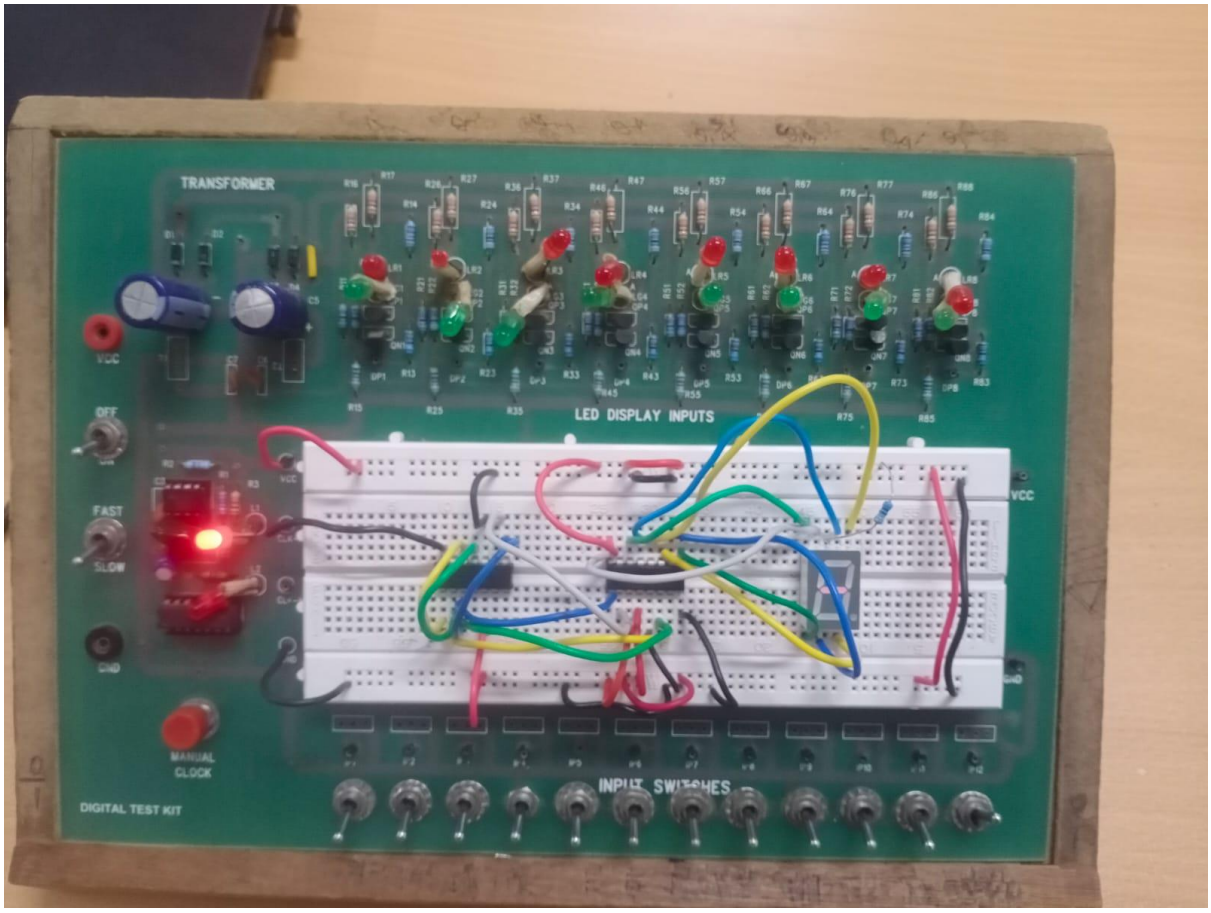
LINK FOR TINKERCAD SIMULATION :

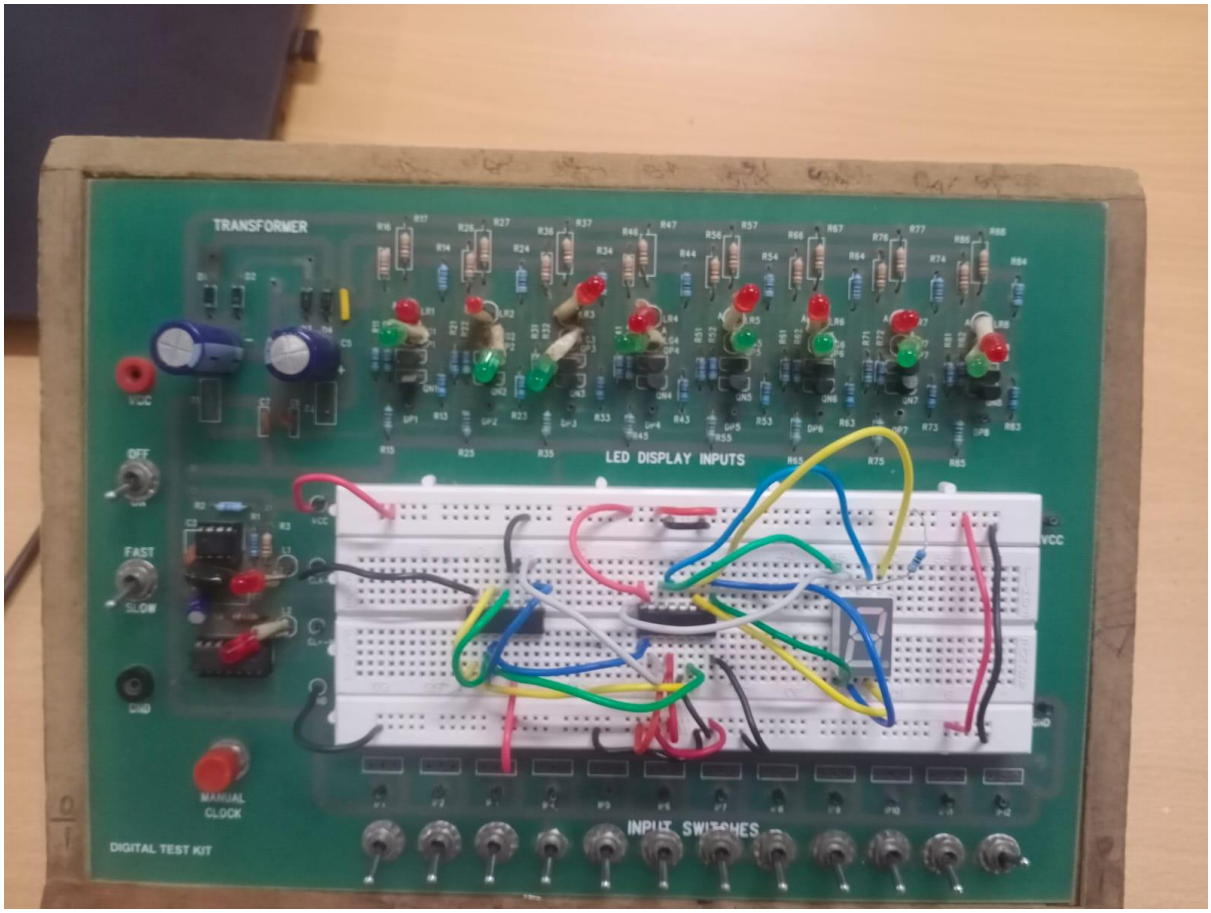
https://www.tinkercad.com/things/6bbZwuEUB6y-clock-boom/editel?sharecode=b5ub_SjX-GWVJHo4Q4lh2TGP0I-m52XufVJBFxGeels

TINKERCARD :



LAB:


TRANSFORMER
LED DISPLAY INPUTS
VCC
OFF
FAST
SLOW
GND
MANUAL
CLOCK
DIGITAL TEST KIT
INPUT SWITCHES


TRANSFORMER
LED DISPLAY INPUTS
VCC
OFF
FAST
SLOW
GND
MANUAL
CLOCK
DIGITAL TEST KIT
INPUT SWITCHES

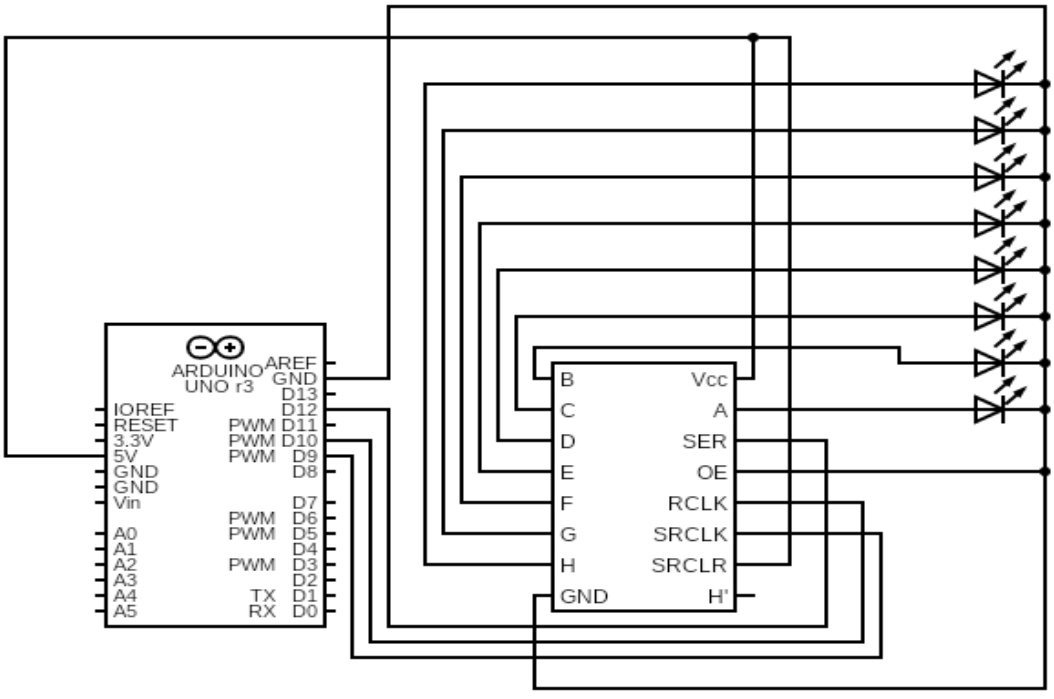
2.A. OBJECTIVE –To Form Counter from 0 to 255 with Shift Register .

ELCTRONIC COMPONENTS REQUIRED –

1. Digital test kit. .
2. Shift Register.
3. Arduino UNO

PROCEDURE:

- Test the ICs, LED Lights.
- Connect ICs with GND, Power.
- Connect the circuit as given in reference circuit.
- Connect the prescibed pins as given in picture to arduino,(For Code).



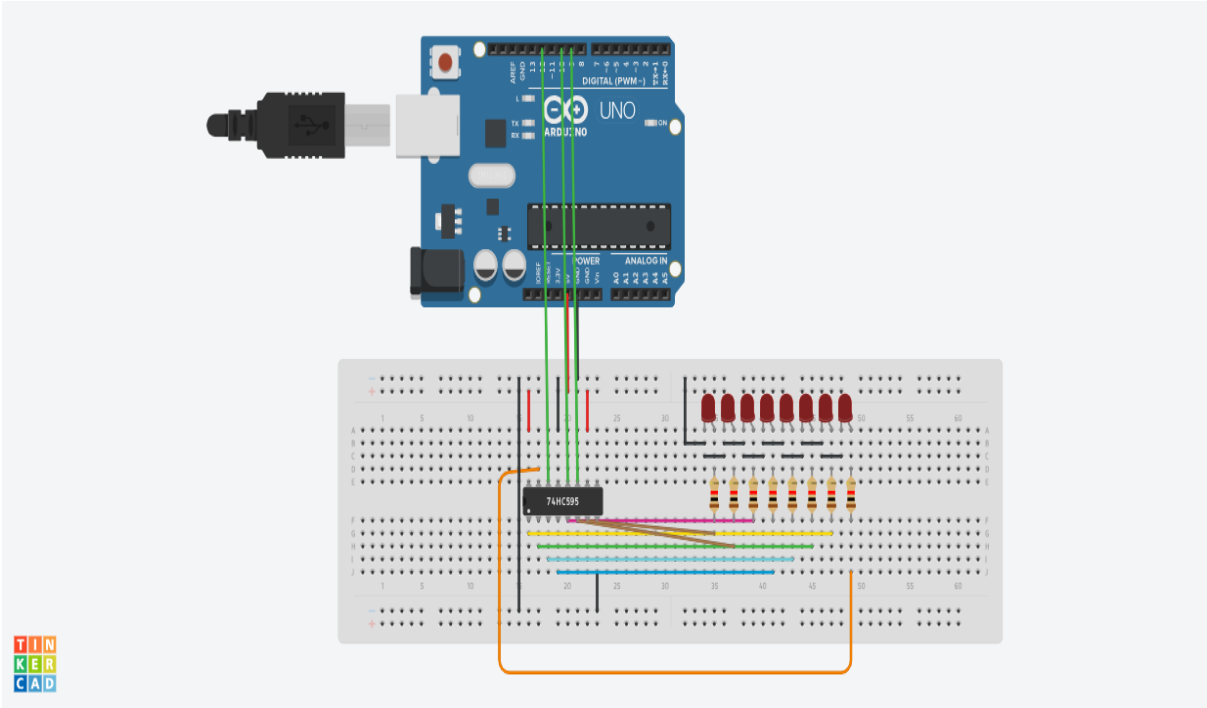
Conclusion:

Number From 0 to 255 got printed using given Code. Red for 1 and Green for 0.

LINK FOR TINKERCAD SIMULATION :

https://www.tinkercad.com/things/9JkArG4R8tl-countinginbinary/editel?sharecode=onNoL4wSfuGEZ-rTAMWpyYu6SRt0PMl41rbtVFL_iYE

TINKERCARD :



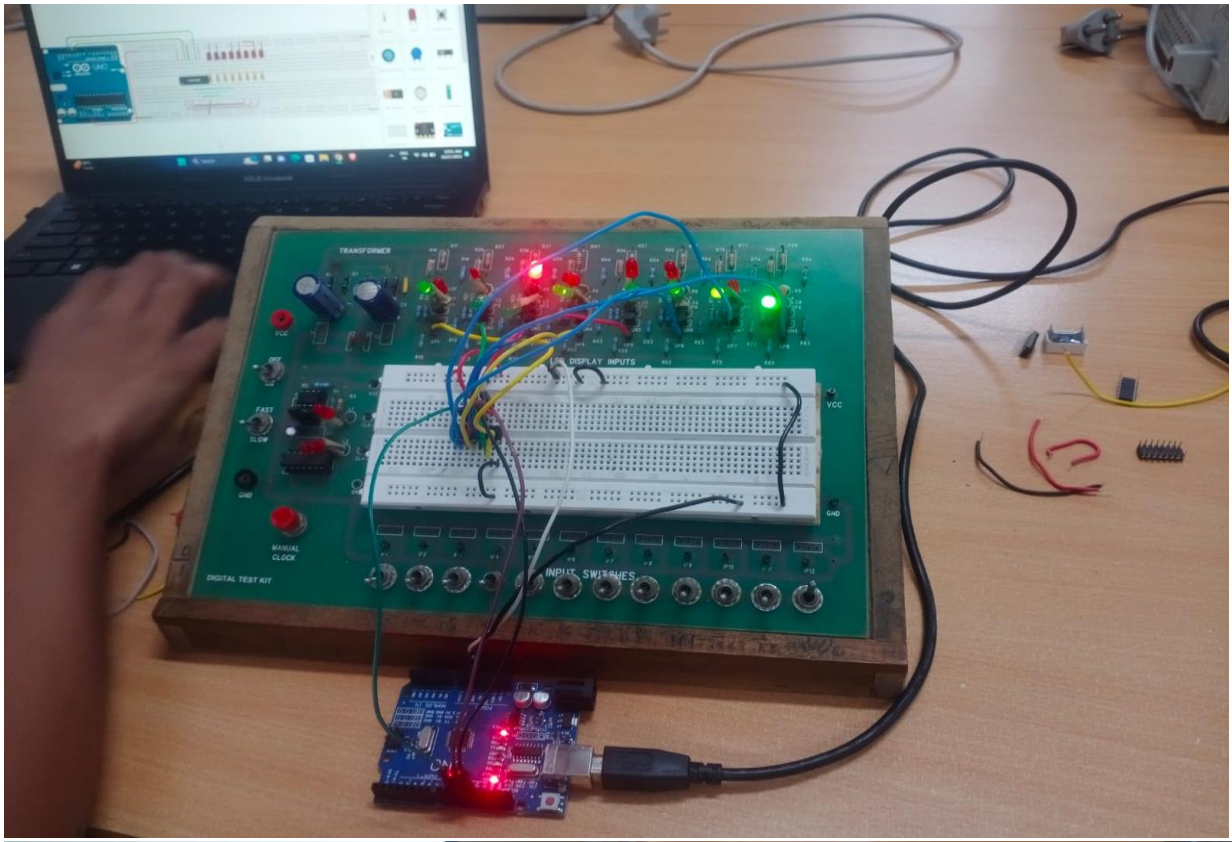
CODE :

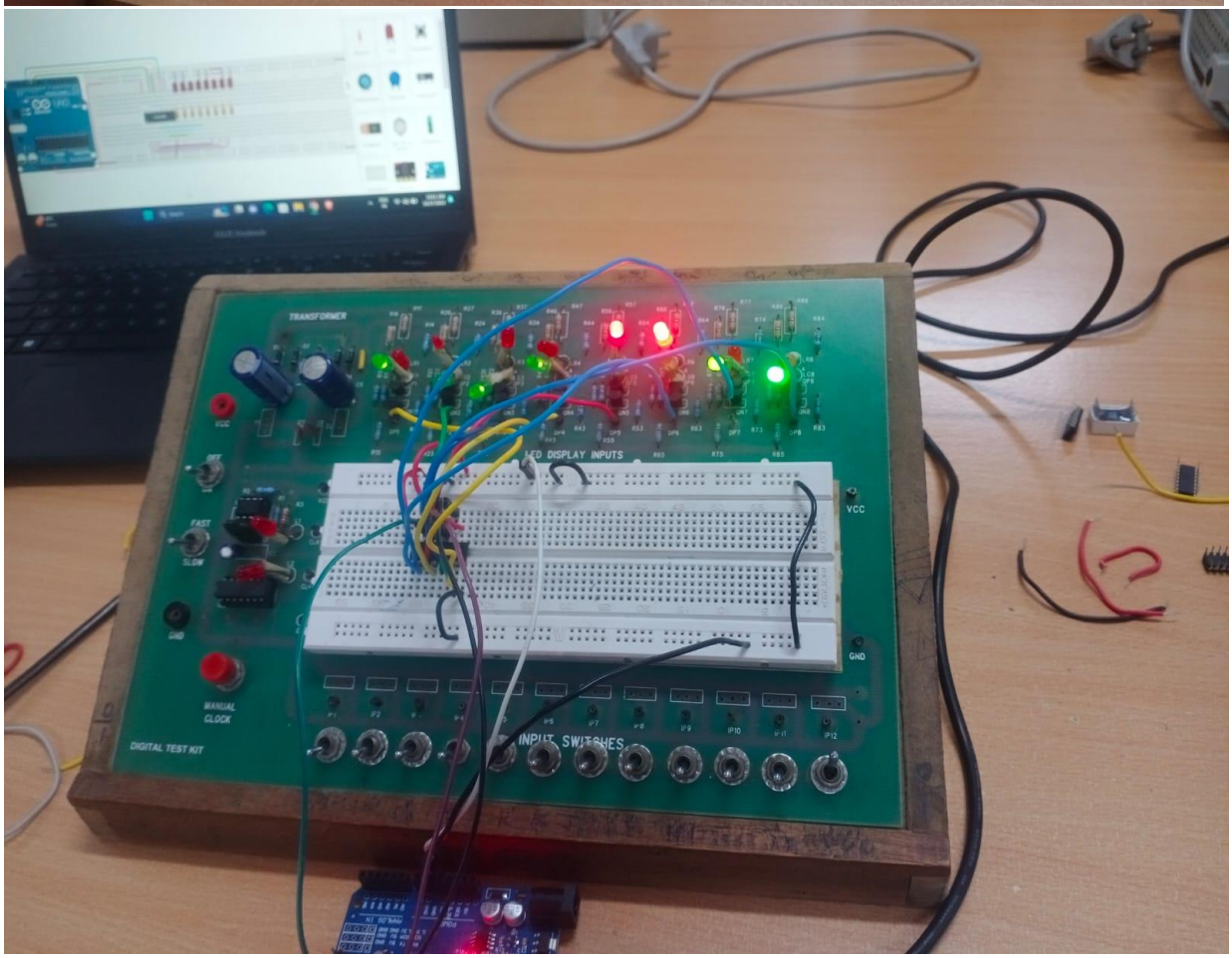
```
// C++ code
//
int input=12,ORegClk=10,ShiftRegClk=9;
void setup()
```

```
{
  pinMode(input, OUTPUT);
  pinMode(ORegClk, OUTPUT);
  pinMode(ShiftRegClk, OUTPUT);
}

void loop()
{
  for(int i=0;i<256;i++){
    digitalWrite(ORegClk, LOW); //Clock which changes from
HtoL to register data in SR.
    shiftOut(input,ShiftRegClk,MSBFIRST,i);
    digitalWrite(ORegClk, HIGH);

    delay(500);
}
}
```


TRANSFORMER
VCC
OFF
FAST
SLOW
GND
MANUAL
CLOCK
DIGITAL TEST KIT
LED DISPLAY INPUTS
INPUT SWITCHES
VCC
GND


TRANSFORMER
VCC
OFF
FAST
SLOW
GND
MANUAL
CLOCK
DIGITAL TEST KIT
LED DISPLAY INPUTS
INPUT SWITCHES
VCC
GND

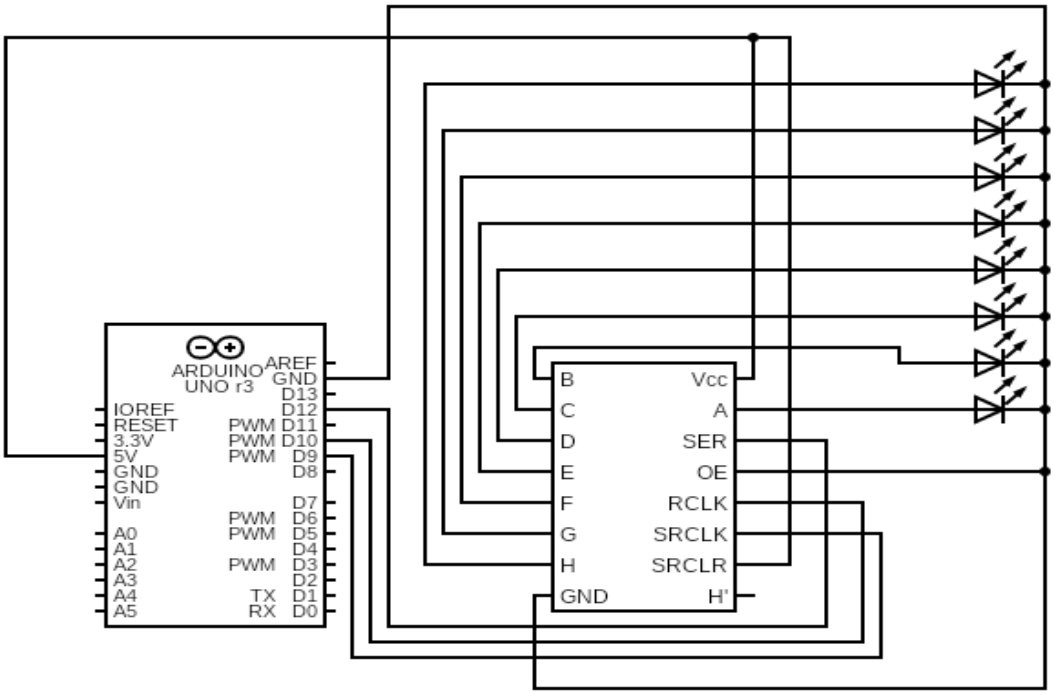
2.B. OBJECTIVE –To Glow mentioned number bulb.

ELCTRONIC COMPONENTS REQUIRED –

4. Digital test kit.
5. Shift Register.
6. Arduino UNO

PROCEDURE:

- Test the ICs, LED Lights.
- Connect ICs with GND, Power.
- Connect the circuit as given in reference circuit.
- Connect the prescibed pins as given in picture to arduino,(For Code).



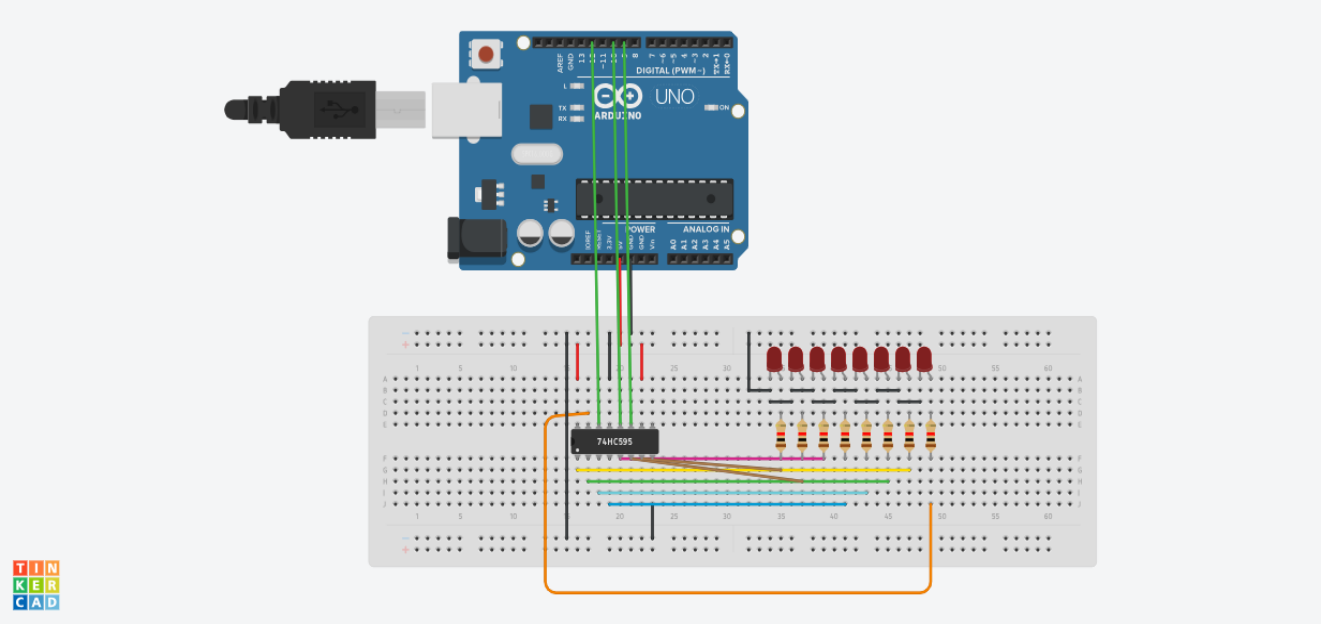
Conclusion:

When We Enter the number, Its numbered Bulb glows.

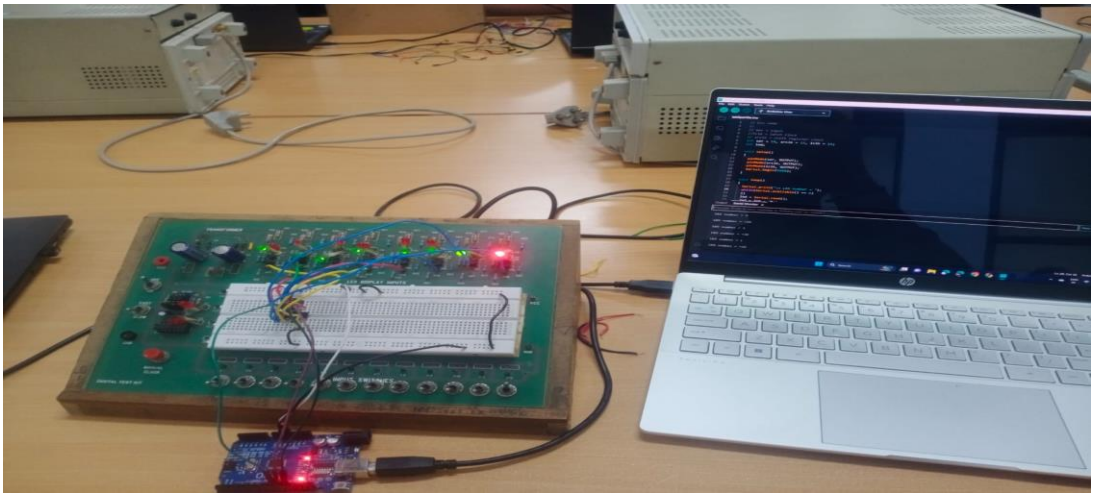
LINK FOR TINKERCAD SIMULATION :

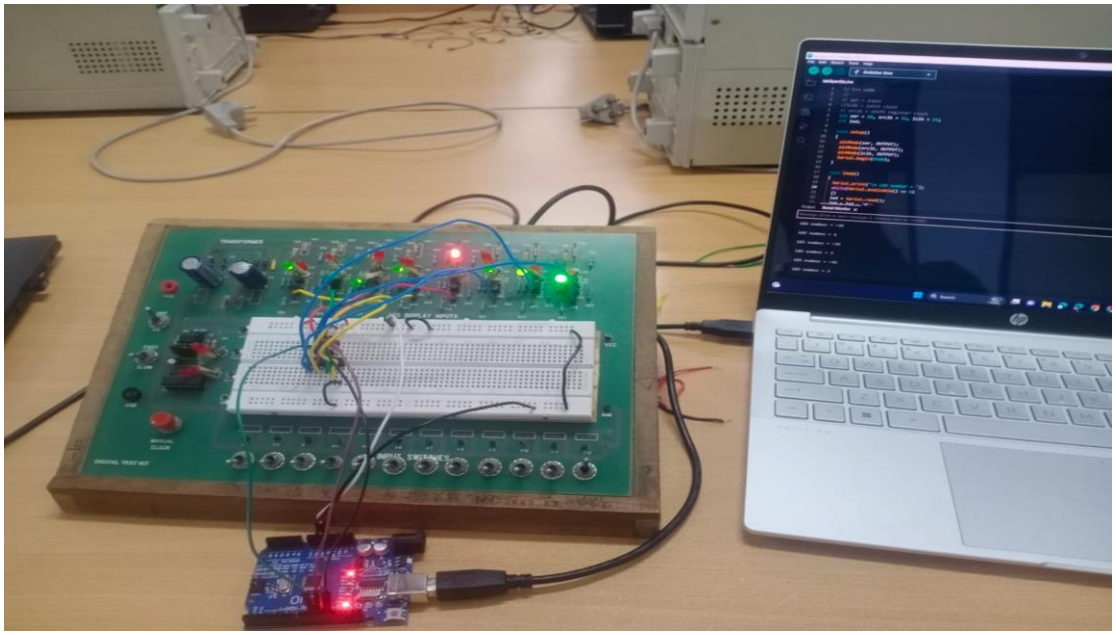
https://www.tinkercad.com/things/c1ftqVywF6L-thebulbpointer/editel?sharecode=d4YgDGR7oMc3urb27h_6KkRxB1dJtla0bJKloUsbgwg

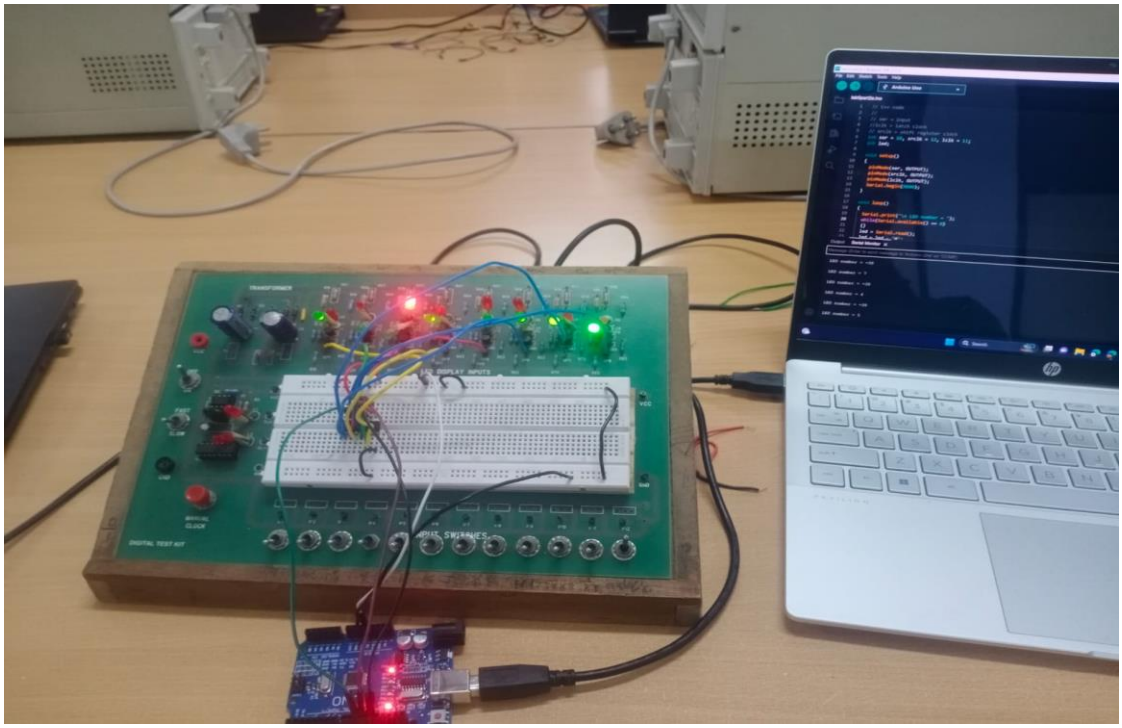
TinkerCad:



LAB:







CODE :

```
// C++ code
//
int input=12,ORegClk=10,ShiftRegClk=9;
int led;
void setup()
{
  pinMode(input, OUTPUT);
  pinMode(ORegClk, OUTPUT);
  pinMode(ShiftRegClk, OUTPUT);
  Serial.begin(9600);
}

void loop()
{
  Serial.print("LED Number=");
  led= Serial.read();
  led=led-'0';
  Serial.println(led);

  int x=1;
  for(int i=0;i<led;i++){
    x=x*2;
  }
```

```
  digitalWrite(ORegClk, LOW); //Clock which changes
from HtoL to register data in SR.
  shiftOut(input,ShiftRegClk,MSBFIRST,x);
  digitalWrite(ORegClk, HIGH);
  delay(2000);



}
```