

# Microprocessor and Computer Architecture Laboratory

UE19CS256

4th Semester, Academic Year 2020-21

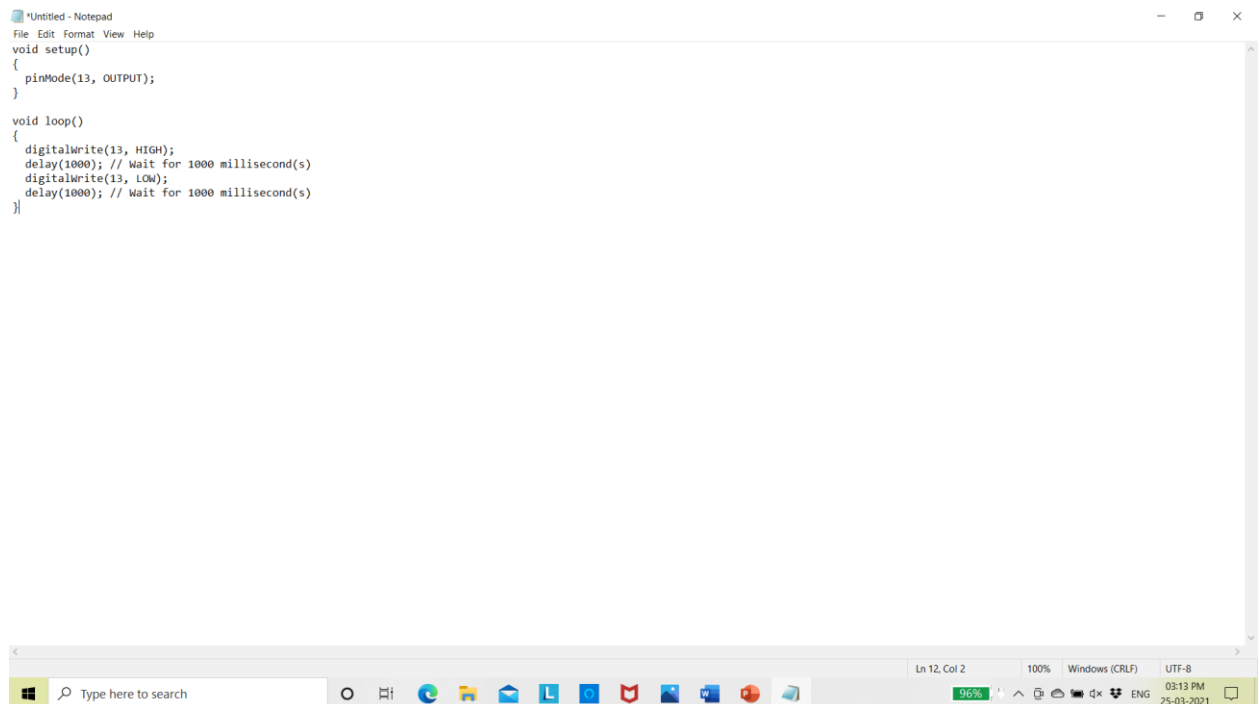
Date:25/03/2021

Name: T.LOHITH SRINIVAS	SRN: PES2UG19CS203	Section  D
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Week# \_\_\_\_7\_\_\_\_ Program Number: \_\_\_\_1\_\_\_\_

**1. A) Implement a Tinkercad simulation to turn on and off the Arduino's on-board LED.**

Arduino Code (1).

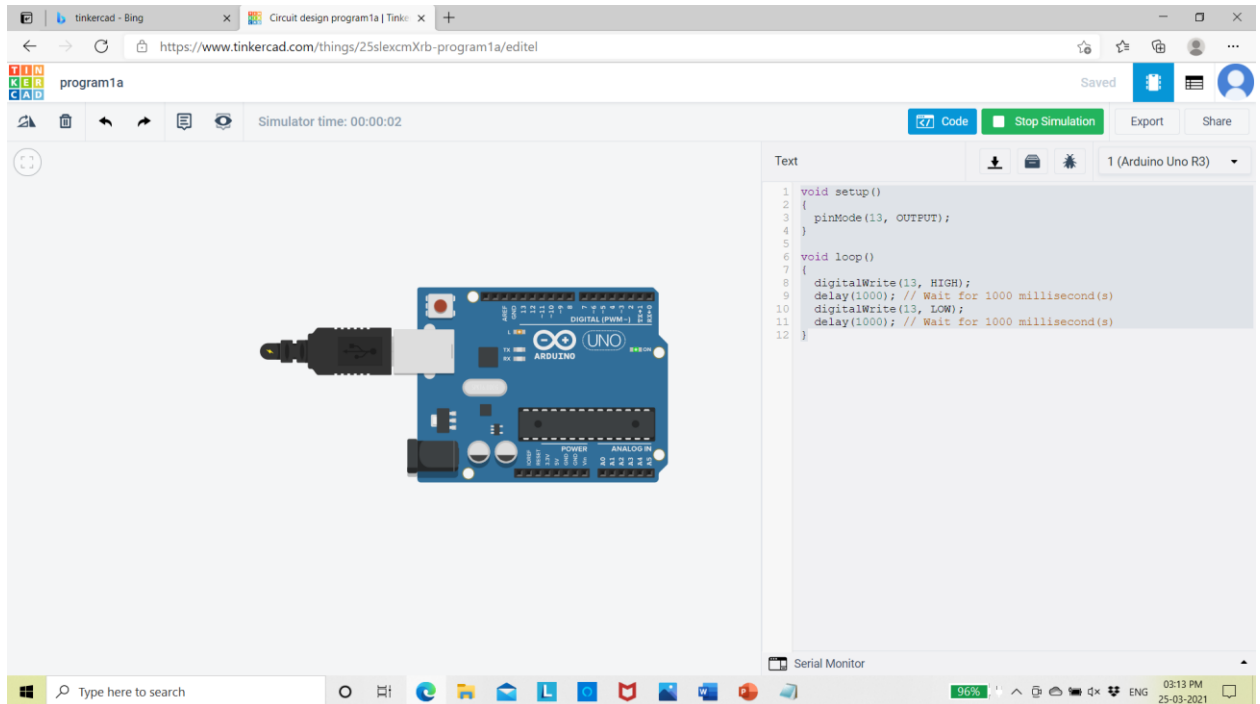


```
*Untitled - Notepad
File Edit Format View Help
void setup()
{
  pinMode(13, OUTPUT);
}

void loop()
{
  digitalWrite(13, HIGH);
  delay(1000); // Wait for 1000 millisecond(s)
  digitalWrite(13, LOW);
  delay(1000); // Wait for 1000 millisecond(s)
}
```

The screenshot shows a Windows desktop environment. At the top, a Notepad window titled '\*Untitled - Notepad' is open, displaying the Arduino code for toggling an LED on pin 13. The code includes a setup function to initialize pin 13 as an output and a loop function that alternates between setting the pin to HIGH and LOW, each with a 1000ms delay. The Windows taskbar at the bottom shows the search bar, task view button, and several pinned applications including Edge, File Explorer, Mail, and various utility tools. The system tray on the right indicates the date and time as 03:13 PM on 25-03-2021.

# Output Screen Shot (1)



## B) Implement a Tinkercad simulation to turn on and off an external LED connected to the Arduino board

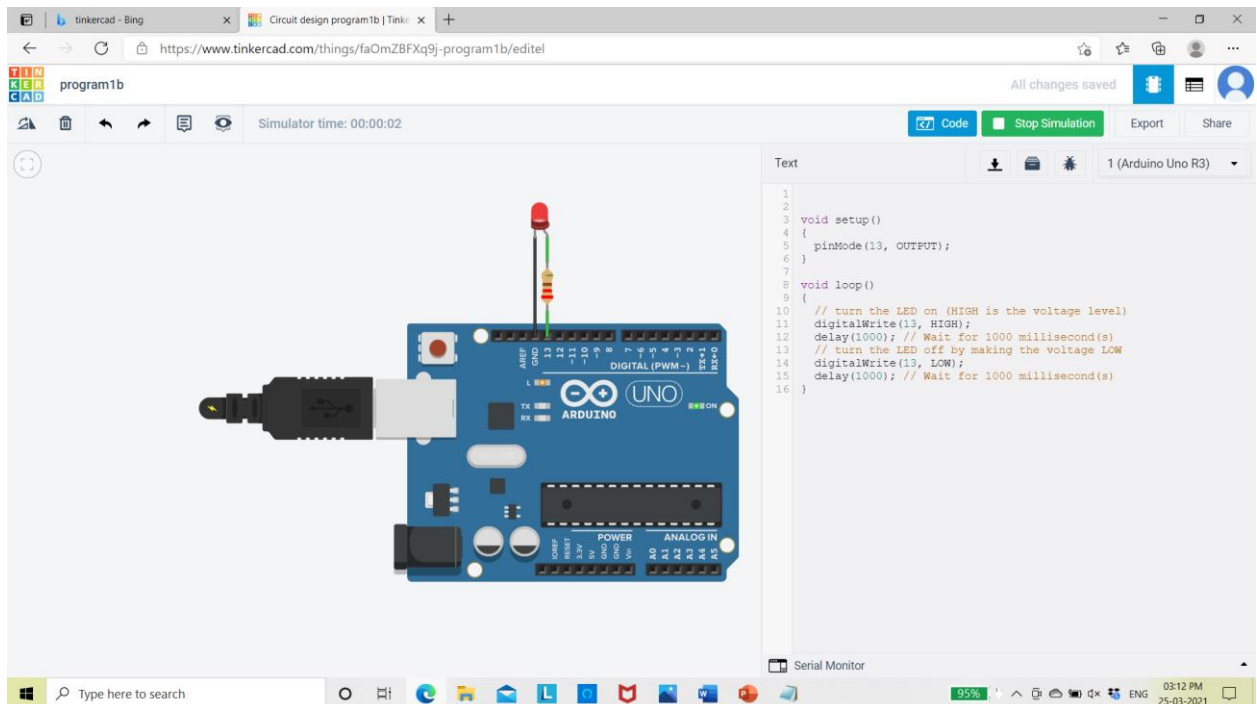
### Arduino Code (1).

```
*Untitled - Notepad
File Edit Format View Help

void setup()
{
  pinMode(13, OUTPUT);
}

void loop()
{
  // turn the LED on (HIGH is the voltage level)
  digitalWrite(13, HIGH);
  delay(1000); // Wait for 1000 millisecond(s)
  // turn the LED off by making the voltage LOW
  digitalWrite(13, LOW);
  delay(1000); // Wait for 1000 millisecond(s)
}
```

### Output Screen Shot (1)



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Date:25/03/2021

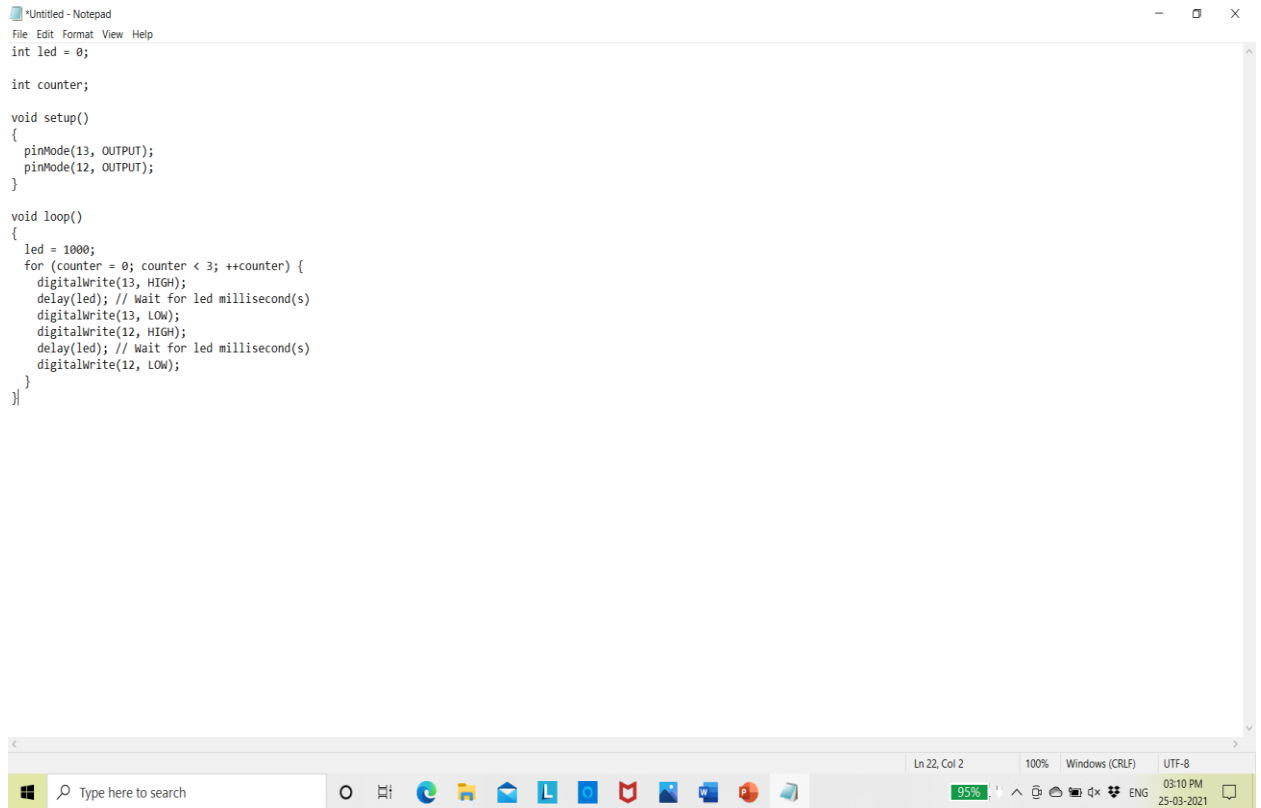
Name: T.LOHITH SRINIVAS	SRN: PES2UG19CS203	Section  D
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Week#\_\_\_\_7\_\_\_\_\_

Program Number: \_\_\_\_2\_\_

**Implement a Tinkercad simulation to alternately turn on and off two external LEDs connected to the Arduino board**

# Arduino Code (1).



```

*Untitled - Notepad
File Edit Format View Help
int led = 0;

int counter;

void setup()
{
  pinMode(13, OUTPUT);
  pinMode(12, OUTPUT);
}

void loop()
{
  led = 1000;
  for (counter = 0; counter < 3; ++counter) {
    digitalWrite(13, HIGH);
    delay(led); // Wait for led millisecond(s)
    digitalWrite(13, LOW);
    digitalWrite(12, HIGH);
    delay(led); // Wait for led millisecond(s)
    digitalWrite(12, LOW);
  }
}

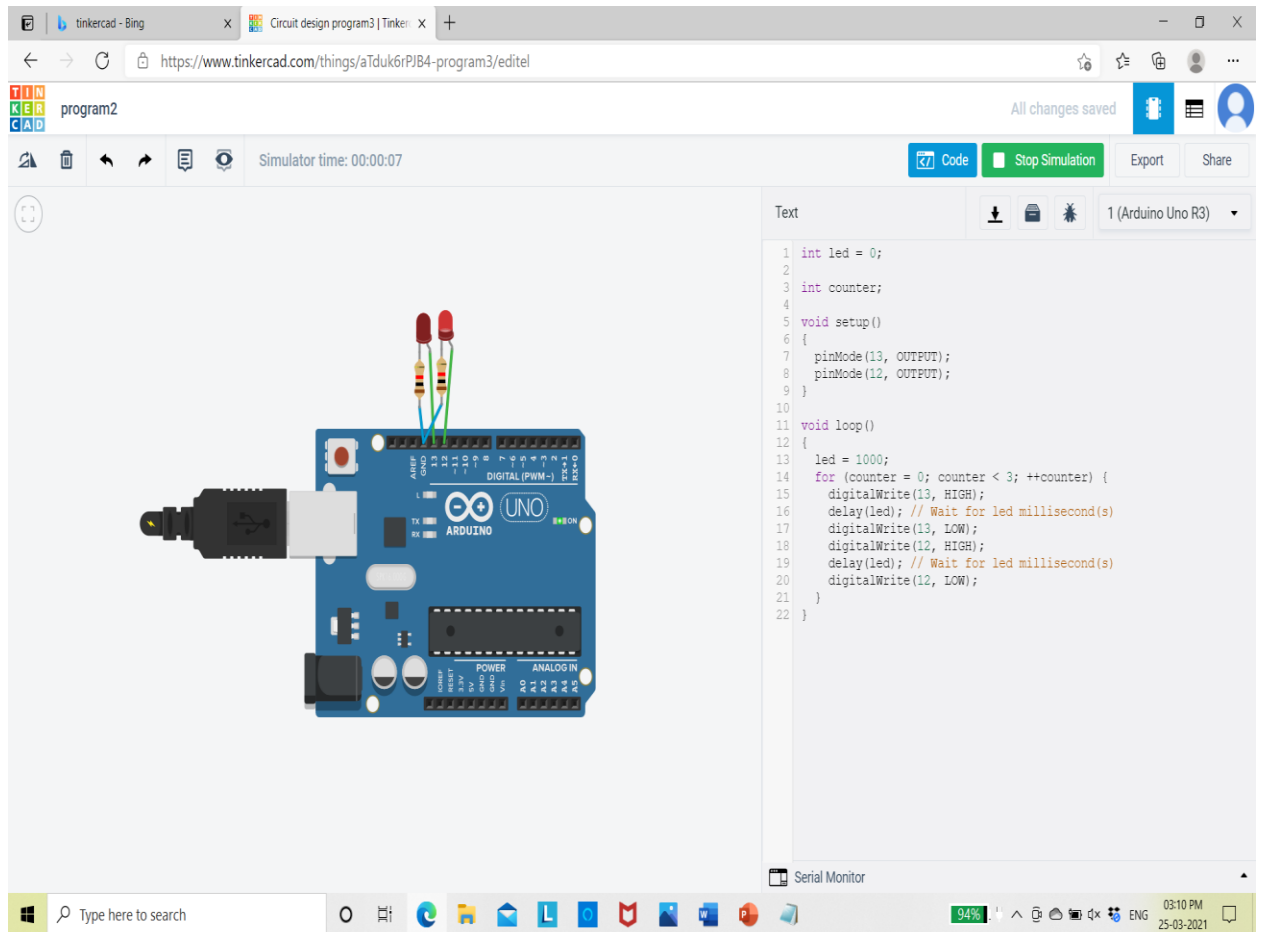
```

Ln 22, Col 2 100% Windows (CRLF) UTF-8

Type here to search

95% 03:10 PM 25-03-2021

# Output Screen Shot (1)



# **Microprocessor and Computer Architecture Laboratory**

**UE19CS256**

**4th Semester, Academic Year 2020-21**

Date:25/03/2021

Name: T.LOHITH SRINIVAS	SRN: PES2UG19CS203	Section  D
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Week# \_\_\_\_7\_\_\_\_

Program Number: \_\_\_\_3\_\_

**Implement a Tinkercad simulation to use a pushbutton to control an LED.**

# Arduino Code (1).

```
*Untitled - Notepad
File Edit Format View Help
int buttonState = 0;

void setup()
{
  pinMode(2, INPUT);
  pinMode(13, OUTPUT);
}

void loop()
{
  // read the state of the pushbutton value
  buttonState = digitalRead(2);
  // check if pushbutton is pressed.  if it is, the
  // buttonState is HIGH
  if (buttonState == HIGH) {
    // turn LED on
    digitalWrite(13, HIGH);
  } else {
    // turn LED off
    digitalWrite(13, LOW);
  }
  delay(20); // Delay a little bit to improve simulation performance
}
```

Ln 23, Col 2 100% Windows (CRLF) UTF-8 93% 03:07 PM 25-03-2021

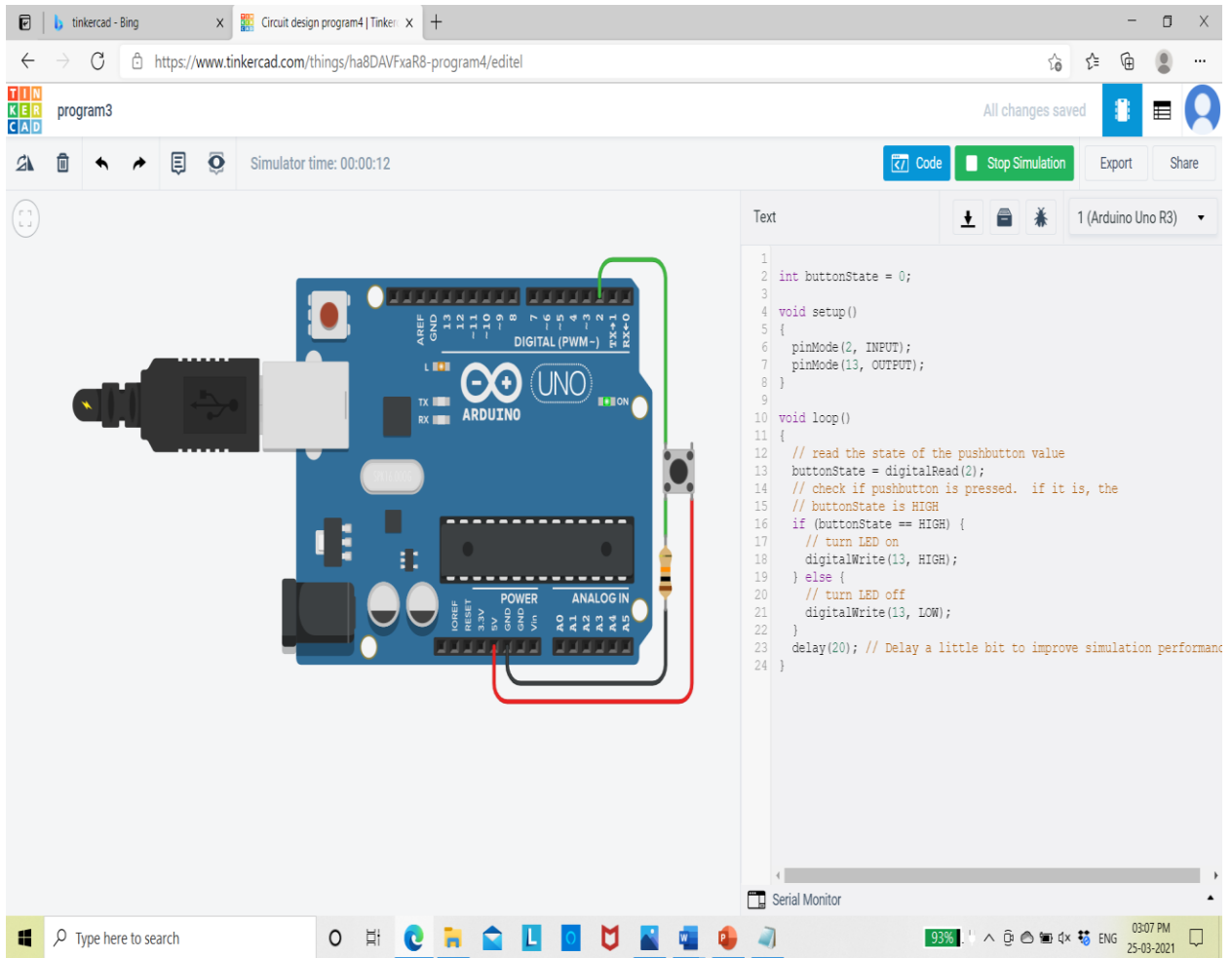
Type here to search

Taskbar icons: File Explorer, Edge, Mail, L, O, M, S, P, and a folder icon.

System tray: Network, Volume, and Notification Area Icons.



# Output Screen Shot (1)



# **Microprocessor and Computer Architecture Laboratory**

**UE19CS256**

**4th Semester, Academic Year 2020-21**

Date:25/03/2021

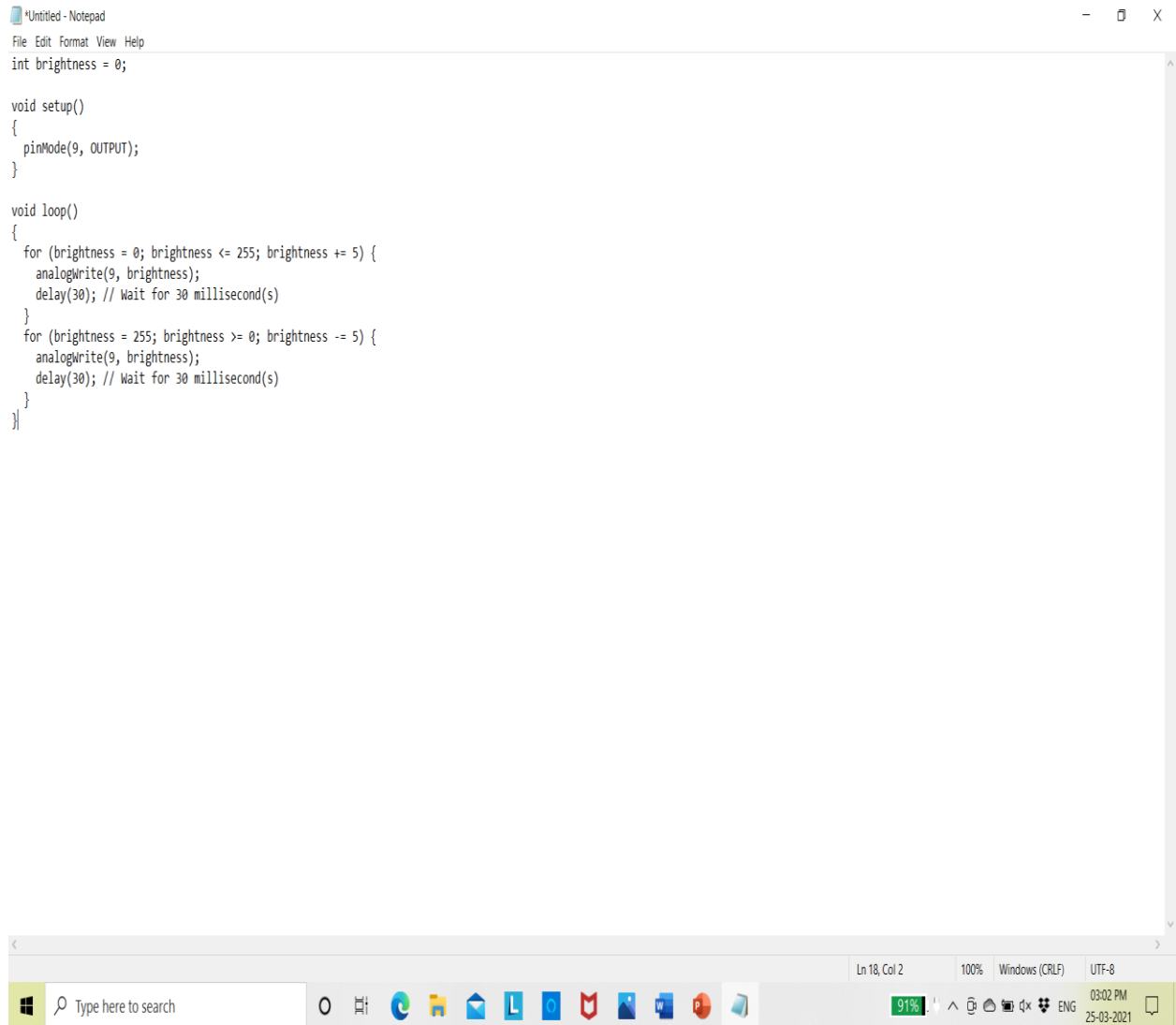
Name: T.LOHITH SRINIVAS	SRN: PES2UG19CS203	Section  D
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Week#\_\_\_7\_\_\_\_\_

Program Number: \_\_\_4\_\_\_

**Implement a Tinkercad simulation to demonstrate fading of an LED (zero to maximum brightness slowly)**

# Arduino Code (1).



The image shows a Notepad window titled "Untitled - Notepad" with a menu bar (File, Edit, Format, View, Help). The code inside is as follows:

```
int brightness = 0;

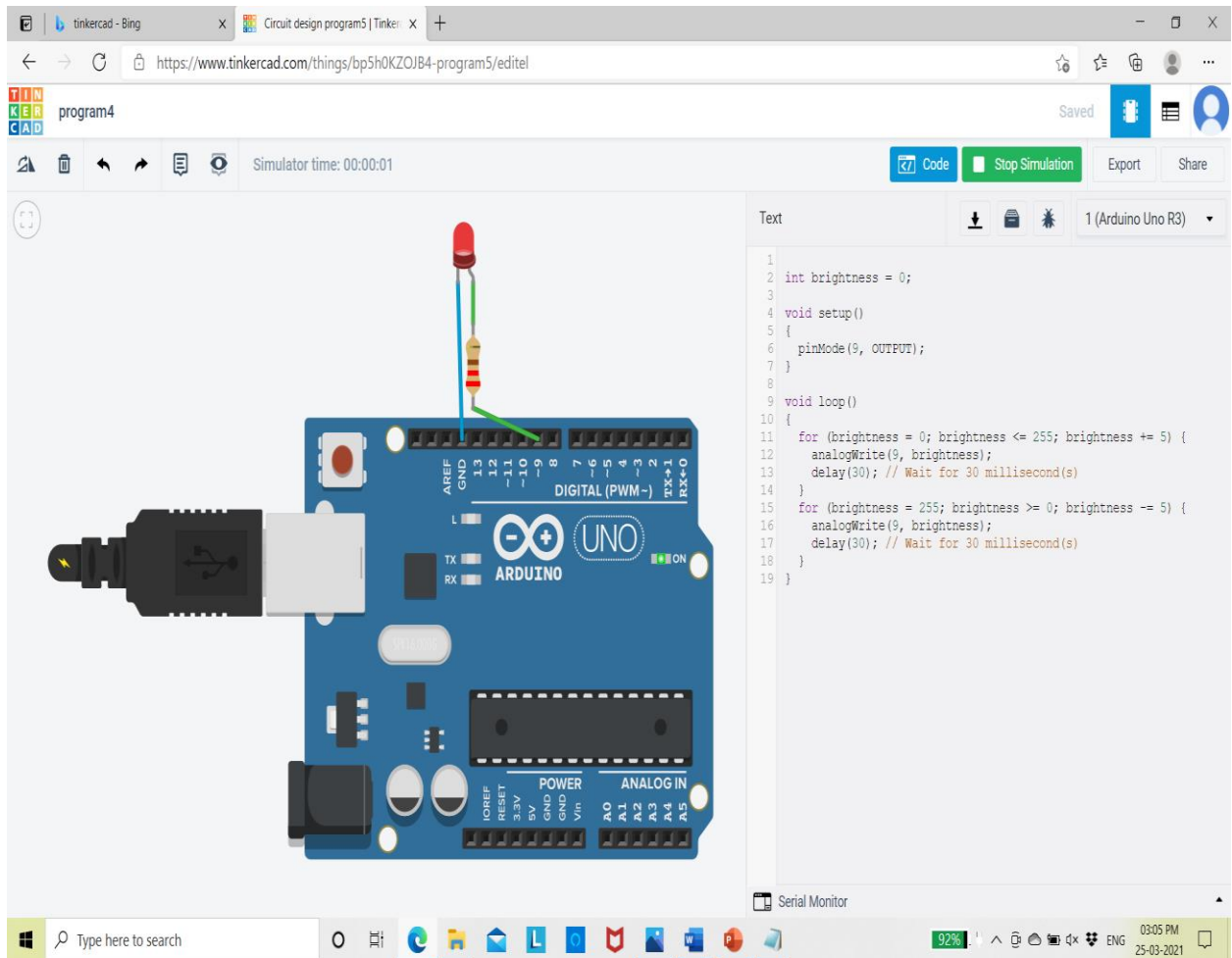
void setup()
{
  pinMode(9, OUTPUT);
}

void loop()
{
  for (brightness = 0; brightness <= 255; brightness += 5) {
    analogWrite(9, brightness);
    delay(30); // Wait for 30 millisecond(s)
  }
  for (brightness = 255; brightness >= 0; brightness -= 5) {
    analogWrite(9, brightness);
    delay(30); // Wait for 30 millisecond(s)
  }
}
```

The status bar at the bottom of the Notepad window displays "Ln 18, Col 2", "100%", "Windows (CRLF)", and "UTF-8".

Below the Notepad window is the Windows taskbar. It includes the Start button, a search bar with the text "Type here to search", and several pinned application icons: Edge, File Explorer, Mail, Lync, OneDrive, Internet Explorer, and others. The system tray on the right shows a battery level of 91%, network and volume icons, and the date/time "03:02 PM 25-03-2021".

# Output Screen Shot (1)



### **Disclaimer:**

- The programs and output submitted is duly written, verified and executed by me.
- I have not copied from any of my peers nor from the external resource such as internet.
- If found plagiarized, I will abide with the disciplinary action of the University.

Signature: T.LOHITH SRINIVAS

Name: T.LOHITH SRINIVAS

SRN: PES2UG19CS203

Section: D

Date: 25/03/2021