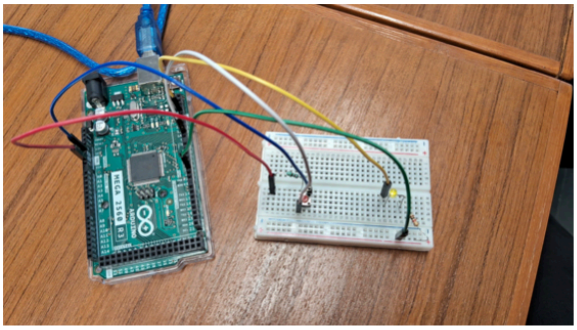
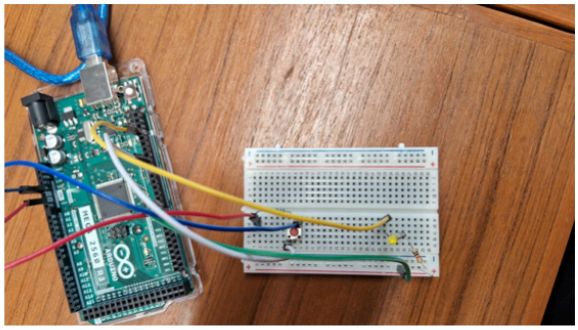
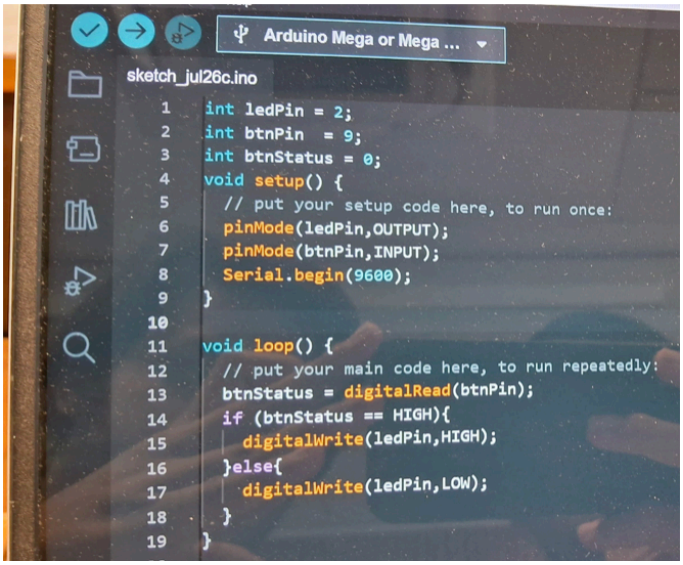
EXPERIMENT - 1
Part A
Class: B.Tech CSE 4th Year **Sub: Internet of Things Lab**
Aim: Introduction to Arduino platform and programming.
Prerequisite: Basics of programming, microcontrollers and basic electronics
Outcome: Understanding of basic IoT framework and programming with Arduino IDE
Theory: 1. Study of fundamental IoT and its components **2. Understanding of Arduino boards, Arduino IDE, and Serial monitor.** **3. LED blinking program** **4. LED control using serial monitor and buttons.**

Part B
Steps: 1. Get the small bread board and Arduino board, Male jumper wires, led pin, resistor, switch and usb cable. 2. Firstly create a simple LED circuit connecting LedPin, Resistor, Jumper Wires in bread board and arduino board. 3. Write the LED blinking program in Arduino IDE. 4. Connect Arduino board to your computer using USB cable,verify and upload the code. 5. Observe the LED blinking on basis on your delays mentioned in code. 6. Secondly for LED blinking using button and displaying on seral monitor, change the circuit. 7. Integrate another resistor along with switch button on bread board with ground and Arduino board with the 5V and digital pin using jumper wires. 8. Update the code, verify and upload the code. 9. Observe the LEB blinking and check LED status on serial monitor.

Output:







Observation & Learning:

- The LED successfully blinks on and off at regular intervals.
- The LED's status can be observed from the serial monitor.
- Physical buttons/Switch provide another method of controlling the LED.
- Understanding of basic Arduino programming and circuit setup.
- Familiarity with using the Arduino IDE and serial monitor.
- Insights into how microcontrollers can interact with physical components.

Conclusion:

The experiment helped to gain a practical introduction to basics of IOT and microcontroller/Arduino programming. By controlling an LED using both code and physical components, we gained hands-on experience with microcontroller-based systems, which will help us in understanding further advanced IOT based systems.