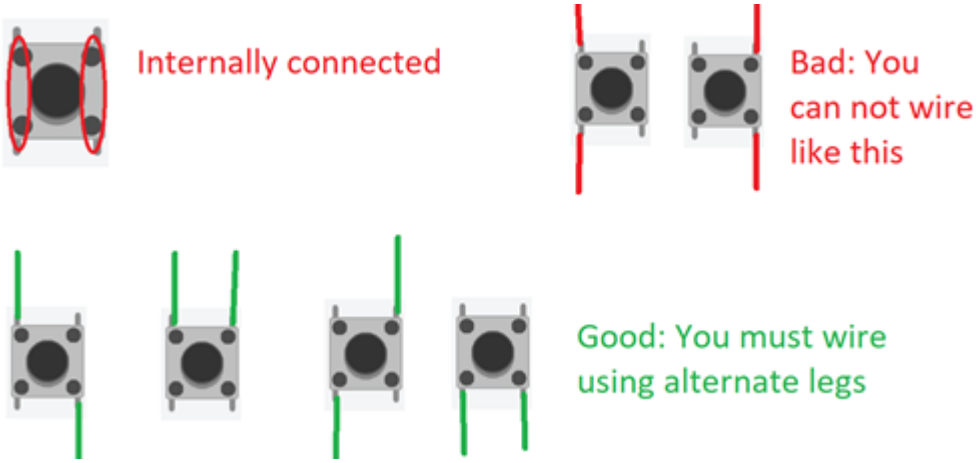
Name: Tarkan Zarrouk Date:03/19/2024

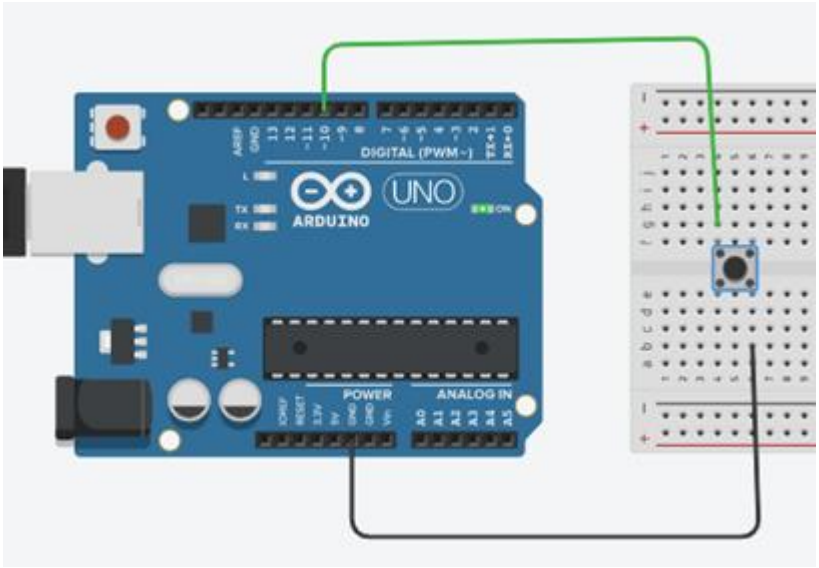
Lab 8 - Button - Arduino

The button is a basic component and widely used in many Arduino projects. It is simple to use. However, it may confuse you, due to mechanical, physical issues and ways to use it as well.

About Button
Button usually have four pins. However, these pins are internally connected in pairs. Therefore, we only need to use two of the four pins, which are NOT internally connected.



Step 1) Build the following circuit



Step 2) Add the following code

Step 3) Run the code.

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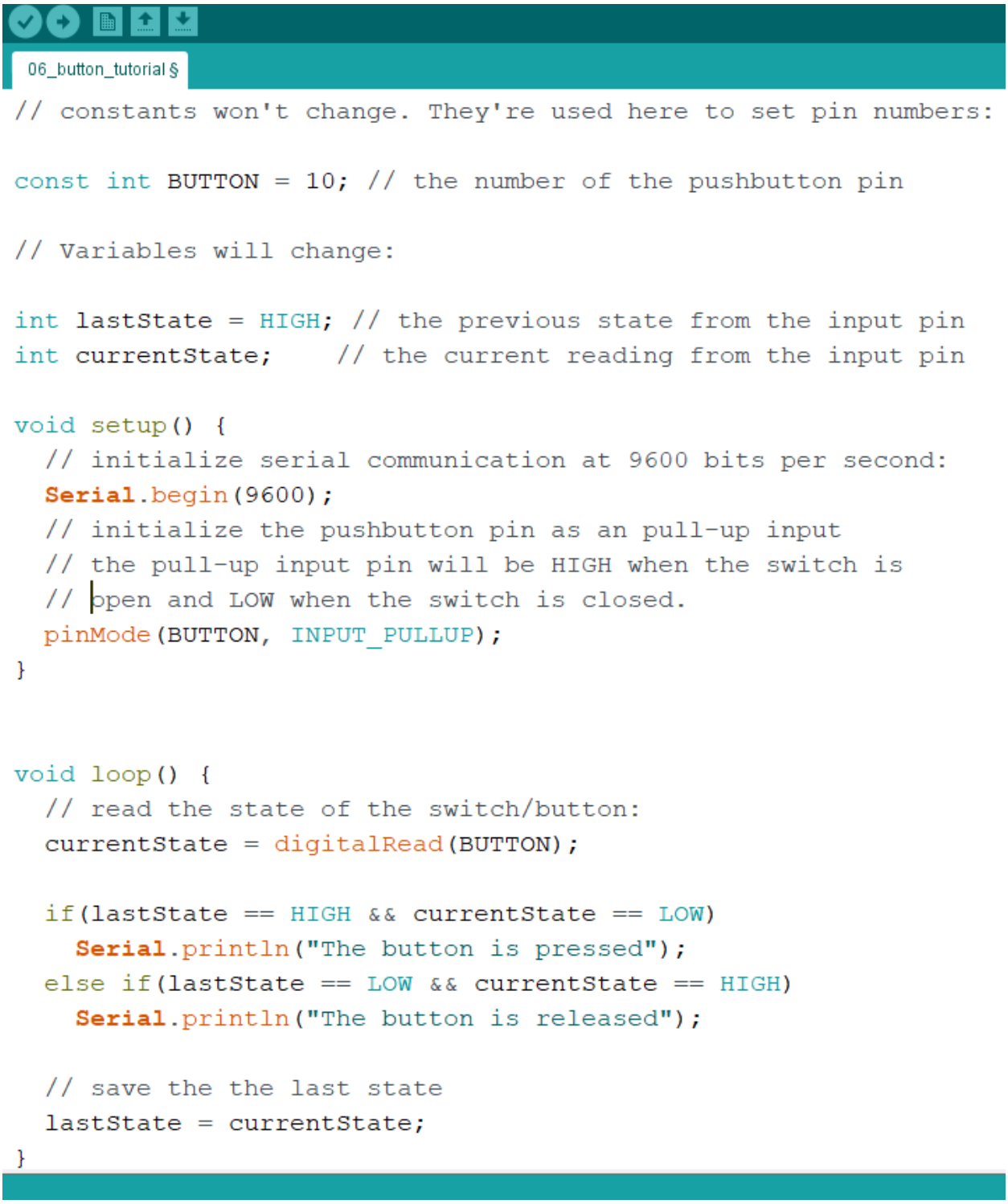

06_button_tutorial §

```
// constants won't change. They're used here to set pin numbers:

const int BUTTON = 10; // the number of the pushbutton pin

// Variables will change:

int lastState = HIGH; // the previous state from the input pin
int currentState;     // the current reading from the input pin

void setup() {
  // initialize serial communication at 9600 bits per second:
  Serial.begin(9600);
  // initialize the pushbutton pin as an pull-up input
  // the pull-up input pin will be HIGH when the switch is
  // open and LOW when the switch is closed.
  pinMode(BUTTON, INPUT_PULLUP);
}


void loop() {
  // read the state of the switch/button:
  currentState = digitalRead(BUTTON);

  if(lastState == HIGH && currentState == LOW)
    Serial.println("The button is pressed");
  else if(lastState == LOW && currentState == HIGH)
    Serial.println("The button is released");

  // save the the last state
  lastState = currentState;
}
```

Step 4) Press the button. Nothing will appear to happen…. But look at the serial monitor.

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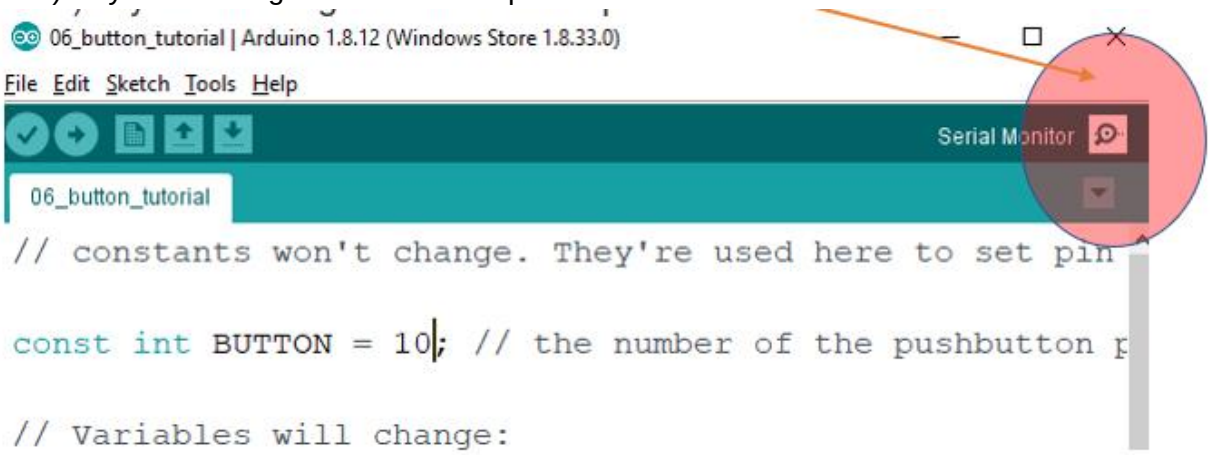
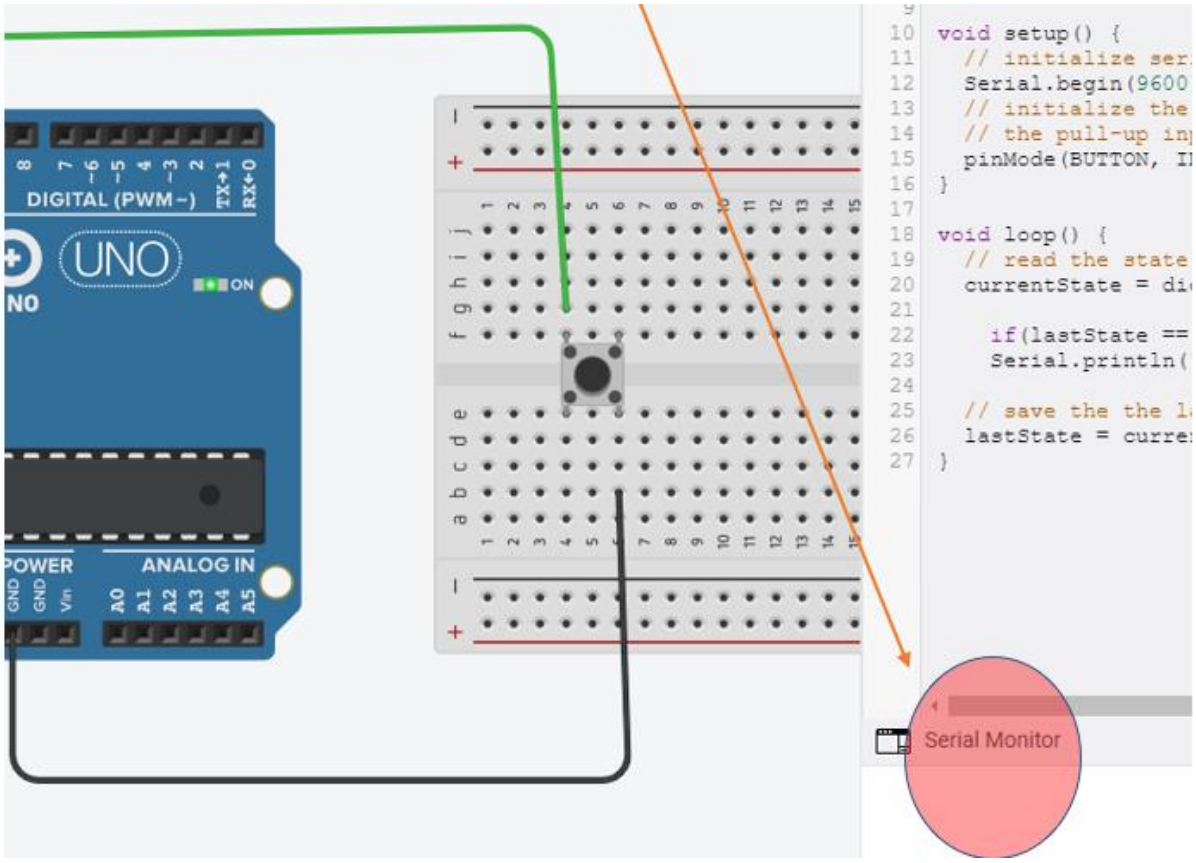
a) If you are using the Arduino IDE press here



b) If you are using TinkerCAD press here



Step 5) Replace the void loop with the following code

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```
void loop() {
  // read the state of the switch/button:
  currentState = digitalRead(BUTTON);

  if(lastState == LOW && currentState == HIGH)
    Serial.println("The state changed from LOW to HIGH");

  // save the the last state
  lastState = currentState;
}
```

Questions:

1) What was the message displayed in the serial monitor in step 4?

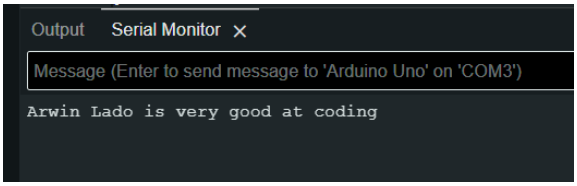
The message that was displayed on the serial monitor was

```
The button is pressed
The button is released
"
```

2) What was the message displayed in the serial monitor in step 5? Be specific.
The message that was displayed on the serial monitor was:

```
"The button is pressed
The button is released
"
```

3) Replace the message displayed in the serial monitor with one of your own creation. Insert a screen capture of your code here:



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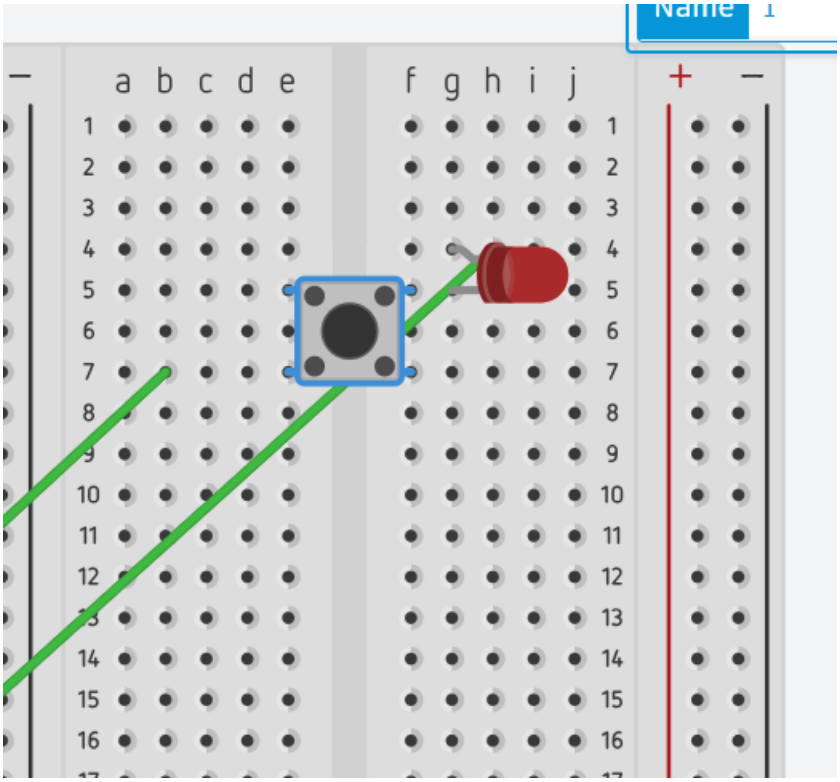
4) Add an LED to your circuit board. The LED should come on dimly without adjusting the code. Insert a screen capture of your circuit board with the LED. The LED should be controlled by the button.



5) What is the difference between serial.print vs serial.println ?

The difference between serial print and serial println is that Serial. print ()Serial. print() prints only the number or string, and Serial. println() prints it with a newline character prints only the number or string, and Serial. println() prints it with a newline character