Exercise 3: Digital Input

Equipment

For this exercise you will need:

- 1 x Arduino Uno
- 1 x LED
- 1 x Button
- 1 x Resistor $\sim 60 - 220\Omega$
- Wires

Use **Tab** to add indentation to all selected lines

Reading

Chaptor 3 & 4

Setup

- Connect the LED and the button to the Uno. The button should be connected to ground and to one of the digital pins. See figure 3
- Remember to set the pin to input using pinMode(PIN, INPUT_PULLUP)

Questions & Exercises

3a: What is the difference between pinMode(PIN, INPUT) and pinMode(PIN, INPUT_PULLUP)?
3b: What is the operator ! used for?
3c: Control the LED with the button

1. While the button is pushed down the LED should be turned on.
   You can use digitalRead(PIN) and digitalWrite(PIN, <value>) to read from the button pin and write to the LED pin
2. Make a latching button. A latching button should change state if you push it. (Push to turn on LED. Push again to turn LED off)

. **3d:** How often does your program check if the button has been pushed? Does this seem reasonable?

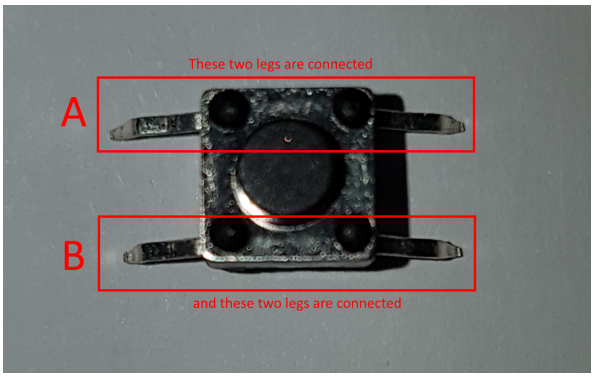

Figure 3: Button layout: The two pins in each pair is essentially the same pin. One pair should be connected to ground and the other to a digital input pin

---

Hint

```
pinMode(b1, INPUT_PULLUP); // Setup button pin
if(digitalRead(b1) == false){
    //button pushed
}
```