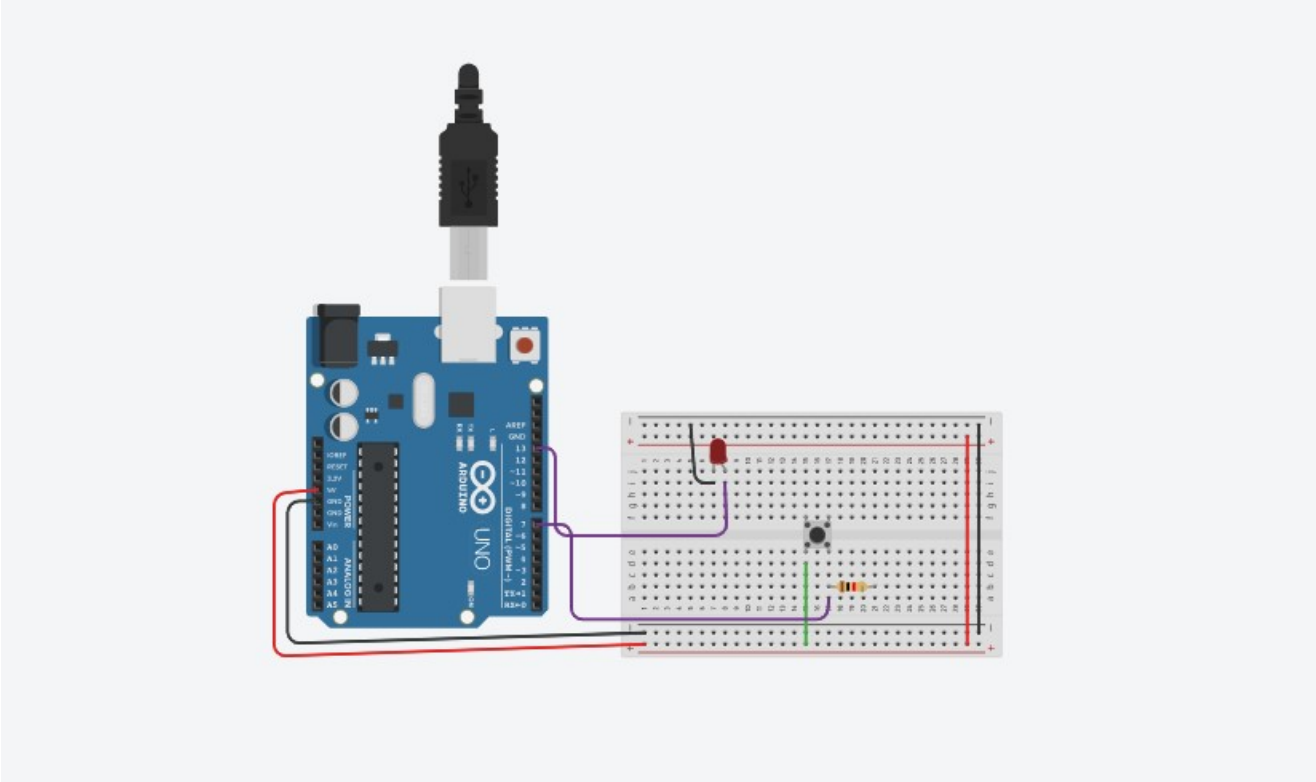
Button controlled LED

Circuit Diagram:



TheoryConcept

Used:

The LED turns on when the butten is pushed and turns off when the button is released.

Learning and Observations:

Following observations were recorded during the experiment:

- ❖ *The LED turns on when the input from the button is HIGH and turnsof when it isLOW.*
- ❖ *The button needs to be connected to the ground to give LOW inputwhen the button is notpressed.*

Problems and Troubleshooting:

The problem faced while performing the experiment was that the program compiled and uploaded to the boeard successfully but the LED didn't glow.The problem was troubleshooted by replacing a connecting wire.

- *Making a functional was a bit time taking as it becomes a bit confusing on arranging the wires.*
- *Minors errors showed up in the code during the test run, which was trouble shooted by the correcting the above*

Precautions:

The following precautions need to be considered while performingthis experiment:

- *The connections of the USB in both the PC and theARDUINO UNO board should besnug.*
- *The USB ports of the PC and the ARDUINO UNO should be in aworking condition.*
- *The sketch should be logically and syntactically correct and germaneto the experiment that needs to beperformed.*
- *The correct serial port should be selected that is the one throughwhich the ARDUINO UNO has beenconnected.*
- *Look for errors during compilation and upload of the executable tothe ARDUINO UNO.*
- *Disconnect the digital 1 and 0 pins while uploading the program tothe board.*
- *Do not open more than one instance of the ARDUINO IDE at atime.*

Learning outcomes:

The various learnings as the outcome of performing the above-mentioned experiment are:

1. *Use of the digitalRead()function.*
2. *Connecting a push button to take input and send it toARDUINO.*
3. *I have learnt to use Arduino Board and how the code will work whenever the switch is pressed LED emmits light.*
4. *How a circuit is placed on breadboard so that it can work properly.*
5. *Arduino board has Digital pins and Analog pins.*
6. *Digital pin provides Input as well as Output, but Analog pin provides only input.*
7. *The Arduino board has ~ sign in Digital pin side which is also known as Pulse Width Modulation(PWM).*
8. *These pins help's in getting Analog signals with digital means.*