**Buzzer**

|  |
| --- |
| void **setup**(){  //nothing to run  }  int duration = 1000;  int pin = 2  void **loop**(){  tone(pin,440);  delay(duration);  noTone(pin);  delay(duration);  } |

**DigitalRead**

|  |
| --- |
| int buttonPin = 2;  int ledPin = 13;  void **setup**(){  pinMode(buttonPin, INPUT\_PULLUP);  pinMode(ledPin, OUTPUT);  }  void **loop**(){   int buttonState = digitalRead(buttonPin);    digitalWrite(ledPin, buttonState);  } |

**Edge Detection**

|  |
| --- |
| int buttonPin = 2;  int ledPin = 13;  int ledState = HIGH;  int previousButtonState = HIGH;  void **setup**() {  pinMode(buttonPin, INPUT\_PULLUP);  pinMode(ledPin, OUTPUT);  }  void **loop**() {  int newButtonState = digitalRead(buttonPin);  // Detect an edge as a change of button state:  if (newButtonState != previousButtonState){  buttonState = reading;  //See if it was a falling edge (ie now low)  if (buttonState == LOW){  ledState = !ledState;  }  }  //now update previousButtonState for next time  previousButtonState = newButtonState;   digitalWrite(ledPin, ledState);  } |

**AnalogRead**

|  |
| --- |
| void **setup**() {  //nothing here!  }  void **loop**() {     int potentiometerVal = analogRead(A0);     int outputVal = map(potentiometerVal, 0, 1023, 0, 255);     analogWrite(3, outputVal);  } |

**Debounce**

|  |
| --- |
| int buttonPin = 2;  int ledPin = 13;  int ledState = HIGH;  int storedButtonState = HIGH;  int previousButtonState = HIGH;  long lastEdgeTime = 0;  void **setup**() {  pinMode(buttonPin, INPUT\_PULLUP);  pinMode(ledPin, OUTPUT);  }  void **loop**() {  int newButtonState = digitalRead(buttonPin);  //Detect an edge as a change of button state  if (newButtonState != previousButtonState) {  lastEdgeTime = millis();  }  //Check if it’s been long enough since the last edge  if ((millis() - lastDebounceTime) > debounceDelay) {  //Check if there’s been a change since before the bounces occurred  if (newButtonState != storedButtonState) {  storedButtonState = newButtonState;  //See if it was a falling edge (ie now LOW)  if (newButtonState == LOW)  ledState = !ledState;  }   }   }   digitalWrite(ledPin, ledState);  previousButtonState = newButtonState;  } |

# Common functions

digitalRead(int pin)

This function is used to read the state of the specified pin. It will return LOW or HIGH.

analogRead(int pin)

This function returns a value between 0 and 1024. This represents the voltage on the specified pin between 0v and 5v.

map(int value, int fromLow, int fromHigh, int toLow, int toHigh)

Maps one range of values to another and returns the result. Useful for mapping analogue inputs to PWM outputs.

e.g. map(value, 0, 1024, 0, 255);

millis()

Returns the number of milliseconds the Arduino has been running. This returns a value of type long.