# Assignment – 4

Assignment Date	28 October 2022
Student Name	CHANDHANA R C
Student Roll Number	113319106013
Maximum Marks	2 Marks

## Question-1:

Write code and connections in wokwi for ultrasonic sensor. Whenever distance is less than 100 cms send "Alert" to ibm cloud and display in device recent events.

# Solution:

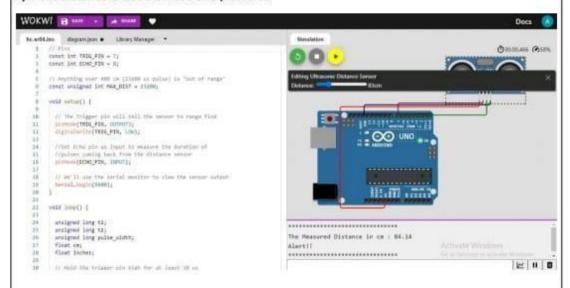
```
// Pins
const int TRIG_PIN = 7;
const int ECHO PIN = 8;
// Anything over 400 cm (23200 us pulse) is "out of range"
const unsigned int MAX DIST = 23200;
void setup() {
// The Trigger pin will tell the sensor to range find
pinMode(TRIG_PIN, OUTPUT);
digitalWrite(TRIG PIN, LOW);
//Set Echo pin as input to measure the duration of
//pulses coming back from the distance sensor
pinMode(ECHO_PIN, INPUT);
// We'll use the serial monitor to view the sensor output
```

```
Serial.begin(9600);
}
void loop() {
unsigned long t1;
unsigned long t2;
unsigned long pulse_width;
float cm;
float inches;
// Hold the trigger pin high for at least 10 us
digitalWrite(TRIG PIN, HIGH);
delayMicroseconds(10);
digitalWrite(TRIG PIN, LOW);
// Wait for pulse on echo pin
while ( digitalRead(ECHO PIN) == 0 );
// Measure how long the echo pin was held high (pulse width)
// Note: the micros() counter will overflow after ~70 min
t1 = micros();
while ( digitalRead(ECHO_PIN) == 1);
t2 = micros();
pulse width = t2 - t1;
// Calculate distance in centimeters and inches. The constants
```

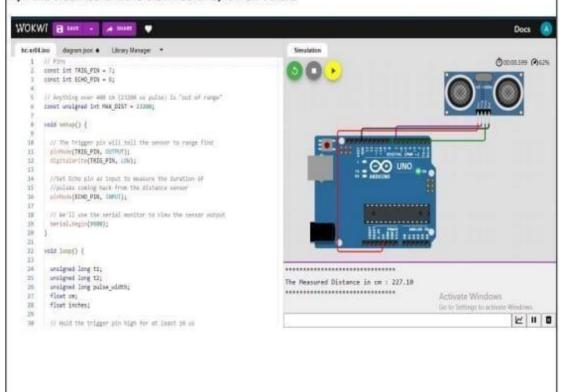
```
// are found in the datasheet, and calculated from the assumed speed
//of sound in air at sea level (~340 m/s).
cm = pulse_width / 58.0;
inches = pulse width / 148.0;
// Print out results
if ( pulse_width > MAX_DIST ) {
Serial.println("Out of range");
} else {
Serial.println("******************************);
Serial.print("The Measured Distance in cm : ");
Serial.println(cm);
if(cm<100){
 // while(true){
 Serial.println("Alert!!");
//}
Serial.print("*****************************);
// Wait at least 1000ms before next measurement
delay(1000);
}
```

### Output:

1)If the distance is less than 100 cms, it alerts.



2) If the distance is more than 100 cms, it won't alert.



#### 3) Simulation and code execution

