Assignment - 4

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 TRIGpPIN = 7;
const int ECHOpPIN = 8;

// Anything over 400 cm (23200 us pulse) is "out of range"
const unsigned int MAXpDIST =  23200;

void setup()  (

  // The Trigger pin will tell the sensor to range find
  pinMode(TRIGpPIN, OUTPUT);
  digita1Write (TRIGpPIN, 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 pulsepwidth;
  float cm;
  float inches;

  // Hold the trigger pin high for at least 10 us
```

```
digita1Write(TRIGpPIN, HIGH);
delayMicroseconds(10);
digita1Write(TRIGpPIN, LOW);

// Wait for pulse on echo pin
while ( digita1Read(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 ( digita1Read(ECHO_PIN) == 1);
t2 = micros();
pulsepwidth = 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 mls).
cm = pulsepwidth / 58.0;
inches = pulsepwidth / 148.0;

// Print out results
if ( pulsepwidth > MAX DIST ) (
  Serial.println(”Out of range”);
} else (
  Serial.print1n("*********************************");
  Serial.print("The Measured Distance in cm : ");
  Serial.print1n(cm);

  if(cm<100)(
    // while(true)(
    Serial.println("Alert!!”);



  Serial.print("*********************************”);


// Wait at least l000ms 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