QUESTION:

Write code and connections in Wokwi for the ultrasonic sensor. Whenever the distance is less than 100cms send an "alert" to the IBM cloud and display in the device recent events. Upload document with Wokwi share link and images of IBM cloud.

PROGRAM:

```
/*
  HC-SR04 Ultrasonic Sensor Example.

  Turn the LED on when an object is within 100cm range.

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*/


#define ECHO_PIN 2
#define TRIG_PIN 3

void setup()
{
  Serial.begin(115200);
  pinMode(LED_BUILTIN, OUTPUT);
  pinMode(TRIG_PIN, OUTPUT);
  pinMode(ECHO_PIN, INPUT);
}

float readDistanceCM() {
  digitalWrite(TRIG_PIN, LOW);
  delayMicroseconds(2);
  digitalWrite(TRIG_PIN, HIGH);
  delayMicroseconds(10);
  digitalWrite(TRIG_PIN, LOW);
  int duration = pulseIn(ECHO_PIN, HIGH);
  return duration * 0.034 / 2;
}

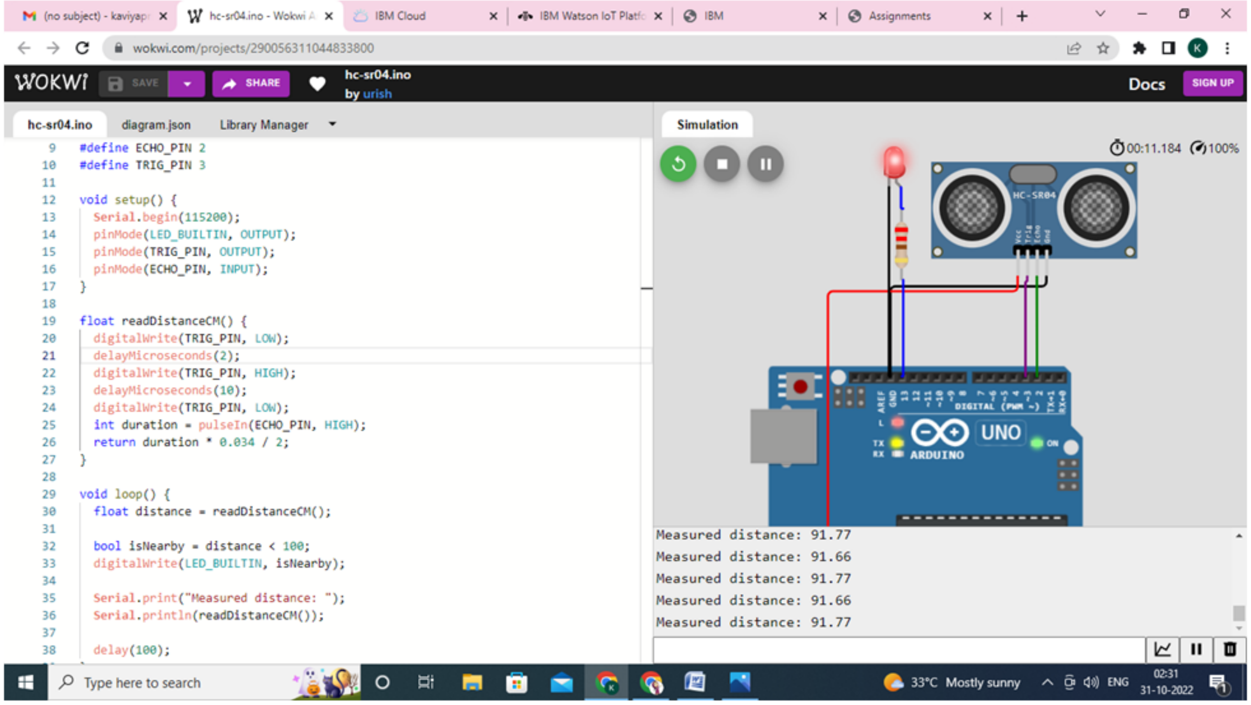
void loop() {
  float distance = readDistanceCM();

  bool isNearby = distance < 100;
  digitalWrite(LED_BUILTIN, isNearby);

  Serial.print("Measured distance: ");
  Serial.println(readDistanceCM());

  delay(100);
}
```

CONNECTION:



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  return duration * 0.034 / 2;
}

void loop() {
  float distance = readDistanceCM();

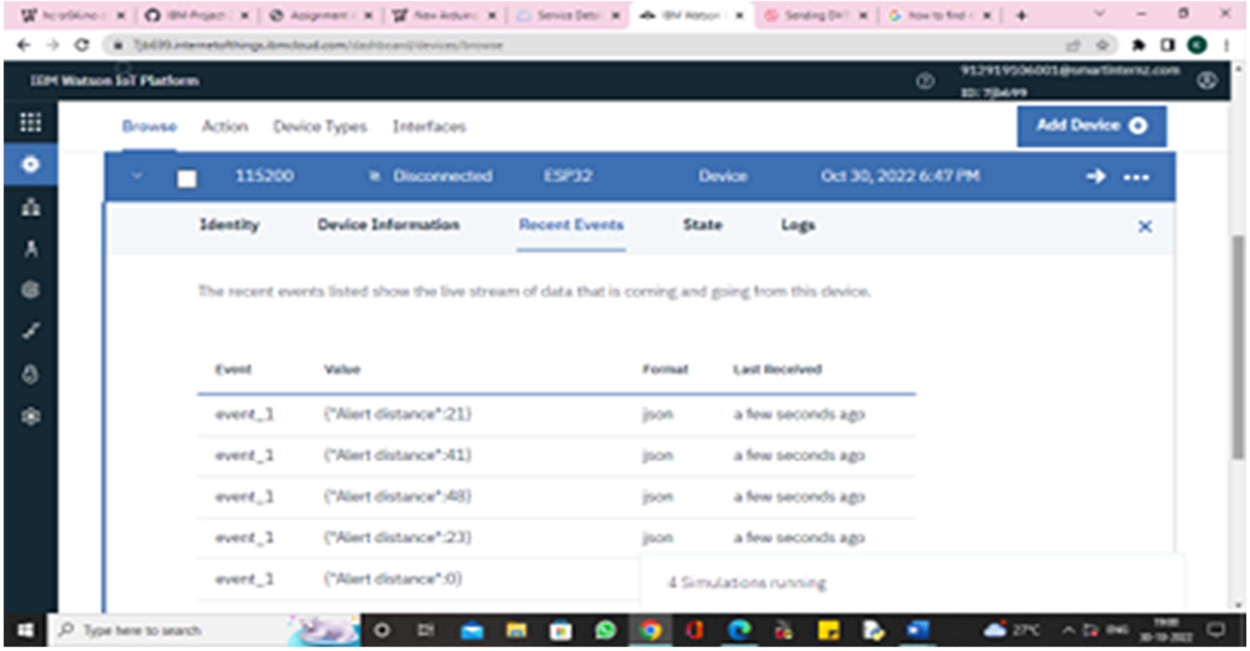
  bool isNearby = distance < 100;
  digitalWrite(LED_BUILTIN, isNearby);

  Serial.print("Measured distance: ");
  Serial.println(readDistanceCM());

  delay(100);
```

```
Measured distance: 91.77
Measured distance: 91.66
Measured distance: 91.77
Measured distance: 91.66
Measured distance: 91.77
```

OUTPUT:



115200	Disconnected	ESP32	Device	Oct 30, 2022 6:47 PM

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
event_1	{"Alert distance":21}	json	a few seconds ago
event_1	{"Alert distance":41}	json	a few seconds ago
event_1	{"Alert distance":48}	json	a few seconds ago
event_1	{"Alert distance":23}	json	a few seconds ago
event_1	{"Alert distance":0}		

4 Simulations running

WOKWI LINK:

https://wokwi.com/projects/347026184010203732