

## Q1 :

```
int Trig = 5 ;
int Echo = 6 ;
double Duration , Distance ;
void setup() {
    // put your setup code here, to run once:
    pinMode(Trig , OUTPUT);
    pinMode(Echo , INPUT);
    Serial.begin(9600);

}

void loop() {
    // put your main code here, to run repeatedly:
    digitalWrite(Trig , LOW);
    delayMicroseconds (2);
    digitalWrite (Trig , HIGH);
    delayMicroseconds (10);
    digitalWrite (Trig , LOW);
    Duration = pulseIn (Echo , HIGH);
    Distance = Duration * (0.0343 / 2);
    Serial.print("Distance :");
    Serial.print(Distance);
    Serial.println(" cm");
    delay(500);

}
```

## Q2 :

```
int led_red = 3;
int led_yellow = 2;
int led_green = 4;
int led_white = 5;
int trig = 6;
int echo = 7;
double duration, distance;
void setup() {
    pinMode(led_red, OUTPUT);
    pinMode(led_yellow, OUTPUT);
    pinMode(led_green, OUTPUT);
    pinMode(led_white, OUTPUT);
    pinMode(trig, OUTPUT);
    pinMode(echo, INPUT);
    Serial.begin(9600);
}
void loop() {
    digitalWrite(trig, LOW);
    delayMicroseconds(2);
    digitalWrite(trig, HIGH);
    delayMicroseconds(10);
    digitalWrite(trig, LOW);
    duration = pulseIn(echo, HIGH);
    distance = duration * 0.0343 / 2;
    Serial.print("Distance: ");
    Serial.print(distance);
    Serial.println(" cm");
    digitalWrite(led_red, LOW);
```

```

digitalWrite(led_yellow, LOW);
digitalWrite(led_green, LOW);
digitalWrite(led_white, LOW);
if (distance > 0 && distance < 5) {
    digitalWrite(led_yellow, HIGH);
} else if (distance >= 5 && distance < 10) {
    digitalWrite(led_red, HIGH);
} else if (distance >= 10 && distance < 20) {
    digitalWrite(led_green, HIGH);
} else if (distance >= 20) {
    digitalWrite(led_white, HIGH);
}
delay(100);
}

```

### Q3 :

```

int led_red = 3 ;
int led_green = 4 ;
int buzzer = 2 ;
int trig = 6 ;
int echo = 7 ;
double duration , distance ;
void setup() {
    // put your setup code here, to run once:
    pinMode(led_red , OUTPUT);
    pinMode(led_green , OUTPUT);
    pinMode(buzzer , OUTPUT);
    pinMode(trig , OUTPUT);
    pinMode(echo , INPUT);
}
void loop() {
    // put your main code here, to run repeatedly:
    digitalWrite(trig, LOW);
    delayMicroseconds(2);
    digitalWrite(trig, HIGH);
    delayMicroseconds(10);
    digitalWrite(trig, LOW);
    duration = pulseIn (echo , HIGH);
    distance = duration * (0.0343 / 2);
    digitalWrite (led_red , LOW);
    digitalWrite (led_green , LOW);
    digitalWrite (buzzer , LOW);
    if (distance > 0 && distance < 10 ){
        digitalWrite (led_red , HIGH);
        digitalWrite (buzzer , HIGH);
        delay(1000);
    }
    else if (distance >= 10 ){
        digitalWrite (led_green , HIGH);
    }
    delay(500);
}

```

### Q4 :

```

int led_red = 3;
int led_green = 4;
int led_yellow = 5;
int buzzer = 2;

```

```
char reading ;  
  
void setup() {  
    // put your setup code here, to run once:  
    pinMode(led_red, OUTPUT);  
    pinMode(led_green, OUTPUT);  
    pinMode(led_yellow, OUTPUT);  
    pinMode(buzzer, OUTPUT);  
    Serial.begin(9600);  
    Serial.println("Enter your Char: ");  
}  
  
void loop() {  
    // put your main code here, to run repeatedly:  
    if (Serial.available() > 0){  
        reading = Serial.read();  
    }  
    digitalWrite(led_red, LOW);  
    digitalWrite(led_green, LOW);  
    digitalWrite(led_yellow, LOW);  
    digitalWrite(buzzer, LOW);  
    switch (reading){  
        case 'r':  
            digitalWrite (led_red , HIGH);  
            break ;  
        case 'g':  
            digitalWrite (led_green , HIGH);  
            break ;  
        case 'y':  
            digitalWrite (led_yellow , HIGH);  
            break ;  
        case 'z':  
            digitalWrite (buzzer , HIGH);  
            delay(2000);  
            digitalWrite (buzzer , LOW);  
            break ;  
        default:  
            Serial.println("Error Input");  
            break;  
    }  
}  
}
```