Assignment -1
Thinkercad Programming

Assignment Date	19 September 2022
Student Name	Ms. SNEHA
Student Roll Number	AC19UCS123
Maximum Marks	2 Marks

Question-1:

Assignment: Make a smart home with 2-3 sensors, LED , Buzzer. in single code and connections. submit it in the platform, any doubts ask in chat with mentor option

Solution:

```
#include <SPI.h>
#include <Wire.h>

#include <IRremote.h>

const int relay_1 = 12;
const int relay_2 = 11;
const int relay_3 = 10;
const int relay_4 = 9;


const int mswitch_1 = 8;
const int mswitch_2 = 7;
const int mswitch_3 = 6;
const int mswitch_4 = 5;

int RECV_PIN = 3;

IRrecv irrecv(RECV_PIN);
decode_results results;


int toggleState_1 = 0;
int toggleState_2 = 0;
int toggleState_3 = 0;
int toggleState_4 = 0;

void setup() {

  Serial.begin(9600);
  irrecv.enableIRIn();

  pinMode(relay_1, OUTPUT);
```

```arduino
  pinMode(relay_2, OUTPUT);
  pinMode(relay_3, OUTPUT);
  pinMode(relay_4, OUTPUT);

  pinMode(mswitch_1, INPUT_PULLUP);
  pinMode(mswitch_2, INPUT_PULLUP);
  pinMode(mswitch_3, INPUT_PULLUP);
  pinMode(mswitch_4, INPUT_PULLUP);
}

void relayOnOff(int relay){

  switch(relay){
    case 1:
        if(toggleState_1 == 0){
         digitalWrite(relay_1, HIGH); // turn on relay 1
         toggleState_1 = 1;
         }
        else{
         digitalWrite(relay_1, LOW); // turn off relay 1
         toggleState_1 = 0;
         }
        delay(100);
    break;
    case 2:
        if(toggleState_2 == 0){
         digitalWrite(relay_2, HIGH); // turn on relay 2
         toggleState_2 = 1;
         }
        else{
         digitalWrite(relay_2, LOW); // turn off relay 2
         toggleState_2 = 0;
         }
        delay(100);
    break;
    case 3:
        if(toggleState_3 == 0){
         digitalWrite(relay_3, HIGH); // turn on relay 3
         toggleState_3 = 1;
         }else{
         digitalWrite(relay_3, LOW); // turn off relay 3
         toggleState_3 = 0;
         }
        delay(100);
    break;
    case 4:
```

```cpp
        if(toggleState_4 == 0){
         digitalWrite(relay_4, HIGH); // turn on relay 4
         toggleState_4 = 1;
         }
        else{
         digitalWrite(relay_4, LOW); // turn off relay 4
         toggleState_4 = 0;
         }
        delay(100);
     break;

     default : break;
     }

}


void loop() {

  if (digitalRead(mswitch_1) == LOW){
    delay(200);
    relayOnOff(1);
  }
  else if (digitalRead(mswitch_2) == LOW){
    delay(200);
    relayOnOff(2);
  }
  else if (digitalRead(mswitch_3) == LOW){
    delay(200);
    relayOnOff(3);
  }
  else if (digitalRead(mswitch_4) == LOW){
    delay(200);
    relayOnOff(4);
  }

   if (irrecv.decode(&results)) {
    switch(results.value){
      case 0xFD08F7:
            relayOnOff(1);
      break;
      case 0xFD8877:
            relayOnOff(2);
      break;
      case 0xFD48B7:
            relayOnOff(3);
```

```
        break;
        case 0xFD28D7:
                relayOnOff(4);
        break;
        default : break;
        }
    irrecv.resume();
    }
}
```



```
1  #include <SPI.h>
2  #include <Wire.h>
3
4  #include <IRremote.h>
5
6  const int relay_1 = 12;
7  const int relay_2 = 11;
8  const int relay_3 = 10;
9  const int relay_4 = 9;
10
11
12  const int mswitch_1 = 8;
13  const int mswitch_2 = 7;
14  const int mswitch_3 = 6;
15  const int mswitch_4 = 5;
16
17  int RECV_PIN = 3;
18
19  IRrecv irrecv(RECV_PIN);
20  decode_results results;
21
22
23  int toggleState_1 = 0;
24  int toggleState_2 = 0;
25  int toggleState_3 = 0;
26  int toggleState_4 = 0;
27
28  void setup() {
29
30      Serial.begin(9600);
31      irrecv.enableIRIn();
32
33      pinMode(relay_1, OUTPUT);
```

Serial Monitor