

Solutions

Solution of Exercise 1

```
1 const int ledPin = 13;
2
3 void setup() {
4   pinMode(ledPin, OUTPUT);
5   Serial.begin(9600);
6 }
7
8 void loop() {
9   if (Serial.available()) {
10    char c = Serial.read();
11    if (c == '1') digitalWrite(ledPin, HIGH);
12    if (c == '0') digitalWrite(ledPin, LOW);
13  }
14 }
```

Solution of Exercise 2

```
1 #include <Wire.h>
2
3 void setup() {
4   Wire.begin();
5   Serial.begin(9600);
6 }
7
8 void loop() {
9   Wire.requestFrom(0x48, 2); // Example I2C address
10  if (Wire.available() == 2) {
11    int temp = Wire.read() << 8 | Wire.read();
12    Serial.println(temp >> 7);
13  }
14  delay(1000);
15 }
16
17 // Security issue: I2C data is transmitted without encryption
```

Solution of Exercise 3

```
1 #include <EEPROM.h>
2
3 const int ledPin = 13;
4 String password = "SEC";
5 String input = "";
6
7 void setup() {
8   pinMode(ledPin, OUTPUT);
```

```

9   Serial.begin(9600);
10
11   char last = EEPROM.read(0);
12   if (last == '1') digitalWrite(ledPin, HIGH);
13 }
14
15 void loop() {
16   if (Serial.available()) {
17     input = Serial.readStringUntil('\n');
18
19     if (input.startsWith(password)) {
20       String cmd = input.substring(3);
21
22       if (cmd == "ON") {
23         digitalWrite(ledPin, HIGH);
24         EEPROM.write(0, '1');
25       }
26       if (cmd == "OFF") {
27         digitalWrite(ledPin, LOW);
28         EEPROM.write(0, '0');
29       }
30     }
31   }
32 }

```