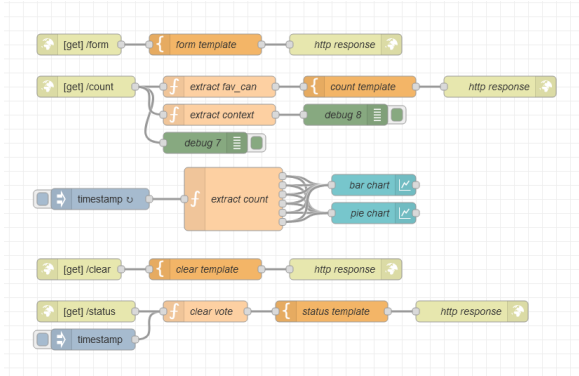


# 物聯網實務期中考

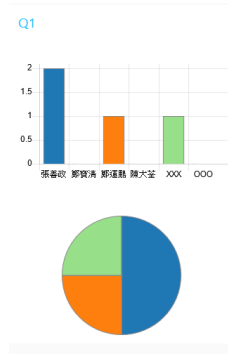
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# Q1 Design a voting system for six candidates and visualize the results on Node-RED dashboard.



(a) flow



(b) dashboard

```

1 <!DOCTYPE html>
2 <html>
3 <body>
4 <h2>Online Voting System</h2>
5 <p>Choose your favorite candidate for Taoyuan mayor:</p>
6 <form action="/count">
7   <input type="radio" id="張善政" name="fav_can" value="張善政">
8   <label for="Simon Chang">張善政(Simon Chang)</label><br>
9   <input type="radio" id="鄭寶清" name="fav_can" value="鄭寶清">
10  <label for="Cheng Pao ching">鄭寶清(Cheng Pao ching)</label><br>
11  <input type="radio" id="鄭運鵬" name="fav_can" value="鄭運鵬">
12  <label for="Cheng Yun peng">鄭運鵬(Cheng Yun peng)</label><br>
13  <input type="radio" id="陳大空" name="fav_can" value="陳大空">
14  <label for="Cheng Yun peng">陳大空(Chen Da chuan)</label><br>
15  <input type="radio" id="XXX" name="fav_can" value="XXX">
16  <label for="XXX">XXX(X X X)</label><br>
17  <input type="radio" id="000" name="fav_can" value="000">
18  <label for="000">000(0 0 0)</label><br>
19  <br>
20  <input type="submit" value="Submit">
21 </form>
22 </body>
23 </html>
  
```

(c) node: form template

```

1 msg.payload = msg.payload.fav_can;
2 return msg;
  
```

(d) node: extract fav\_can

```

1 <!DOCTYPE html>
2 <html>
3 <body>
4 <h2>Online Voting System</h2>
5 <p>You voted for {{payload}} !</p>
6 </body>
7 </html>
  
```

(e) node: count template

```

1 var d1 = 0;
2 var d2 = 0;
3 var d3 = 0;
4 var d4 = 0;
5 var d5 = 0;
6 var d6 = 0;
7
8 var counter1 = context.get('counter1') || 0;
9 var counter2 = context.get('counter2') || 0;
10 var counter3 = context.get('counter3') || 0;
11 var counter4 = context.get('counter4') || 0;
12 var counter5 = context.get('counter5') || 0;
13 var counter6 = context.get('counter6') || 0;
14
15 if(msg.payload.fav_can == "張善政") { d1 = 1; }
16 else if (msg.payload.fav_can == "鄭寶清") { d2 = 1; }
17 else if (msg.payload.fav_can == "鄭運鵬") { d3 = 1; }
18 else if (msg.payload.fav_can == "陳大空") { d4 = 1; }
19 else if (msg.payload.fav_can == "XXX") { d5 = 1; }
20 else { d6 = 1; }
21
22 counter1 = counter1 + d1;
23 counter2 = counter2 + d2;
24 counter3 = counter3 + d3;
25 counter4 = counter4 + d4;
26 counter5 = counter5 + d5;
27 counter6 = counter6 + d6;
28
29 context.set('counter1', counter1);
30 context.set('counter2', counter2);
31 context.set('counter3', counter3);
32 context.set('counter4', counter4);
33 context.set('counter5', counter5);
34 context.set('counter6', counter6);
35
36 global.set('cou1', counter1);
37 global.set('cou2', counter2);
38 global.set('cou3', counter3);
39 global.set('cou4', counter4);
40 global.set('cou5', counter5);
41 global.set('cou6', counter6);
42
43 msg.payload = {
44   'cou1': counter1,
45   'cou2': counter2,
46   'cou3': counter3,
47   'cou4': counter4,
48   'cou5': counter5,
49   'cou6': counter6
50 };
51 return msg;
  
```

(f) node: extract context

```

1 var msg1 = {};
2 var msg2 = {};
3 var msg3 = {};
4 var msg4 = {};
5 var msg5 = {};
6 var msg6 = {};
7
8 msg1.payload = global.get("cou1");
9 msg1.topic = "張善政";
10 msg2.payload = global.get("cou2");
11 msg2.topic = "鄭寶清";
12 msg3.payload = global.get("cou3");
13 msg3.topic = "鄭運鵬";
14 msg4.payload = global.get("cou4");
15 msg4.topic = "陳大空";
16 msg5.payload = global.get("cou5");
17 msg5.topic = "XXX";
18 msg6.payload = global.get("cou6");
19 msg6.topic = "000";
20
21 return [msg1, msg2, msg3, msg4, msg5, msg6];
  
```

(g) node: extract count

```

1 <!DOCTYPE html>
2 <html>
3 <body>
4 <h2>Online Voting System</h2>
5 <p>All voting stats are cleared.</p>
6 <form action="/status"></form>
7 </body>
8 </html>
  
```

(h) node: clear template

```

1 global.set("cou1", 0);
2 global.set("cou2", 0);
3 global.set("cou3", 0);
4 global.set("cou4", 0);
5 global.set("cou5", 0);
6 global.set("cou6", 0);
7 return msg;
  
```

(i) node: clear vote

```

1 <!DOCTYPE html>
2 <html>
3 <body>
4 <h2>Online Voting System</h2>
5 <p>All voting stats are cleared.</p>
6 </body>
7 </html>
  
```

(j) node: status template

Figure 1: Q1.

## Q2 Show the stock market index under trading in a char on Node-RED dashboard.

Stock market data is scrapped from Yahoo - HANG SENG INDEX.

The data scrapped from node "html\_HSI" is later sliced, converted to integers, and combined in node "convert\_number".

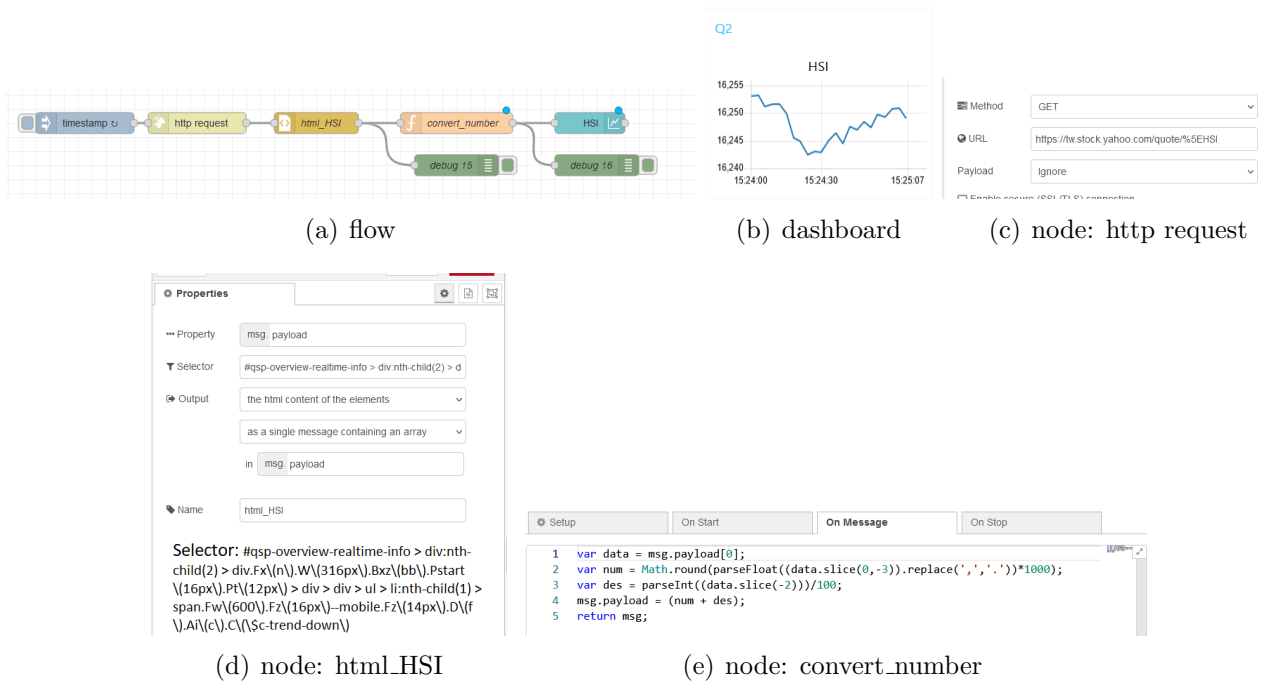


Figure 2: Q2.

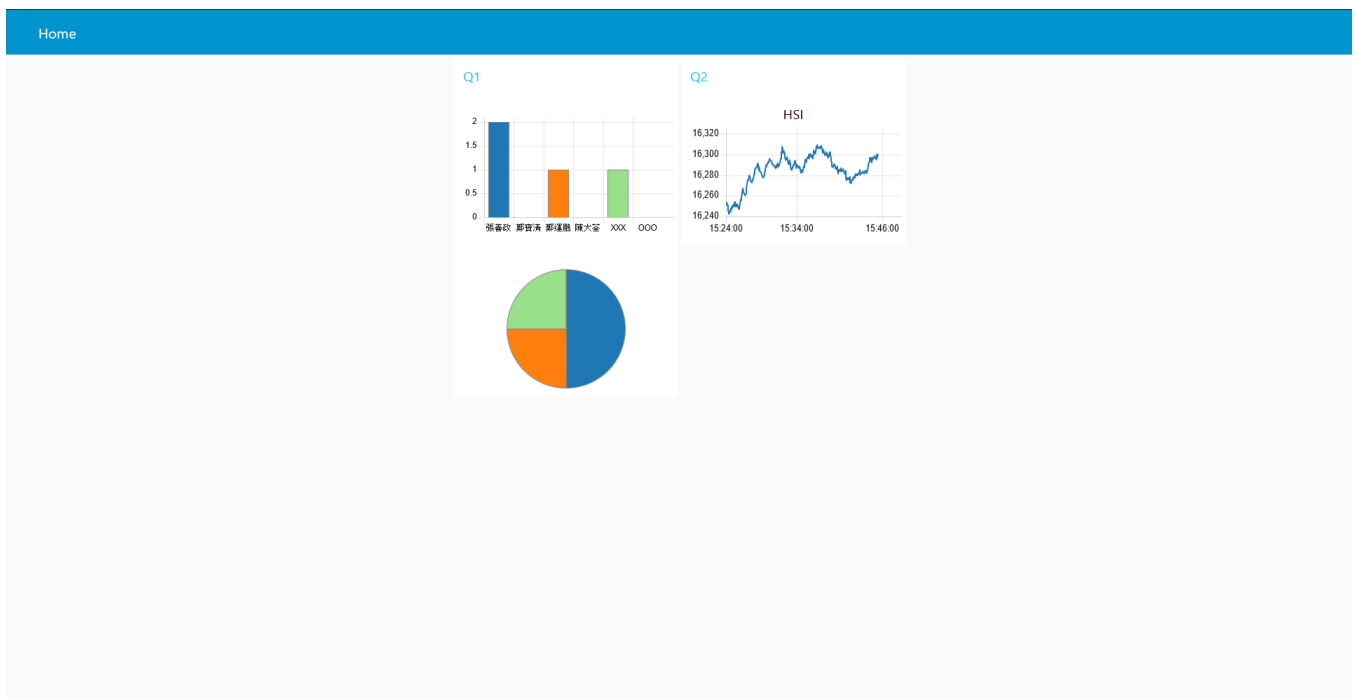


Figure 3: The result of Q1 and Q2 displayed in dashboard.