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| **การสร้าง MQTT Server บน Raspberry Pi เพื่อใช้งาน Chatbot LINE ในฟาร์มอัจฉริยะ**  **Chatbot LINE from Raspberry Pi MQTT Server for Smart Farming** |
| **ขื่อ-สกุล : B6304577 นายภานุพงศ์ แคนอินทร์** |

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| **6/6 - คำถามท้ายบทเพื่อทดสอบความเข้าใจ** |

**Quiz\_301 – Blynk with Node-RED**

* ทดสอบควบคุม 4 LED ด้วย Raspberry Pi ผ่าน Node-RED
* เพิ่มเติมให้ส่งข้อมูล Temperature ไปแสดงที่ Gauge บน Blynk

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| Node-RED Code  [  {  "id": "dffb1502c3eaef6c",  "type": "tab",  "label": "Q301-0101",  "disabled": false,  "info": "",  "env": []  },  {  "id": "e76f6e2313c72d81",  "type": "blynk-iot-in-write",  "z": "dffb1502c3eaef6c",  "name": "",  "pin": "0",  "pin\_all": false,  "client": "ab1d4c09e1839ba9",  "x": 230,  "y": 140,  "wires": [  [  "23ded503dec1d0d4"  ]  ]  },  {  "id": "2aaf67f44c16e9f0",  "type": "blynk-iot-in-write",  "z": "dffb1502c3eaef6c",  "name": "",  "pin": "1",  "pin\_all": 0,  "client": "ab1d4c09e1839ba9",  "x": 230,  "y": 200,  "wires": [  [  "98eb1b7fc15cac1b"  ]  ]  },  {  "id": "b0d1341f3399701c",  "type": "blynk-iot-in-write",  "z": "dffb1502c3eaef6c",  "name": "",  "pin": "2",  "pin\_all": 0,  "client": "ab1d4c09e1839ba9",  "x": 230,  "y": 260,  "wires": [  [  "9aa1f7f09a97fbe0"  ]  ]  },  {  "id": "8f8fe54a60f8704f",  "type": "blynk-iot-in-write",  "z": "dffb1502c3eaef6c",  "name": "",  "pin": "3",  "pin\_all": 0,  "client": "ab1d4c09e1839ba9",  "x": 230,  "y": 320,  "wires": [  [  "a98d8b1201ddb4fc"  ]  ]  },  {  "id": "cebb6018060d7824",  "type": "debug",  "z": "dffb1502c3eaef6c",  "name": "",  "active": true,  "tosidebar": true,  "console": false,  "tostatus": false,  "complete": "false",  "statusVal": "",  "statusType": "auto",  "x": 910,  "y": 380,  "wires": []  },  {  "id": "2267963996589c42",  "type": "blynk-iot-out-write",  "z": "dffb1502c3eaef6c",  "name": "",  "pin": "4",  "pinmode": 0,  "client": "ab1d4c09e1839ba9",  "x": 740,  "y": 600,  "wires": []  },  {  "id": "94700921cadc1a81",  "type": "rpi-dht22",  "z": "dffb1502c3eaef6c",  "name": "",  "topic": "rpi-dht22",  "dht": 22,  "pintype": "0",  "pin": "4",  "x": 300,  "y": 480,  "wires": [  [  "2267963996589c42",  "7f368d2ad74d89d4",  "dda967c453255a84"  ]  ]  },  {  "id": "d2e24577f9ae5d91",  "type": "inject",  "z": "dffb1502c3eaef6c",  "name": "",  "props": [  {  "p": "payload"  },  {  "p": "topic",  "vt": "str"  }  ],  "repeat": "10",  "crontab": "",  "once": false,  "onceDelay": 0.1,  "topic": "",  "payload": "",  "payloadType": "date",  "x": 150,  "y": 480,  "wires": [  [  "94700921cadc1a81"  ]  ]  },  {  "id": "50906e1c5b229ab0",  "type": "blynk-iot-out-write",  "z": "dffb1502c3eaef6c",  "name": "",  "pin": "5",  "pinmode": 0,  "client": "ab1d4c09e1839ba9",  "x": 740,  "y": 540,  "wires": []  },  {  "id": "7f368d2ad74d89d4",  "type": "change",  "z": "dffb1502c3eaef6c",  "name": "",  "rules": [  {  "t": "set",  "p": "payload",  "pt": "msg",  "to": "humidity",  "tot": "msg"  }  ],  "action": "",  "property": "",  "from": "",  "to": "",  "reg": false,  "x": 520,  "y": 480,  "wires": [  [  "50906e1c5b229ab0",  "d91e02b8f04b7ec3"  ]  ]  },  {  "id": "dda967c453255a84",  "type": "function",  "z": "dffb1502c3eaef6c",  "name": "",  "func": "var data = {}\ndata.Tempp = msg.payload;\n\nmsg.payload = data\n\nreturn msg;",  "outputs": 1,  "noerr": 0,  "initialize": "",  "finalize": "",  "libs": [],  "x": 720,  "y": 380,  "wires": [  [  "cebb6018060d7824"  ]  ]  },  {  "id": "d91e02b8f04b7ec3",  "type": "function",  "z": "dffb1502c3eaef6c",  "name": "",  "func": "var data = {}\ndata.Humid = msg.payload;\n\nmsg.payload = data\n\nreturn msg;",  "outputs": 1,  "noerr": 0,  "initialize": "",  "finalize": "",  "libs": [],  "x": 720,  "y": 420,  "wires": [  [  "cebb6018060d7824"  ]  ]  },  {  "id": "23ded503dec1d0d4",  "type": "rpi-gpio out",  "z": "dffb1502c3eaef6c",  "name": "",  "pin": "26",  "set": "",  "level": "0",  "freq": "",  "out": "out",  "bcm": true,  "x": 520,  "y": 140,  "wires": []  },  {  "id": "98eb1b7fc15cac1b",  "type": "rpi-gpio out",  "z": "dffb1502c3eaef6c",  "name": "",  "pin": "19",  "set": "",  "level": "0",  "freq": "",  "out": "out",  "bcm": true,  "x": 520,  "y": 200,  "wires": []  },  {  "id": "9aa1f7f09a97fbe0",  "type": "rpi-gpio out",  "z": "dffb1502c3eaef6c",  "name": "",  "pin": "16",  "set": "",  "level": "0",  "freq": "",  "out": "out",  "bcm": true,  "x": 520,  "y": 260,  "wires": []  },  {  "id": "a98d8b1201ddb4fc",  "type": "rpi-gpio out",  "z": "dffb1502c3eaef6c",  "name": "",  "pin": "20",  "set": "",  "level": "0",  "freq": "",  "out": "out",  "bcm": true,  "x": 520,  "y": 320,  "wires": []  },  {  "id": "ab1d4c09e1839ba9",  "type": "blynk-iot-client",  "name": "",  "path": "blynk.cloud",  "key": "1Bq5LDdI8r\_G-XbkXv44o\_ht0E2iqDH0",  "tmpl": "TMPL6mzpuFkns",  "dbg\_all": false,  "dbg\_log": false,  "dbg\_prop": false,  "dbg\_sync": false,  "dbg\_low": false,  "dbg\_pins": "",  "multi\_cmd": false,  "enabled": true  }  ] |
| Node-RED Flow  A screenshot of a computer  Description automatically generated with medium confidence |
| หน้าจอ Blynk  A screenshot of a phone  Description automatically generated with medium confidence |
| รูปการทดสอบ 1  A picture containing electronics, electronic engineering, cable, electrical wiring  Description automatically generated |
| รูปการทดสอบ 2 |

**Quiz\_302 – MQTT Client with Node-RED**

* ทดสอบควบคุม 4 LED ด้วย Raspberry Pi ผ่าน Node-RED
* เพิ่มเติมให้ส่งข้อมูล Temperature ไปแสดงที่ บน Server

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| Node-RED Code  [  {  "id": "51676f5ae1675c99",  "type": "tab",  "label": "Q302-0101",  "disabled": false,  "info": "",  "env": []  },  {  "id": "ede8af72fbce249f",  "type": "debug",  "z": "51676f5ae1675c99",  "name": "",  "active": true,  "tosidebar": true,  "console": false,  "tostatus": false,  "complete": "false",  "statusVal": "",  "statusType": "auto",  "x": 750,  "y": 40,  "wires": []  },  {  "id": "250656607fc84a6b",  "type": "change",  "z": "51676f5ae1675c99",  "name": "Change: LED1",  "rules": [  {  "t": "change",  "p": "payload",  "pt": "msg",  "from": "OFF1",  "fromt": "str",  "to": "false",  "tot": "bool"  },  {  "t": "change",  "p": "payload",  "pt": "msg",  "from": "ON1",  "fromt": "str",  "to": "true",  "tot": "bool"  }  ],  "action": "",  "property": "",  "from": "",  "to": "",  "reg": false,  "x": 460,  "y": 120,  "wires": [  [  "9f24efe46f80ece3"  ]  ]  },  {  "id": "3ef021806c6b9745",  "type": "inject",  "z": "51676f5ae1675c99",  "name": "ON1",  "props": [  {  "p": "payload"  },  {  "p": "topic",  "vt": "str"  }  ],  "repeat": "",  "crontab": "",  "once": false,  "onceDelay": 0.1,  "topic": "",  "payload": "ON1",  "payloadType": "str",  "x": 230,  "y": 300,  "wires": [  [  "4f81208d4aa232bb"  ]  ]  },  {  "id": "ebb6f203af356f41",  "type": "inject",  "z": "51676f5ae1675c99",  "name": "OFF1",  "props": [  {  "p": "payload"  },  {  "p": "topic",  "vt": "str"  }  ],  "repeat": "",  "crontab": "",  "once": false,  "onceDelay": 0.1,  "topic": "",  "payload": "OFF1",  "payloadType": "str",  "x": 230,  "y": 340,  "wires": [  [  "4f81208d4aa232bb"  ]  ]  },  {  "id": "660c806e35360b3a",  "type": "inject",  "z": "51676f5ae1675c99",  "name": "ON2",  "props": [  {  "p": "payload"  },  {  "p": "topic",  "vt": "str"  }  ],  "repeat": "",  "crontab": "",  "once": false,  "onceDelay": 0.1,  "topic": "",  "payload": "ON2",  "payloadType": "str",  "x": 230,  "y": 400,  "wires": [  [  "4f81208d4aa232bb"  ]  ]  },  {  "id": "b120aaa6f163009a",  "type": "inject",  "z": "51676f5ae1675c99",  "name": "OFF2",  "props": [  {  "p": "payload"  },  {  "p": "topic",  "vt": "str"  }  ],  "repeat": "",  "crontab": "",  "once": false,  "onceDelay": 0.1,  "topic": "",  "payload": "OFF2",  "payloadType": "str",  "x": 230,  "y": 440,  "wires": [  [  "4f81208d4aa232bb"  ]  ]  },  {  "id": "affad71055d20fc9",  "type": "inject",  "z": "51676f5ae1675c99",  "name": "ON3",  "props": [  {  "p": "payload"  },  {  "p": "topic",  "vt": "str"  }  ],  "repeat": "",  "crontab": "",  "once": false,  "onceDelay": 0.1,  "topic": "",  "payload": "ON3",  "payloadType": "str",  "x": 230,  "y": 500,  "wires": [  [  "4f81208d4aa232bb"  ]  ]  },  {  "id": "53898654fded8848",  "type": "inject",  "z": "51676f5ae1675c99",  "name": "OFF3",  "props": [  {  "p": "payload"  },  {  "p": "topic",  "vt": "str"  }  ],  "repeat": "",  "crontab": "",  "once": false,  "onceDelay": 0.1,  "topic": "",  "payload": "OFF3",  "payloadType": "str",  "x": 230,  "y": 540,  "wires": [  [  "4f81208d4aa232bb"  ]  ]  },  {  "id": "cb65d8fe58a56115",  "type": "inject",  "z": "51676f5ae1675c99",  "name": "ON4",  "props": [  {  "p": "payload"  },  {  "p": "topic",  "vt": "str"  }  ],  "repeat": "",  "crontab": "",  "once": false,  "onceDelay": 0.1,  "topic": "",  "payload": "ON4",  "payloadType": "str",  "x": 230,  "y": 600,  "wires": [  [  "4f81208d4aa232bb"  ]  ]  },  {  "id": "90648d0de7b7d03c",  "type": "inject",  "z": "51676f5ae1675c99",  "name": "OFF4",  "props": [  {  "p": "payload"  },  {  "p": "topic",  "vt": "str"  }  ],  "repeat": "",  "crontab": "",  "once": false,  "onceDelay": 0.1,  "topic": "",  "payload": "OFF4",  "payloadType": "str",  "x": 230,  "y": 640,  "wires": [  [  "4f81208d4aa232bb"  ]  ]  },  {  "id": "fc71a41e06c42f96",  "type": "change",  "z": "51676f5ae1675c99",  "name": "Change: LED2",  "rules": [  {  "t": "change",  "p": "payload",  "pt": "msg",  "from": "OFF2",  "fromt": "str",  "to": "false",  "tot": "bool"  },  {  "t": "change",  "p": "payload",  "pt": "msg",  "from": "ON2",  "fromt": "str",  "to": "true",  "tot": "bool"  }  ],  "action": "",  "property": "",  "from": "",  "to": "",  "reg": false,  "x": 460,  "y": 160,  "wires": [  [  "73c248834cd70d73"  ]  ]  },  {  "id": "b33943e6fd663555",  "type": "change",  "z": "51676f5ae1675c99",  "name": "Change: LED3",  "rules": [  {  "t": "change",  "p": "payload",  "pt": "msg",  "from": "OFF3",  "fromt": "str",  "to": "false",  "tot": "bool"  },  {  "t": "change",  "p": "payload",  "pt": "msg",  "from": "ON3",  "fromt": "str",  "to": "true",  "tot": "bool"  }  ],  "action": "",  "property": "",  "from": "",  "to": "",  "reg": false,  "x": 460,  "y": 200,  "wires": [  [  "a7be2b60ab8da531"  ]  ]  },  {  "id": "b01f6765bf25358a",  "type": "change",  "z": "51676f5ae1675c99",  "name": "Change: LED4",  "rules": [  {  "t": "change",  "p": "payload",  "pt": "msg",  "from": "OFF4",  "fromt": "str",  "to": "false",  "tot": "bool"  },  {  "t": "change",  "p": "payload",  "pt": "msg",  "from": "ON4",  "fromt": "str",  "to": "true",  "tot": "bool"  }  ],  "action": "",  "property": "",  "from": "",  "to": "",  "reg": false,  "x": 460,  "y": 240,  "wires": [  [  "f72f99cf183ec4fb"  ]  ]  },  {  "id": "c82886c94c3c8693",  "type": "inject",  "z": "51676f5ae1675c99",  "name": "",  "props": [  {  "p": "payload"  },  {  "p": "topic",  "vt": "str"  }  ],  "repeat": "60",  "crontab": "",  "once": false,  "onceDelay": 0.1,  "topic": "",  "payload": "",  "payloadType": "date",  "x": 210,  "y": 720,  "wires": [  [  "31a5cb37583fb4c3"  ]  ]  },  {  "id": "31a5cb37583fb4c3",  "type": "rpi-dht22",  "z": "51676f5ae1675c99",  "name": "",  "topic": "rpi-dht22",  "dht": 22,  "pintype": 1,  "pin": "32",  "x": 380,  "y": 720,  "wires": [  [  "891f6a710fa6a730"  ]  ]  },  {  "id": "891f6a710fa6a730",  "type": "function",  "z": "51676f5ae1675c99",  "name": "",  "func": "var data = {};\ndata.Tempp = msg.payload;\ndata.Humid = msg.humidity;\nmsg.payload = data;\nreturn msg;",  "outputs": 1,  "noerr": 0,  "initialize": "",  "finalize": "",  "libs": [],  "x": 540,  "y": 720,  "wires": [  [  "4f81208d4aa232bb"  ]  ]  },  {  "id": "d25587a16e46fe2c",  "type": "mqtt in",  "z": "51676f5ae1675c99",  "name": "",  "topic": "control/leds",  "qos": "2",  "datatype": "auto-detect",  "broker": "f87103da3a72f890",  "nl": false,  "rap": true,  "rh": 0,  "inputs": 0,  "x": 150,  "y": 40,  "wires": [  [  "ede8af72fbce249f",  "250656607fc84a6b",  "fc71a41e06c42f96",  "b33943e6fd663555",  "b01f6765bf25358a"  ]  ]  },  {  "id": "4f81208d4aa232bb",  "type": "mqtt out",  "z": "51676f5ae1675c99",  "name": "",  "topic": "control/leds",  "qos": "0",  "retain": "true",  "respTopic": "",  "contentType": "",  "userProps": "",  "correl": "",  "expiry": "",  "broker": "f87103da3a72f890",  "x": 750,  "y": 460,  "wires": []  },  {  "id": "9f24efe46f80ece3",  "type": "rpi-gpio out",  "z": "51676f5ae1675c99",  "name": "",  "pin": "26",  "set": "",  "level": "0",  "freq": "",  "out": "out",  "bcm": true,  "x": 740,  "y": 120,  "wires": []  },  {  "id": "73c248834cd70d73",  "type": "rpi-gpio out",  "z": "51676f5ae1675c99",  "name": "",  "pin": "19",  "set": "",  "level": "0",  "freq": "",  "out": "out",  "bcm": true,  "x": 740,  "y": 160,  "wires": []  },  {  "id": "a7be2b60ab8da531",  "type": "rpi-gpio out",  "z": "51676f5ae1675c99",  "name": "",  "pin": "16",  "set": "",  "level": "0",  "freq": "",  "out": "out",  "bcm": true,  "x": 740,  "y": 200,  "wires": []  },  {  "id": "f72f99cf183ec4fb",  "type": "rpi-gpio out",  "z": "51676f5ae1675c99",  "name": "",  "pin": "20",  "set": "",  "level": "0",  "freq": "",  "out": "out",  "bcm": true,  "x": 740,  "y": 240,  "wires": []  },  {  "id": "f87103da3a72f890",  "type": "mqtt-broker",  "name": "MQTT",  "broker": "mqtt.eclipseprojects.io",  "port": "1883",  "clientid": "",  "autoConnect": true,  "usetls": false,  "protocolVersion": "4",  "keepalive": "60",  "cleansession": true,  "birthTopic": "",  "birthQos": "0",  "birthPayload": "",  "birthMsg": {},  "closeTopic": "",  "closeQos": "0",  "closePayload": "",  "closeMsg": {},  "willTopic": "",  "willQos": "0",  "willPayload": "",  "willMsg": {},  "sessionExpiry": ""  }  ] |
| Node-RED Flow  A screenshot of a computer  Description automatically generated with medium confidence |
| หน้าจอ MQTT Lens  A screenshot of a chat  Description automatically generated |
| รูปการทดสอบ 1  A picture containing electronics, electronic engineering, cable, electrical wiring  Description automatically generated |
| รูปการทดสอบ 2 |

**Quiz\_303 – MQTT Server on Raspberry Pi**

* ทดสอบควบคุม 4 LED ด้วย Raspberry Pi ผ่าน Node-RED ไปยัง private server
* เพิ่มเติมให้ส่งข้อมูล Temperature ไปแสดงที่ บน private Server

|  |
| --- |
| Client ID: myhome Server: 192.168.0.31 Port: 1883 User Name: mymqtt Password: mymqtt |
| **โปรแกรมที่ใช้ทดสอบ** |
| **รูปถ่ายหน้า Web Broswer** |
| **รูปการทดสอบ 1** |
| **รูปการทดสอบ 2** |