Production Supporting Systems in Factories

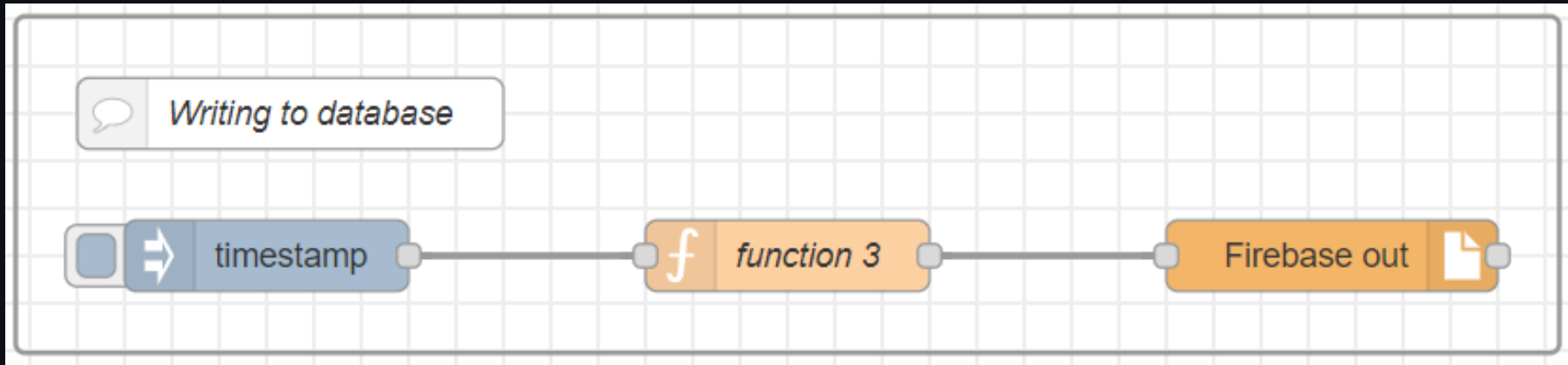## ระบบสนับสนุนการผลิตในโรงงานอุตสาหกรรม

Cloud database

Setup `node-red`

- `pnpm install node-red-contrib-cloud-firestore`

Setup database

- Go to Google Firebase.

- Create new project.

- Create `firestore database`.

- Obtain a service-account `json`.

M6-1: Writing to database

function node

```
const timestamp = new Date().getTime();
const value = Math.random();
msg.payload = {
  value: value,
  timestamp: timestamp,
};
return msg;
```

`firebase out` **node**

- Input service account data.

Edit Firestore out node > **Edit firebase admin node**

Delete   Cancel   Update

⚙ **Properties**   ⚙   📄

Provide contents of the service account file

🏷 Name   Prodsup

🏷 Service   {
Account Json   "type": "service_account",
                   "project_id": "prodsup-lecture",
                   "private_key_id":
                  "4c1169aabd63227e44efff14348bcff63a9227aa",
                   "private_key": "-----BEGIN PRIVATE KEY-----
                  \nMIIEvwIBADANBgkqhkiG9w0BAQEFAASCBKk
                  wggSlAgEAAoIBAQDm1BHg7r3kBVf9\nQ4QViZh
                  285EtVYB0tnLpQMy+67RHmgl//wF4tQ2W8vcrW
                  HWT9Vku5SXNdFsGJQOS\nR0oW72SwjHx+5Z9
                  PBNFQXe/qvAZycmhjxx57kRNmPiP+5MKtCps5
                  OuEHjQxZhGA9\nTrsyET6kG/J45x5VsQJD+qe2x
                  4lirwSI7wboAuWCSFptLpr5gMS6i6TAQkpP4Lso\
                  nSyPuI+tXK9vYSNPpGA55JU65M26ZxckVoyJv+
                  xibGkMspLqlODiYKLUnbiApq1d4\n4zt1n6feGOs

- Operation: `Add`
- Collection: `data`

Edit Firestore out node

Delete

Cancel

Done

⚙ **Properties**

⚙ Admin   Prodsup

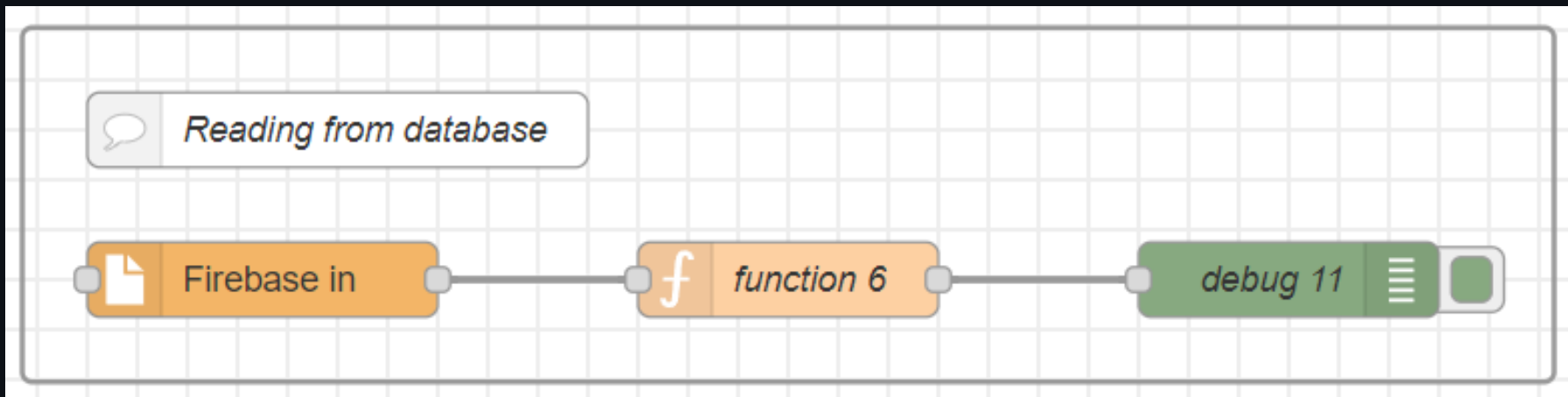🏷 Node Name   Firebase out

🔧 Operation   Add

🗄 Collection   data

📄 Document   document ref

▸ ❗ Expert zone

M6-2: Reading from database

`firestore out` **node**

- Collection: `data`

- Realtime: `enabled`

- Query
  - OrderBy: `timestamp`
    - Direction: `descending`
  - Limit: `5`

Edit Firestore in node

Delete   Cancel   Done

⚙ Properties

Admin	Prodsup
Node Name	Firebase in
Collection	data
Document	doc name

⚡ Realtime   ☑

⇅ Group   ☐

🔍 Query

Method	Arguments
orderBy	timestamp
direction	Descending
limit	5

`function` node

```javascript
let payload = msg.payload;
let textOut = "";

for (const [key, value] of Object.entries(payload)) {
  const _date = value?.timestamp ? new Date(value.timestamp) : new Date();
  let reading = value.value;
  if (parseFloat(value.value)) {
    reading = parseFloat(value.value).toFixed(2);
  }
  const datestring = _date.toLocaleDateString();
  const timestring = _date.toLocaleTimeString();
  textOut += `📅${datestring} ⏰${timestring} ✏️${reading}<br/>`;
}

msg.payload = textOut;
return msg;
```