Household Internet of Things app Database Design

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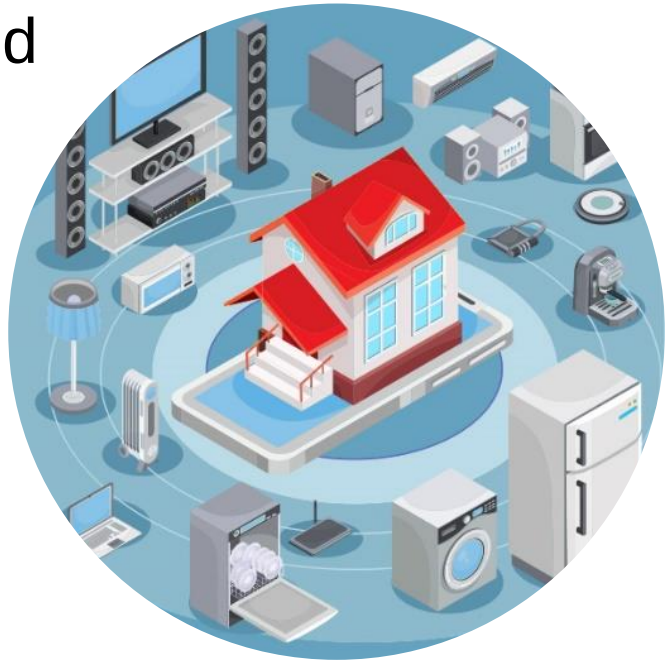
1. The Household IoT app

Business function

1. Store **relational data** such as users, addresses and smart devices
2. Collect a large amount of data through various **smart devices** in the house
3. Provide personalized services for the users
4. Realize home automation and smart homes



1. The Household IoT app

Application examples

- analyze and improve indoor environment quality
  - predict the electricity consumption
    - intelligently adjust the brightness of indoor lighting

Main Use Case

1. Establish the **React Program** to improve indoor environmental quality
2. Generate **environmental quality reports** for users through data analysis.

2. The choice of databases

Characteristics of data

Data collected by smart device:

- **Huge amount**
- **Multi-source heterogeneous**
- **Spatial and temporal correlation**

Data between users, addresses and devices:

- **Multi-row transactions**
- **Complex joins**
- **Highly relational and structured**

2. The choice of databases

Why MongoDB

1. The RDBMS is not suitable for multi-source heterogeneous data
2. MongoDB supports storage and query of **huge amounts** of data (Master/Slave mode, replica-set mode, and **sharding technology**)
3. MongoDB supports the storage of **spatial and temporal correlation** data (the time series model)
4. MongoDB supports the storage of **multi-source heterogeneous** data (allowing variations in the structure of documents; allowing storage of documents that are partially complete; can have others embedded in it.)

2. The choice of databases

Why RDMBS

1. MongoDB does not support transactions
2. SQLite supports requiring a large number of **atomically complex transactions**
3. SQLite can create reliable database structures by using tables
4. SQLite ensures **consistency** of the data and enables complex queries through JOIN.
5. **Data redundancy** can be reduced through normal forms in RDBMS.

3. Code Demo

THANK YOU

For

LISTENING

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