

ຫວັງຈາກ Relational Database

- ↳ ແກ້ໄຂໂຄງການໃຫຍ່ໂຄງການ ຖໍມາໃນ table ສິ່ງ
- ↳ ດາວໂຫຼວງໃຫຍ່ໃຫ້ມາໃຫຍ່ Database ພົບຂອງ
- ↳ ເປັນໃຫຍ່ໂຄງການ. ໃຫ້ມາໃຫຍ່ເປັນໃຫຍ່ຂອງ table
- ↳ ສັນ export ໂທ: Import data ໃຫ້ມາໃຫຍ່ໂຄງການຂອງຕົວ
- ↳ ມີມາໃຫຍ່ໂຄງການ
- ↳ ໂດຍ ACID compliant, ສົດໃຫຍ່ໂຄງການຂອງຕົວ
- ມານີ້ໃຫຍ່ໃຫ້ມາໃຫຍ່ database transaction

Use cases for RDBMS:

- ↳ OLTP application
 - ຜູ້ໃຊ້ໃຫຍ່ເກມນະຫຼາຍານ transaction ກ່ອງໃຫ້ມີຜູ້
 - ໂດຍສູງໃໝ່ໃຫຍ່ໃຫ້ມາໃຫຍ່
 - ທຳມະນຸດໃຫຍ່
- ↳ Data Warehouses
 - ໄດ້ມານີ້ໃຫຍ່ໃຫ້ມາໃຫຍ່ OLAP
- ↳ IoT solutions
 - ໄດ້ມານີ້ໃຫຍ່ໃຫ້ມາໃຫຍ່ collect data
 - ນັບມານີ້ໃຫຍ່ data ສິ່ງ edge devices

Limitations of RDBMS:

- ມີມາໃຫຍ່ໃຫ້ມາໃຫຍ່ semi-structure ແລະ unstructured data
- ມີມາໃຫຍ່ໃຫ້ມາໃຫຍ່ table ມີມາໃຫຍ່ schema ແລະ data type
- ຖໍມາໃຫຍ່ໃຫ້ມາໃຫຍ່ data ລົງທະບຽນ ມານີ້ໃຫຍ່ໃຫ້ມາໃຫຍ່

1.2 Non-Relational Database ແລະ Non SQL ແລະ NoSQL

- ↳ ພົບຂອງ non-relational ສິ່ງທີ່ມີ schema ຮ່ວມມືນກັບ data storage ແລະ ມີມາໃຫຍ່
- ↳ ຢຸ່ມມືນມີ model ຕ່າງໆກັບ
- ↳ ໃຊ SQL ລົງທະບຽນ ມາ: document, row, column ໃຫຼື

Key-Value Store:

Key-Value model ມີມາໃຫຍ່ໃຫ້ມາໃຫຍ່ ໃຊ 4 ປະເພດ

- | | |
|--|---|
| • Data in a key-value database is stored as a collection of key-value pairs. | • Both keys and values can be anything from simple integers or strings to complex JSON documents. |
| • A key represents an attribute of the data and is a unique identifier. | • Great for storing user session data, user preferences, real-time recommendations, targeted advertising, in-memory data caching. |

Joining:

- Query data on specific data value
- Need relationships between data values
- Need multiple unique keys

Document-Based:

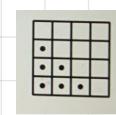
- ↳ Document Database ມີມາໃຫຍ່ record ແລະ ແລະ ຕ່າງໆ data ຈຶ່ງມີ document ມາ
- ↳ ສົດໃຫຍ່ໃຫ້ມາໃຫຍ່ Index ລົງທະບຽນ, ພົບມືນ
- Preferred for eCommerce platforms, medical records storage, CRM platforms, and analytics platforms.

Not a great fit if you want to:

- Run complex search queries
- Perform multi-operation transactions

Column-Based:

- ↳ Data ພົບມາໃຫຍ່ໃຫ້ມາໃຫຍ່ cell ມານີ້ໃຫ້ມາໃຫຍ່ column ໃຫ້ມາໃຫຍ່ row
- ↳ column ມີມາໃຫຍ່ໃຫ້ມາໃຫຍ່ logical ແລະ column family
- ↳



- ↳ Cell ພົບມາໃຫຍ່ column ມີມາໃຫຍ່ໃຫ້ມາໃຫຍ່
- ↳ Run ພົບມາໃຫຍ່ໃຫ້ມາໃຫຍ່ heavy write request
- ↳ ມານີ້ໃຫ້ມາໃຫຍ່ data ມີ time-series, ອົງການລົງທະບຽນ

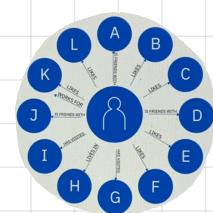
IoT data

Not a great fit if you want to:

- Run complex queries
- Change querying patterns frequently

Graph-based:

- ↳ Database ມີມາໃຫຍ່ໃຫ້ມາໃຫຍ່ Graph model ມີມາໃຫຍ່ໃຫ້ມາໃຫຍ່
- ↳ ຖໍມາໃຫຍ່ໃຫ້ມາໃຫຍ່ ຖໍມາໃຫຍ່ໃຫ້ມາໃຫຍ່
- ↳ ຖໍມາໃຫຍ່ໃຫ້ມາໃຫຍ່ ຖໍມາໃຫຍ່ໃຫ້ມາໃຫຍ່



ມີມາໃຫຍ່ໃຫ້ມາໃຫຍ່ data ກ່ອງເບີນໂນ



- Not a great fit if you want to:
- Process high volumes of transactions

Relational databases	Non-Relational databases
<ul style="list-style-type: none"> • RDBMS schemas rigidly define how all data inserted into the database must be typed and composed • Maintaining high-end, commercial relational database management systems can be expensive • Support ACID-compliance, which ensures reliability of transactions and crash recovery • A mature and well-documented technology, which means the risks are more or less predictable 	<ul style="list-style-type: none"> • NoSQL databases can be schema-agnostic, allowing unstructured and semi-structured data to be stored and manipulated • Specifically designed for low-cost commodity hardware • Most NoSQL databases are not ACID compliant • A relatively newer technology

ຫວັງຈາກ NoSQL

- ↳ ສົດໃຫຍ່ໃຫ້ມາໃຫຍ່ ພົບມາໃຫຍ່ data ມີມາໃຫຍ່ ຖໍມາໃຫຍ່
- structured, semi-structured, ແລະ unstructured data
- ↳ ພົບມາໃຫຍ່ໃຫ້ມາໃຫຍ່ distributed system
- ↳ ສົດໃຫຍ່ໃຫ້ມາໃຫຍ່ ທີ່ຕົວທີ່ກົດໄວ້
- ↳ ສົດໃຫຍ່ໃຫ້ມາໃຫຍ່ ພົບມາໃຫຍ່ ພົບມາໃຫຍ່ ພົບມາໃຫຍ່
- ພົບມາໃຫຍ່ໃຫ້ມາໃຫຍ່ ພົບມາໃຫຍ່ ພົບມາໃຫຍ່ ພົບມາໃຫຍ່

Data Mining Repositories

Store data for :

- Reporting
- Analysis
- Deriving insight (mining)

↳ ໂດຍມີມາໃຫຍ່ໃຫ້ມາໃຫຍ່ ພົບມາໃຫຍ່ data ແລະ ຂໍ້ມູນກົດໄວ້ ພົບມາໃຫຍ່

↳ There Type data Store ມີ 3 ມານີ້ 1. Data Warehouses 2. Data Marts 3. Data lakes