

DevClub Episode 2: Database System

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BUAA, ACT Lab

- interesting topics
- interview questions collection
- engineering tricks

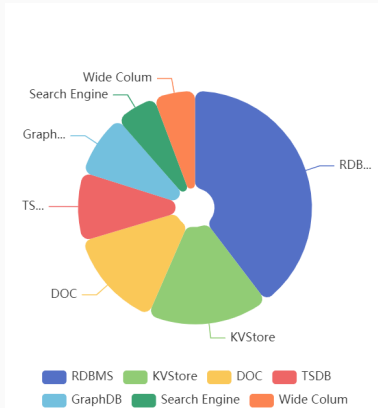
Topics List

- Taxonomy: Two methods
- Foreign Key: to use or not to use
- Index: From B+ Tree
- Primary Key: Continuity and Monotonicity

Topic 1: Taxonomy Methods

The most common taxonomy method is "Data Model"

- Highlighted Model: RDBMS, KVS, Document Store, TSDB, GraphDB, SearchEngines and Wide-Column



Topic 1: Taxonomy Methods

Another method is "Query Model".

- OLTP: design for **transaction** tasks
- OLAP: design for **analytical** tasks

The main differences between these two methods are: how to store data?

ROW & COLUMN ORIENTED			
Draveness			
Row-Oriented		Column-Oriented	
1	draven	engineer	26
2	jeff	engineer	30
3	lamport	engineer	50

Foreign Key: when to use

When you need strict consensus, you can use foreign key.

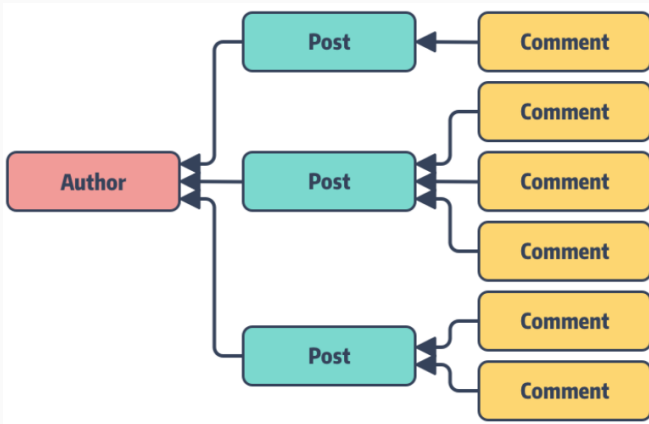
- **Create:** Create xxx only if yyy exists.
- **Delete:** Delete xxx once the yyy is deleted.
- **Update:** Update only the result is meaningful.

Foreign Key: when not to use

When you need extreme performance.

Assuming that you have three tables: author, post and comment.

With foreign key, deleting a author will be dangerous.

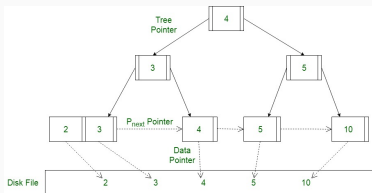
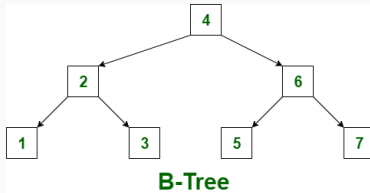


Why the RDBMS not just use the hash table($O(1)$ read and $O(1)$ write)?

Index: From B+ Tree

Because even the OLTP database need to perform analytical task. If we execute some SQL with Where clause, the hash table's complexity will become $O(n)$.

We need B+ tree to achieve consistent $O(\log n)$ complexity.



Database Interview Question Collection

