|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model** | **Atomicity** | **Sharding** | **Indexes** | **Large Number of Collections** | **Collection Contains Large Number of Small Documents** |
| Arrays of Ancestors | yes |  | yes | yes |  |
| Materialized paths |  |  | yes |  | yes |
| Nested sets | yes |  | yes |  |  |

Arrays of Ancestors:

The Array of Ancestors pattern provides a fast and efficient solution to find the descendants and the ancestors of a node by creating an index on the elements of the ancestors field.

his makes Array of Ancestors a good choice for working with subtrees.

the Array of Ancestors pattern is slightly slower than the Materialized Paths pattern but is more straightforward to use.You can create an index on the field ancestors to enable fast search by the ancestors nodes: The query to retrieve the ancestors or path of a node is fast and straightforward:

Materialized Paths:

the pattern also provides more flexibility in working with the path, such as finding nodes by partial paths.Allow to efficient relivent of s cstgoris direct children or subtree

Very flexible Increase performance using index

Nested sets:

The Nested Sets pattern provides a fast and efficient solution for finding subtrees but is inefficient for modifying the tree structure.

As such, this pattern is best for static trees that do not change.