

$\{A,B,C,B\}$
 $\{A,B,A\}$
 $\{A,D,B\}$
 $\{C,B,A\}$
Log

Loading
Indexing

A.	T.	C.
A	0	1
A	1	2
A	2	1
A	3	1
B	0	2
B	1	1
B	2	1
B	3	1
C	0	1
C	1	0
C	2	0
C	3	1
D	0	0
D	1	0
D	2	1
D	3	0

A.	T.	E.	P.	N.
A	0	0	NULL	5
A	1	0	NULL	7
A	1	2	7	NULL
A	2	0	NULL	12
A	3	2	9	NULL
B	0	1	0	10
B	0	3	10	NULL
B	1	1	1	2
B	2	2	12	NULL
B	3	2	11	4
C	0	2	5	6
C	3	0	NULL	9
D	2	1	3	8

Columnar Data-Storage

model-check

model-check

