DBMS II Project Part 1: Data and Scalability

About Response time:

In DBMS refers to the duration or time it takes for a database to respond to a query or request made by a user or application. Response time is influenced by various factors, it can be the complexity of the query, size of the database, or system's hardware, and the level of optimization in the database design. It can be improved by using indexing, query optimization techniques, and efficient data storage structures. Managing response time effectively is crucial for maintaining scalability and ensuring the database can handle high volumes of concurrent transactions without significant delays.

About Benchmark function:

The benchmark function is basically used to measure the performance of an asynchronous operation by calculating the time it takes for the function to execute. It starts by capturing the current time using performance.now() before the function is called. The function is expected to return a promise, and once that promise resolves, the benchmark function captures the end time.

About Csb index:

The csbIndex in the context of IndexedDB which is an index created on the "csb" field of an object store. The method store.createIndex establishes this index, allowing for more efficient queries on the 'csb' property of the objects stored in the database. An index improves query performance by enabling the database to quickly locate records from the database based on the indexed field, rather than having to search through every record in the store.

Weather Data from Excel (with Benchmark)

Choose File   sheet1.xlsx

Benchmark Results:
Time to read from IndexedDB: 615.70 ms
Time to apply ML functions: 0.10 ms
Count: 99999, Average Temperature: 0.00

No file chosen

Elements Console Sources Network Performance Memory Application Security Lighthouse

Storage
 ▸ Local storage
 ▸ Session storage
 ▾ IndexedDB
   ▾ WeatherDB
     ▸ weatherStore
 ▸ Cookies
 ▸ Private state tokens
 ▸ Interest groups
 ▸ Shared storage

WeatherDB
Origin   http://127.0.0.1:5500
Bucket name   default
Is persistent   No
Durability   relaxed
Quota   0 B

Console   What's new
top   Filter   Default levels   No Issues   2 hidden

Weather Data from Excel (with Benchmark)

Choose File   sheet3.xlsx

Benchmark Results:
Time to read from IndexedDB: 582.60 ms
Time to apply ML functions: 2.90 ms
Count: 99999, Average Temperature: 0.00

Elements Console Sources Network Performance Memory Application Security Lighthouse Recorder

Application
 ▫ Manifest
 ▫ Service workers
 ▫ Storage

Storage
 ▸ Local storage
 ▸ Session storage
 ▾ IndexedDB
   ▾ WeatherDB
     ▫ weatherStore
 ▸ Cookies
 ▸ Private state tokens
 ▸ Interest groups
 ▸ Shared storage
 ▫ Cache storage
 ▫ Storage buckets

Background services
 ▫ Back/forward cache
 ▫ Background fetch
 ▫ Background sync
 ▫ Bounce tracking mitigations
 ▫ Notifications
 ▫ Payment handler
 ▫ Periodic background sync
 ▸ Speculative loads
 ▫ Push messaging
 ▫ Reporting API

Frames
 ▸ top

Filter by key (show keys greater or equal to)

#	Key	Value
0	1	▸ {4: 'Sky', 12: 'Altim', 724930: 'DBT', 37.796: 'DPT', -7
1	2	▸ {4: '(C)', 12: '(C)', 724930: 'Mo', CA_OAKLA42-J-LONDON-D
2	3	▸ {4: -8.8, 12: 8.9, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2:
3	4	▸ {4: -7.6, 12: 8.2, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2:
4	5	▸ {4: -8.3, 12: 7.6, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2:
5	6	▸ {4: -7.2, 12: 7.3, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2:
6	7	▸ {4: -6.4, 12: 7, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2: 2
7	8	▸ {4: -6.1, 12: 6.9, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2:
8	9	▸ {4: -6.3, 12: 6.9, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2:
9	10	▸ {4: -7, 12: 7.4, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2: 2
10	11	▸ {4: -7.7, 12: 9.6, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2:
11	12	▸ {4: -7.2, 12: 10.4, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2
12	13	▸ {4: -7.7, 12: 11.4, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2
13	14	▸ {4: -7.7, 12: 13.1, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2
14	15	▸ {4: -8.3, 12: 14.4, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2
15	16	▸ {4: -7.2, 12: 13.3, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2
16	17	▸ {4: -7.3, 12: 12.9, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2
17	18	▸ {4: -8.1, 12: 12.5, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2
18	19	▸ {4: -5, 12: 11, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2: 20
19	20	▸ {4: -6.1, 12: 9.8, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2:
20	21	▸ {4: -4.4, 12: 9.1, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2:
21	22	▸ {4: -2.9, 12: 8.1, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2:
22	23	▸ {4: -2.1, 12: 7, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2: 2
23	24	▸ {4: -2.7, 12: 6.1, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2:
24	25	▸ {4: -1.7, 12: 6.1, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2:
25	26	▸ {4: -2.1, 12: 5.4, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2:
26	27	▸ {4: -1.1, 12: 5.1, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2:
27	28	▸ {4: -1.2, 12: 4.3, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2:
28	29	▸ {4: -1.1, 12: 3.7, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2:
29	30	▸ {4: -1.1, 12: 3.4, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2:
30	31	▸ {4: -1.1, 12: 3, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2: 2
31	32	▸ {4: -1.1, 12: 2.6, 724930: 1, CA_OAKLA42-J-LONDON-SQ-2:

Total entries: 99999 | Key generator value: 100000

Weather Data from Excel (with Benchmark)

Choose File | sheet3.xlsx

Number of Entries: 0
Benchmark Results:
Time to read from IndexedDB (readwrite): 0.20 ms
Time to read from IndexedDB (readonly): 0.00 ms
Time to search for Csb not null: 0.20 ms
Time to store Csb not null entries: 0.10 ms
Time to read from Csb Not Null Store: 0.10 ms
Time to apply ML functions: 0.00 ms
Count: 0, Average Temperature: 0.00
Count of Csb not null entries: 0

No file chosen

Application

Manifest
Service workers
Storage

Storage

Local storage
Session storage
IndexedDB
  WeatherDB
Cookies
Private state tokens
Interest groups
Shared storage
Cache storage
Storage buckets

Background services

Back/forward cache
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Periodic background sync
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Push messaging
Reporting API

Frames

top

WeatherDB

Origin	http://127.0.0.1:5500
Bucket name	default
Is persistent	No
Durability	relaxed
Quota	0 B
Expiration	None
Version	1
Object stores	2

Delete database | Refresh database

Elements | Console | Sources | Network | Performance | Memory | Application | Security

Weather Data with Benchmark

127.0.0.1:5500/Upload.html

Google Chrome isn't your default browser | Set as default